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The City of Calgary

Arena Facilities Study

Phase 1



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EXECUTIVE SUMMARY

The Arena Facilities Study, Phase 1, has been created to provide the City of Calgary (CoC) with a current and a forward-looking perspective on the CoC's 34 city- and partner-operated arena facilities. The data findings and summary presented are based on the facility operators survey, existing building condition assessments (BCAs) or lifecycle reports, and demographic information from the 2016 Census for Calgary Metropolitan Area (CMA). The document findings will be used to support the subsequent phases of study for further data exploration, analysis, and recommendation to the CoC.

City of Calgary Policies, Guidelines, and Studies

This report references and builds on preceding CoC studies, data reports, and research, including the following:

- Recreation Master Plan (2010–2020)
- Calgary Sport for Life Policy (2018)
- Facility Development and Enhancement Study (2016)
- Sport Calgary – Sport Facility Supply and Demand Study Report (2014)
- A Triple Bottom Line Policy Framework (2011)
- A Triple Bottom Line Framework to Quantify Recreation Benefits 2020: City of Calgary Recreation
- City of Calgary Ice Arena Study (2006)
- Community Services Program Policy (2006)
- License of Occupation – Social Recreation Agreement

City of Calgary Arena Profiles

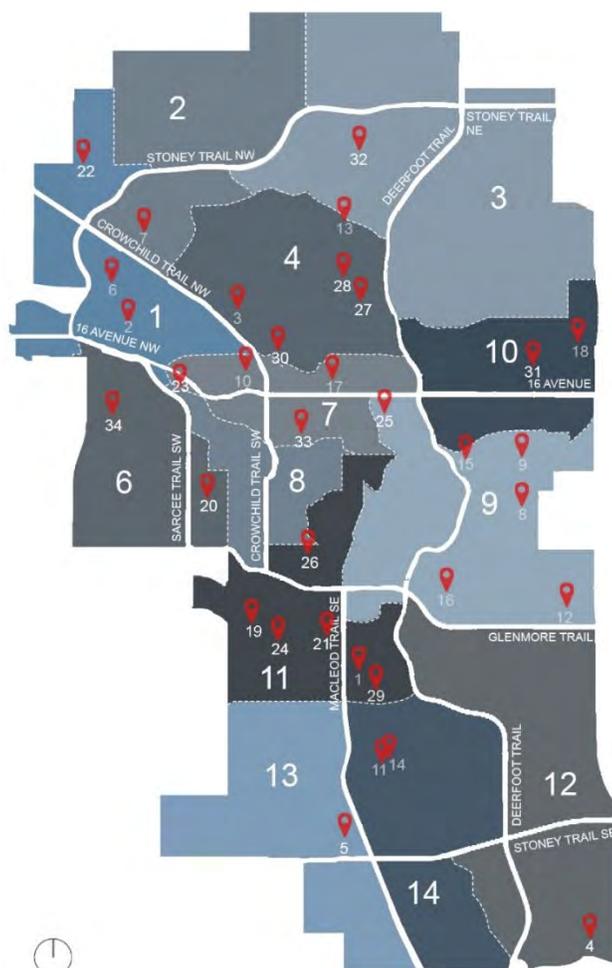
In collaboration with the CoC, Stantec developed the facility operators survey to gather information from partner operators regarding facility operations, services offered, bookings and user data, ice sheets, and finances. Analysis of available background documents and information available through the survey identified key findings and notable provision gaps, including the following:

- The CoC owns and operates 54 ice sheets within 34 facilities, with the majority (i.e. 35 ice sheets within 22 facilities) being partner operated, with an average age of 40 years old.
- The CoC has 16 single-sheet arenas, with the majority constructed between the 1960s and 1980s. Most facilities are at or nearing the end of their expected useful life (i.e. 50 years). These single-sheet arenas are recognized as being significantly more costly to operate than twin arenas.
- The CoC has 17 twin arenas constructed between 1963 and 2018, and one quad complex constructed in 2000.
- The CoC has five new ice sheets built since 2016, which are located at new city recreation centres (e.g. Shane Homes YMCA at Rocky Ridge, Brookfield Residential YMCA at Seton, and Great Plains Recreation Facility) and within the newest suburban communities.
- This report corroborates findings in the 2016 Facility Development and Enhancement Study (FDES), including the fact that rinks are not all regulation size, and spectator and support facilities are generally lacking (e.g. lack of warm seating areas, spaces that accommodate female specific or gender-neutral needs, space for uninvolved siblings, summer programming accommodations, revenue generating opportunities) in most arenas.
- Benchmarking based on the 2016 census population data indicates that the CoC's supply of indoor ice arenas (within city limits) is on par with or better than urban municipalities of similar sizes, at one ice sheet for every 19,363 residents.

- Within the CMA, the provision ratio improves to one in 15,647 and exceeds the FDES guideline standard of one ice rink per population of 32,000.
- COVID-19 lockdowns hampered the availability of data on arena utilization rates and significant gaps remain, but preliminary survey estimates indicate 80% for prime times during weekdays, 32% for non-prime times during weekdays, and 80% on weekends for 17 of the 34 city- and partner-operated facilities that provided complete fill rate information (see Appendix A: Arena Profiles).
- Unlike some other municipalities (e.g. Edmonton-, Vancouver-, and Ontario-based cities), Calgary does not publish a detailed Ice Allocation Policy that identifies a methodology for fair distribution of prime and non-prime ice time or prioritization of group types (e.g. minor sports, city recreation users, boards of education).
- Partner-operated arenas determine scheduling priorities to best suit the interests of the communities they represent. Some sports organizations with long-standing relationships with arenas may have distinct booking advantages over those that do not, and this can impact the public perception of equitable ice distribution.

ARENA NAME

- 1 Acadia Recreation Complex
- 2 Bowness Sportsplex
- 3 Brentwood Sportsplex
- 4 Brookfield Residential YMCA at Seton
- 5 Cardel Rec South
- 6 Crowchild Twin Arena
- 7 Crowfoot Arena
- 8 East Calgary Twin Arena
- 9 Ernie Starr Arena
- 10 Father David Bauer and Norma Bush Arenas
- 11 Frank McCool Arena
- 12 Great Plains Recreation Facility
- 13 Huntington Hills Community Association
- 14 Lake Bonavista Community Association
- 15 Max Bell Centre
- 16 Millican Ogden Community Association, Jack Setters Arena
- 17 Mount Pleasant Sportsplex
- 18 North East Sportsplex, Don Hartman Arena
- 19 Oakridge Community Association
- 20 Optimist and George Blundun Arenas
- 21 Rose Kohn and Jimmie Condon Arenas
- 22 Shane Homes YMCA at Rocky Ridge
- 23 Shouldice Arena
- 24 Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas
- 25 Stew Hendry and Henry Viney Arenas
- 26 Stu Peppard Arena
- 27 Thorncliffe Greenview Community Association, Forbes Innes Arena
- 28 Thornhill Aquatic and Recreation Centre, Murray Copot Arena
- 29 Trico Centre for Family Wellness
- 30 Triwood Community Association
- 31 Village Square Leisure Centre
- 32 Vivo for Healthier Generations
- 33 West Hillhurst Community Association
- 34 Westside Recreation Centre



Facility Assessments

Stantec reviewed existing lifecycle and BCA reports completed through to 2015 for most arenas¹. Brief summaries of findings were compiled to highlight general conditions and identify outstanding deficiencies. Architectural, structural, mechanical, electrical, and life systems in the facilities appear to be performing as intended, but mechanical components are increasingly deficient or no longer code compliant.

City of Calgary Demographic Analysis

Key findings related to an analysis of Calgary demographics include the following:

- Calgary's 2020 population is estimated to be at 1,543,283, and Calgary is the third fastest growing city in Canada at rate of growth of 1.9%. Based on this, the population can be expected to reach between 2,412,275 and 3,237,140 by 2050. If the number of arena facilities remains unchanged, Calgary will not exceed the recommended provision ratio standard of one ice rink per 32,000 residents until after 2050.
- As of 2021, the CoC is the fourth youngest city in the country. As in the rest of Canada, people over the age of 65 will surpass children under the age of 14 by 2033.
- Calgary is the third most ethnically diverse city in Canada, with 33.7% of the population designated Black, Indigenous, and other people of colour (BIPOC) and new Canadians. Indigenous peoples represent 2.84% of the population, with a median age of 28, which is younger than Calgary's overall median age of 37. To ensure underrepresented groups gain fair and affordable access to arena facilities, recommendations include assisting in helping people sign up for programs, creating ways to easily connect to the communities, finding ways to make sports more affordable, educating people on how to play certain sports, and providing support in adapting to new ways of life. For LGBTQ2IAS+, facilities need to encourage sports participation and provide safe and inclusive environments.
- Women and girls disproportionately do not participate in sports and physical activities when compared to boys and men, from early years on. To lessen the gender play gap and promote wellness and long-term health, greater effort must be made to engage with and keep young women in programs and sports.

Ice Sports Participation

Key findings related to ice sports participation include the following:

- Approximately one third (32%) of Calgarians use city recreation facilities for fitness purposes. In terms of sports participation, children's top activities include swimming (41%), soccer (35%), hockey (23%), and ice skating (13%). Based on data provided by the CoC, 14% of the population over the age of 15 play hockey and 22% ice skate.
- Canada's national hockey growth rate from 2008 to 2020 is at 8.4%, with male hockey registration for 2019/2020 in decline at 4.7%, while women's hockey has had a significant increase of enrollment and participation at 31.5%. Other ice sports, such as ringette and ice skating, continue to grow in membership and participation.
- Adaptive sports such as para or sledge hockey continue to grow, and more facilities are being built for inclusive accessibility. As of 2021, there are three city- and partner-operated facilities in Calgary, one outdoor arena, one non-city- or partner- operated arena, and one arena located just outside the city limits that offer adaptive spaces, proper widths of spaces to access ice, dasher board viewing, and barrier-free changerooms. Through the Accessible Canada Act Bill C-81 and Accessible Calgary, removing barriers is a priority to inspire change.

¹ Note: Information was not available for arenas located at Brookfield Residential YMCA at Seton, Cardel Rec South, Shane Homes YMCA at Rocky Ridge, Vivo for Healthier Generations, and Westside Recreation Centre.

Municipal Comparisons

Information has been collected for other arena communities outside of Calgary. Case studies have been selected to highlight the best in current design, community connection, and management of arenas. This information will inform the next stages for the report and support recommendations. An introduction and understanding of arena inventory and usage is noted, as well as how they compare to facilities in other Canadian cities.

Leading Practices and Trends

A look at trends from a social, environmental, and economic perspective is presented to better understand possible outcomes and connect to the community identity, while considering a Triple Bottom Line (TBL) approach. Data from several sources—including the demographic analysis study along with reports by the CoC, Alberta, Canada, and others—were summarized to support facts, policies, and inspirational information.

Future trends indicate that technology advancement will lead in the recreational field. Wearable devices will continue to connect people, apps, and schedules. Apps used within facilities can indicate washroom lineups, allow users to order food, communicate game times ice schedules, and facilitate booking. Facility design will showcase opportunities for art programs, and graphic and brand messaging for the greater good.

Encouragement, inclusion, and diversity statements can be applied to surfaces as means of wayfinding and as art to be appreciated. Recreation facilities could be renovated, or new facilities could be built to incorporate nature into their design; whether through views and natural light, materials, and/or images, the purpose is to encourage health and wellness spaces.

Sustainable outcomes for building design, energy consumption, healthy environments, and waste management are critical considerations for renovation projects and new-build recreational arena facilities. Advancement in ice technologies through Greener Rink Initiatives and CO₂ Rink Management are options available to CoC and operators, a few of which are already early adopters of sustainable practices. Consideration of existing and new building siting and incorporation of facilities into communities are trending, from a holistic and natural ecosystem approach. Multi-functional and adaptive buildings and services are critical considerations for the future of urban life.

Importance of revenue stream is key for the continued maintenance, improvement of services, and upgrades of ice for maximum attraction and participation. Managing aging infrastructure and identification of lifecycle costs will be paramount to offering services while continuing community engagement. Ability to plan for flexibility—whether through multi-purpose spaces, rethinking gathering areas, improving spectator comfort and views, including space for uninvolved siblings, or increase food offerings—will support the future economics of CoC facilities. Considering convertible ice and hybrid ice sheet sizes will support growing trends in sport tourism and event hosting that will ultimately generate revenue for the CoC.

Outcome

The Arena Facilities Study, Phase 1, identifies the current state of arena facilities and gaps in arena programming and allocations, while highlighting social, environmental, and economic trends related to recreation facilities. It clearly defines the demographics of Calgary's arena users, including requirements for diversity and inclusion. Local and international case studies have been provided as references for best practices in sustainability, construction, design, and operations; these best practices will be considered in later phases of the project.

1 INTRODUCTION/PREFACE

1.1 PURPOSE OF DOCUMENT

The purpose of the Arena Facilities Study, Phase 1, is to provide an improved understanding of the arena landscape through analyzing pertinent information and identifying gaps/overlaps to inform the development of frameworks and recommendations for ongoing and future provisions.

The study builds on preceding works including the 2016 Facility Development and Enhancement Study (FDES), Sport for Life Policy (CP2018-03), Sport Calgary Supply and Demand Study Report (2012), the City of Calgary (CoC) Triple Bottom Line (TBL) Policy Framework, and other documents (refer to Section 2.2.4 for further detail).

Phase 1 includes sections 1.1A, 1.1B, and 1.2, with a focus on the current state of city- and partner-operated arenas.

Phases 1.1A and 1.1B

- Consolidate and summarize CoC policies, guidelines, and studies
- Develop Arena Profiles based on available information (e.g. operation, utilization, amenities)
- Summarize the CoC arena landscape through a demographic analysis that considers current population segments and targets, current provisions, catchment areas, and inventory
- Summarize facility condition ratings (based on existing lifecycle reports and building condition assessments [BCAs])

Phase 1.2

- Summarize industry practices and trends
- Summarize municipal comparisons

This document summarizes background information regarding city- and partner-operated facilities. It discusses recreation-related policies and initiatives within the last 15 years that pertain to or impact the local arena landscape. Finally, this

document presents an overview of trends and case studies that can inform future provisions.

1.2 IMPORTANCE OF ARENAS

The benefits of sport participation are well documented. Benefits include physical health, sense of community, family fun, sense of achievement, and opportunities to build leadership qualities. The CoC's recreation facilities strive to provide these benefits to promote quality of life, improve health and wellness, create strong communities, and provide economic benefits and personal fulfillment through recreation, active living, and sport for all. Ice facilities are a key aspect of Calgary's Recreation Master Plan and its Sport for Life Policy, which acknowledges the CoC's ongoing commitment to develop and enhance recreation infrastructure and accommodate sports programming.

In addition to their functional role in facilitating recreational indoor sports (ice and non-ice), sports facilities also have inherent cultural significance. The *Spirit of Alberta: Cultural Policy*² recognizes that Albertans view culture as including both arts and heritage, sport and recreation, and the natural environment. Sports facilities in Canada (including arenas) have become some of the country's most important cultural buildings. Arenas are the sites of some of Canada's most cherished memories, and a vital part of the health and culture of Canadian towns, cities, and regions.

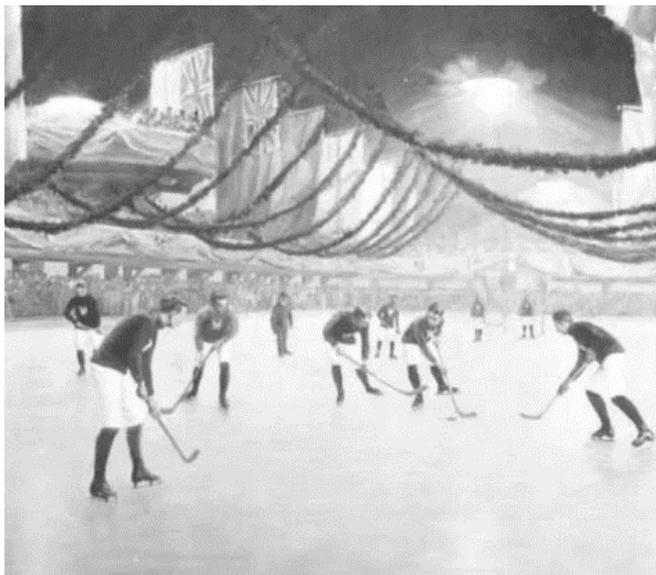
Arenas can support a broad range of recreational and community activities. Adapting to changing trends, uses, and needs is critical to ensure that arenas remain relevant and provide the means for social inclusion, particularly with respect to children, youth, or underserved populations. The role these facilities play in the community can be amplified through upgrades, programs, events, and neighborhood involvement, making them true multi-purpose facilities.

² Government of Alberta, August 2009, <https://open.alberta.ca/publications/4701553>

2 BACKGROUND

2.1 HISTORY OF ICE SPORTS

Ice sports are a defining aspect of Canadian culture, given our long winters and abundance of snowy weather. While snow and cold may slow us down in our daily activities, it is also an undeniable source of pleasure to those who enjoy winter recreational and competitive activities. European winter activities were carried over into Canada, where Canadians came up with innovative interpretations of traditional ideas. As early as the mid-nineteenth century, Canada was leading the world in the development of early skating rinks; the first prepared outdoor commercial rink in the country was opened in Montreal in 1850. It was in Canada that the very first recorded indoor hockey game took place in 1875 at the Victoria Skating Rink,³ setting the foundation for development of the contemporary game.



First Indoor Hockey Game – Victoria Skating Rink, Montreal, 1875⁴

While recreation in Canada has matured in recent years, with higher participation in other seasonal activities than ever, the ethos of Canadian sports is still arguably rooted in ice sports. This is apparent in Canada's continuing success at all levels of development, as well as internationally in hockey, ice skating, curling, and other ice sports. The CoC plays a significant role in that success, with its relatively deep-seated tradition of winter sports. Calgary has hosted nearly thirty international or North American sporting events, most of them having been ice or winter-based sports.⁵

Built in 1962, the Stu Peppard Arena is Calgary's oldest facility. It was named in honour of the founder of the Calgary Junior Hockey League, who was also one of the five founding members of the Calgary Minor Hockey Association. The construction of this arena—along with a few others in the early 1960s—coincided with the desire to expand player development opportunities in Alberta because the Edmonton Oil Kings were the only true Junior-A caliber team in the province and drew most of the top talent that Alberta had to offer. The Stu Peppard Arena consists of one full size ice sheet and a 550-person spectator seating capacity. It underwent minor renovations in 2007, and continues to be a key facility in the CoC's inventory of recreation assets, providing a home to the Junior B, AAA Midget Royals and the Junior A Mountaineer Lacrosse teams.

³ Sports Facilities, the Canadian Encyclopedia, <https://www.thecanadianencyclopedia.ca/en/article/sports-facilities>

⁴ "Hockey Match, Victoria Rink, Montreal, QC, composite, 1893", McCord Museum, 2021, <http://collections.musee-mccord.qc.ca/en/collection/artifacts/II-101415>

⁵ Wikipedia, Notable Sporting Events, https://en.wikipedia.org/wiki/Sport_in_Calgary#Notable_sporting_events

2.2 EXISTING CONDITIONS/OPERATIONS

There are 64 sheets of ice within Calgary's city limits, including privately run arenas, post-secondary institution arenas, and CoC arenas. While the CoC owns and operates 54 ice sheets within 34 facilities, most of those arenas are partner operated by community groups and private organizations.

Existing indoor ice facilities within City boundaries range in amenity, size, location, and age. The oldest existing facilities that are owned and operated by the CoC were built in the 1960s; they include the Stu Peppard Arena (1962), the Father David Bauer and Norma Bush Arenas (1963), the Stew Hendry and Henry Viney Arenas (1966) and the Ernie Starr Arena (1968). The newest City arenas are located at the Shane Homes YMCA at Rocky Ridge (2018), the Great Plains Recreation Facility (2016), and the Brookfield Residential YMCA at Seton (2019).

There are 16 municipal single-sheet arenas, with most of them having been constructed between the 1960s and 1980s; 17 twin arenas that were constructed between the 1960s and 2018; and a quad rink complex at the Cardel Recreation Centre constructed in 2000. The average age of both the CoC's supply and the partner-operated facilities is approximately 40 years old, and many are at or nearing the end of their expected useful life (50 years).

There have been five new ice sheets built in the CoC since 2016, located at new city recreation centres in the newest suburban communities.

Facility assessments were completed for the CoC arenas (see Section 2.2.3 for further detail). One arena built in 1981 (Village Square Leisure Centre) was given a "poor" rating; 20 arenas were rated as "fair", with an average age of 42 years; 11 arenas were rated as "good", with an average age of 42 years; and two arenas were rated as "excellent", with an average age of four years. The total 2020 replacement value of all facilities is approximately \$530.9 million, with an estimated depreciated value of \$106.6 million, or a 20% depreciation.

A preliminary analysis of the current state of CoC arenas helped summarize their current conditions. This was accomplished using survey responses from facility operators, BCAs completed to date, and other available information. Conclusions based on this analysis include the following:

- Eighteen arenas are due for replacement within the next 10 years
- No arenas are operating past their replacement life
- Architectural, structural, mechanical, electrical, and life systems appear to be performing as intended, but mechanical components are reported to be increasingly deficient or no longer code compliant
- At least nine arenas lack warm spectator seating areas (but most have overhead heaters)
- Most arenas are not sledge hockey compatible and do not accommodate sledge hockey locker rooms
- At least eight of the arena locker rooms do not accommodate female-specific or gender-neutral needs, such as increased counter space, more water closet stalls, and private dressing areas
- Only half of arenas have event spaces
- Most arenas have concessions but lack other retail revenue generation opportunities
- Most arenas do not have separate entrances for facilitating establishment of sub-lease spaces for revenue generation
- At least nine arenas are at or nearing capacity and have to turn away bookings
- One third of arenas do not have accommodations for summer programming (whether ice or dry pad); they cannot currently accommodate other sports such as pickleball, floor hockey, and lacrosse

Refer to the below table for a summary of the current states of CoC arenas.

FACILITY CONDITIONS SUMMARY																
#	ARENA NAME	BUILDING CONDITIONS		ACCESSIBILITY			SPECTATING		ARENA USE AND REVENUE GENERATION							
		DUE FOR REPLACE- MENT WITHIN 10 YEARS	NON- COMPLIANT /DEFICIENT MECHANICAL	SLEDGE HOCKEY COMPATIBLE	SLEDGE HOCKEY LOCKER ROOMS	FEMALE OR GENDER- NEUTRAL LOCKER ROOMS	STANDING SPECTATOR VIEWING AREAS	HEATED SPECTATOR SEATING	AT OR NEAR CAPACITY	SUMMER PROGRAMS	EVENT SPACES	CONCESS- IONS	RETAIL	SUB-LEASED SPACES	SEPARATE ENTRANCES FOR SUB- LEASED SPACES	
1	Acadia Recreation Complex	✓	✗	✗	✗	✓	✓	✓	✗	✓	✓	✓	✗	✓	✗	
2	Bowness Sportsplex	✓	✗	✗	✗	✗	✗	✓	✗	✗	✓	✓	✓	✓	✗	
3	Brentwood Sportsplex	✓	✗	✗	✗	✓	✓	✓	✗	✗	✓	✓	✗	✗	✗	
4	Brookfield Residential YMCA at Seton	✗	TBC	✗	✗	✓	✓	✗	✓	✓	✓	✓	✗	✓	✗	
5	Cardel Rec South	✗	TBC	✗	✓	✗	✗	✓	✗	✗	✓	✓	✓	✓	✗	
6	Crowchild Twin Arena	✓	✗	✗	✗	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	
7	Crowfoot Arena	✗	✗	✗	✗	✓	✓	✓	✓	✓	✗	✗	✓	✓	✗	
8	East Calgary Twin Arena	✓	✓	✗	✗	✓	✓	✓	✗	✗	✓	✗	✗	✓	✗	
9	Ernie Starr Arena	✗	✓	✗	✗	✗	✗	✓	TBC	✓	TBC	TBC	TBC	✗	✗	
10	Father David Bauer and Norma Bush Arenas	✓	✓	✗	✗	✓	✓	✓	TBC	✓	✓	✓	✗	✓	✓	
11	Frank McCool Arena	✗	✓	✗	✗	✗	✗	✓	TBC	✗	✗	✗	✗	✗	✗	
12	Great Plains Recreation Facility	✗	✗	✓	✓	✗	✗	✓	✗	✓	✓	✗	✓	✓	✗	
13	Huntington Hills Community Association	✓	✗	✗	✗	✓	✗	✗	✓	✗	✓	✓	✗	✓	✗	
14	Lake Bonavista Community Association	✓	✗	✗	✗	✗	✓	✓	✗	✓	✓	✗	✗	✓	✗	
15	Max Bell Centre	✓	✓	✗	✗	✓	✓	✓	TBC	✓	✗	✓	✓	✓	TBC	
16	Millican Ogden Community Association, Jack Setters Arena	✓	✗	✗	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	
17	Mount Pleasant Sportsplex	✓	✓	✗	✗	✗	✓	✓	✓	✗	✓	✗	✓	✓	✗	
18	North East Sportsplex, Don Hartman Arena	✗	✗	✗	✗	✓	✓	✗	✗	✓	✓	✓	✗	✗	✗	
19	Oakridge Community Association	✓	✗	✗	✗	✓	✗	✓	✗	✓	✓	✓	✗	✓	✗	
20	Optimist and George Blundun Arenas	✗	✓	✗	✗	✓	✓	✓	✗	✗	✓	✓	✗	✓	✓	
21	Rose Kohn and Jimmie Condon Arenas	✓	✓	✗	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	
22	Shane Homes YMCA at Rocky Ridge	✗	TBC	✓	TBC	✓	✓	✗	✓	✓	✗	✓	✗	✓	✗	
23	Shouldice Arena	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	TBC	✗	✗	✗	
24	Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas	✗	✓	✗	✗	✓	✓	✗	TBC	✓	✗	✓	✓	✓	TBC	

FACILITY CONDITIONS SUMMARY															
#	ARENA NAME	BUILDING CONDITIONS		ACCESSIBILITY			SPECTATING		ARENA USE AND REVENUE GENERATION						
		DUE FOR REPLACEMENT WITHIN 10 YEARS	NON-COMPLIANT / DEFICIENT MECHANICAL	SLEDGE HOCKEY COMPATIBLE	SLEDGE HOCKEY LOCKER ROOMS	FEMALE OR GENDER-NEUTRAL LOCKER ROOMS	STANDING SPECTATOR VIEWING AREAS	HEATED SPECTATOR SEATING	AT OR NEAR CAPACITY	SUMMER PROGRAMS	EVENT SPACES	CONCESSIONS	RETAIL	SUB-LEASED SPACES	SEPARATE ENTRANCES FOR SUB-LEASED SPACES
25	Stew Hendry and Henry Viney Arenas	x	✓	x	x	✓	✓	✓	TBC	✓	x	x	✓	x	x
26	Stu Peppard Arena	✓	✓	x	x	✓	✓	✓	x	✓	x	✓	x	✓	x
27	Thornccliffe Greenview Community Association, Forbes Innes Arena	✓	x	x	x	✓	x	✓	x	✓	x	x	x	x	x
28	Thornhill Aquatic and Recreation Centre, Murray Copot Arena	✓	x	x	x	✓	✓	✓	✓	x	x	TBC	x	TBC	TBC
29	Trico Centre for Family Wellness	x	x	x	x	✓	✓	✓	TBC	TBC	✓	✓	x	✓	x
30	Triwood Community Association	✓	✓	x	✓	✓	✓	✓	x	x	x	x	x	x	x
31	Village Square Leisure Centre	x	✓	✓	✓	✓	x	x	TBC	✓	x	✓	x	x	x
32	Vivo for Healthier Generations	x	✓	x	x	✓	✓	✓	x	✓	✓	✓	x	✓	x
33	West Hillhurst Community Association	x	x	x	x	x	✓	✓	x	✓	✓	x	x	✓	✓
34	Westside Recreation Centre	x	TBC	x	TBC	TBC	TBC	TBC	TBC	TBC	x	✓	x	✓	x

2.2.1 NUMBER OF FACILITIES – CITY VS. PARTNER OPERATED

Key research findings and considerations provided a basis for the development of this study. These include the following:

- The CoC operates 34 ice facilities with 54 indoor ice sheets. 22 facilities are partner operated and account for 35 ice sheets.
- Calgary has 64 indoor ice sheets (54 municipal and 10 non-municipal), with a current provision of one sheet for every 19,363 residents. Benchmarking indicates that this is better than comparably sized urban municipalities in Canada within their defined city boundaries. However, when comparing municipal Census Metropolitan Areas (CMAs), Calgary is on par with other regions such as Edmonton and Winnipeg. Regardless, this is significantly better than the acceptable standard of one ice sheet per population of 32,000 residents (as per guidelines described in the 2016 Recreation FDES).
- Calgary lacks a comprehensive municipal Ice Allocation Policy, such as those that have been developed in comparable municipalities including Edmonton, Ottawa, Oshawa, Toronto, Winnipeg, and Vancouver. Currently, it appears that individual arena operators set the scheduling priorities with respect to access to ice time. This can impact the public perception of equitable ice distribution and lead to confusion regarding standards and practices.
- Analysis of utilization data can determine peak time and non-peak time utilization rates, but gaps in available data (a consequence of facility closures/limited operations due to the pandemic situation) currently prevent a comprehensive analysis.

The following table summarizes the number of indoor, publicly accessible ice sheets within Calgary and identifies the arena facilities included in the study (both city- and partner-operated). The Flames, S.A.I.T., University of Calgary, and Winsport arena facilities have also been included in the table as they are publicly accessible. However, these facilities were not included in the study's analysis as they are not operated by the CoC or by partners.

PARTNER- AND CITY-OPERATED ARENA FACILITIES WITHIN THE COC			
#	ARENA NAME	OPERATOR	# ICE SHEETS
CITY-OPERATED FACILITIES			
9	Ernie Starr Arena	Recreation	1
10	Father David Bauer and Norma Bush Arenas	Recreation	2
11	Frank McCool Arena	Recreation	1
15	Max Bell Centre	Recreation	2
20	Optimist and George Blundun Arenas	Recreation	2
21	Rose Kohn and Jimmie Condon Arenas	Recreation	2
23	Shouldice Arena	Recreation	1
24	Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas	Recreation	2
25	Stew Hendry and Henry Viney Arenas	Recreation	2
26	Stu Peppard Arena	Recreation	1
28	Thornhill Aquatic and Recreation Centre, Murray Copot Arena	Recreation	1
31	Village Square Leisure Centre	Recreation	2
TOTAL # CITY-OPERATED FACILITIES			12
TOTAL # CITY-OPERATED ICE SHEETS			19
PARTNER-OPERATED FACILITIES			
1	Acadia Recreation Complex	Acadia Community Association	1
2	Bowness Sportsplex	Bowness Community Association	1
3	Brentwood Sportsplex	Brentwood Community Association	1
4	Brookfield Residential YMCA at Seton	YMCA Calgary	2
5	Cardel Rec South	South Fish Creek Rec Association	4
6	Crowchild Twin Arena	Crowchild Twin Arena Association	2
7	Crowfoot Arena	Crowfoot Minor Hockey Association	1
8	East Calgary Twin Arena	East Calgary Twin Arena Society	2
12	Great Plains Recreation Facility	Calgary Female Sport Development Association	2
13	Huntington Hills Community Association	Huntington Hills Community Association	1
14	Lake Bonavista Community Association	Lake Bonavista Community Association	2
16	Millican Ogden Community Association, Jack Setters Arena	Millican Ogden Community Association	1
17	Mount Pleasant Sportsplex	Mount Pleasant Community Association	1
18	North East Sportsplex, Don Hartman Arena	North East Sportsplex Society	2
19	Oakridge Community Association	Oakridge Community Association	1
22	Shane Homes YMCA at Rocky Ridge	YMCA Calgary	2
27	Thornccliffe Greenview Community Association, Forbes Innes Arena	Thornccliffe Greenview Community Association, Forbes Innes Arena	1
29	Trico Centre for Family Wellness	Family Leisure Centre Association of Southeast Calgary	2
30	Triwood Community Association	Triwood Community Association	1
32	Vivo for Healthier Generations	Nose Creek Sports and Recreation Association	2
33	West Hillhurst Community Association	West Hillhurst Community Association	1
34	Westside Recreation Centre	Westside Regional Recreation Society	2
TOTAL # PARTNER-OPERATED FACILITIES			22
TOTAL # PARTNER-OPERATED ICE SHEETS			35
TOTAL # ARENA FACILITIES			34
TOTAL # ICE SHEETS			54

PARTNER- AND CITY-OPERATED ARENA FACILITIES WITHIN THE COC	
ARENA NAME	OPERATOR
OTHER PUBLICLY ACCESSIBLE FACILITIES	
Flames Community	South West Arena Society
S.A.I.T.	S.A.I.T.
University of Calgary Olympic Oval	University of Calgary
Winsport	Winsport

2.2.2 FACILITY LOCATION AND ACCESS

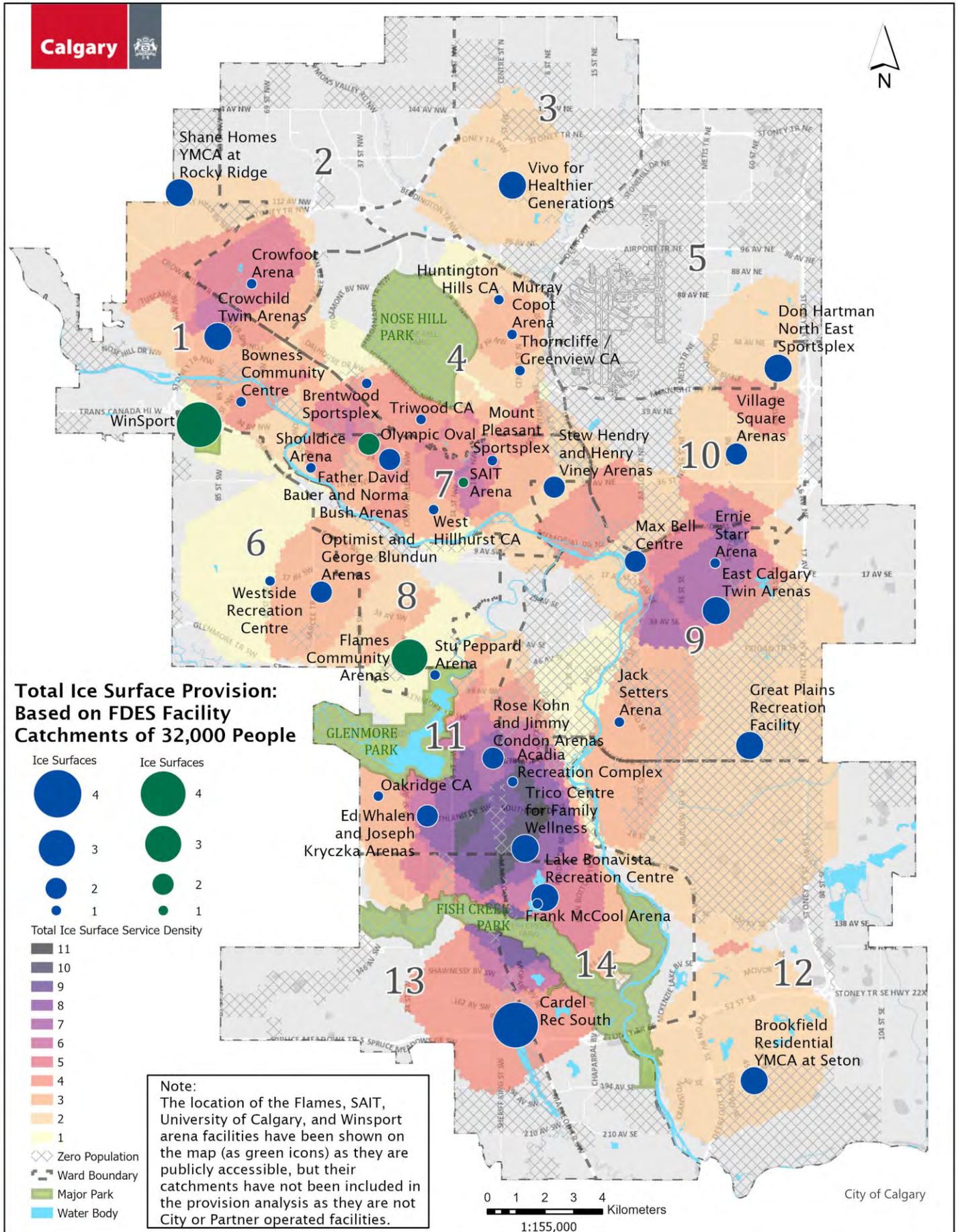
With recent investments in new facilities to serve new and growing communities along the periphery of the city—such as Shane Homes YMCA at Rocky Ridge in the city’s northwest and Great Plains Recreation Facility in the southeast—city-wide access to arena facilities has improved over the past decade. However, not all areas within the city have the same level of access; some communities are served by multiple facilities that are within a short distance of one another, while other communities are underserved. Generally, the CoC’s inventory of arenas appears to be relatively well-positioned geographically to meet the current needs of Calgarians.

Access to arena facilities can be generally grouped into two types; local community access for programmed uses (e.g. learn to skate programs and drop-in uses such as free skates), and regional access for club use and ice sports (e.g. ringette and hockey) where participants expect to travel further for practices, games, and tournaments. The FDES (2016) suggests a standard of one sheet of ice per 32,000 people to meet anticipated demand in the city. When mapped, these catchments of 32,000 people indicate which areas of the city have access to local ice rinks.

The Ice Surface Provision map on page 10 illustrates the location of facilities, the number of ice sheets they contain, and their catchment areas (based on one sheet of ice per 32,000 people). The colours overlapping these catchments reveal which areas of the city have a higher provision or density

of arenas (shown in purple and dark grey), and what areas have a lower provision of arenas and ice sheets (shown in yellow and orange). Areas of the city where population is not included in a facility’s catchment are shown in light grey. It is important to note that while some areas of the city are served by multiple facilities (e.g. areas in the southwest and northwest), some of these facilities are nearing the end of their lifecycle and do not provide more modern amenities (e.g. gender-neutral washrooms or accessible features). In addition, the demographics and needs of communities are changing and must be considered when making future recreation capital investment decisions.

While the location and distribution of facilities are important planning considerations, other factors need be considered when assessing the provision of arena facilities. The unique needs and preferences of communities and their residents should also be incorporated into future capital planning. A demographic analysis conducted for the study (see Appendix D) provides insight into the surrounding catchment areas of arena facilities. The analysis suggests that there is lower demand for arenas in certain communities than others, based on their demographic makeup. For example, with minor hockey and ice skating as the predominant activities determining the viability of arenas, areas with lower percentages of children involved in ice sports would suggest that there is less local demand for an arena. However, it should be noted that the demographic analysis conducted is a snapshot in time and the demographics of communities will change over time.



2.2.3 FACILITY ASSESSMENT

Since 2015, there have been detailed BCAs conducted for most existing CoC arena facilities. These are visual walk-through assessments that include conducting interviews with site representatives, and observing and documenting the existing physical conditions of the property. The assessment identifies actions that are required to account for the current and future anticipated repair or replacement requirements of systems and components. Potential actions include activities to investigate or address observed or reported physical deficiencies, and to repair or replace elements that have already surpassed or are anticipated to achieve their Expected Normal Life (also referred to as Expected Useful Life).

Stantec reviewed each report and compiled brief summaries of the facilities, highlighting their general condition and identifying outstanding deficiencies (refer to Appendix C). In general, architectural, structural, mechanical, electrical, and life systems appear to be performing as intended; however, building components in some facilities were noted to be increasingly deficient or no longer code compliant. The most common components failing refrigeration plant components (e.g. compressors, condenser leaks, water line leaks, ammonia leaks) and inadequate ventilation and discharge systems that were not CSA B52-13 compliant. Other outstanding concerns include elevator systems that are not up to current code (Thornccliffe Greenview Community Association, Forbes Innes Arena; Village Square Leisure Centre).

While BCAs were performed by various consulting groups with individual reporting formats, the work was generally performed in accordance with the CoC's protocols for BCAs, and provided a satisfactory basis for the purposes of this study.

The rating system used for the physical condition of the components/systems observed or reported are described in the adjacent table. The rating system is based on values and definitions established in the 2016 Recreation FDES.

FACILITY CONDITION RATINGS	
CONDITION RATING	DESCRIPTION
CRITICAL	The facility shows signs of extreme deterioration. The facility is at high risk of operational interruption, or the operation is intermittent and/or has significantly diminished performance. There is a high degree of likelihood of an imminent failure, and/or the failure mode has increased severity due to the poor physical condition of key components. Significant investment is required to sustain the facility or should be retired.
POOR	The facility shows signs of deterioration beyond what regular maintenance can manage. There is a high degree of likelihood of failure of key components. Facility operation may be intermittent and/or have diminished performance. Major investment is required in key facility components.
FAIR	The components in the facility shows signs of deterioration due to use; the asset is still functional but there is likely increased risk of failure of major components. Asset operation is still acceptable but may have decreased performance compared to new assets. There is substantial deferred maintenance on the facility.
GOOD	The facility is beginning to show some signs of deterioration due to use but is still in fully operational, "worn-in" condition. No major deferred maintenance on the building.
EXCELLENT	The facility is fully operational, shows no signs of deterioration, and is in "new" or "like new" condition. The facility is at least 10 years away from significant lifecycle investment.

Current Replacement Value (CRV) Calculation Method

Based on the purpose of the report and the intended use of the CRV values, the values were calculated using the RSMeans data web-based software. This included selecting “Calgary” as the location, which then adjusts the dollar values from USD to CAD using the Square Foot Estimator Tool method.

The Square Foot Estimator Tool provides an average square foot cost and CRV based on the following criteria:

- Building type
- Wall/framing type
- Building area
- Building perimeter
- Number of storeys
- Storey height

In addition to the above parameters, the following were also applied in the development of the CRV:

- Labor type
- Release year
- Location factor

The Square Foot Estimator Tool generates a Report which lists the building cost summary and the collection of assembly costs that comprise the building model.

There are other modifications and customizations that can be input using the Square Foot Estimator Tool, but that have been omitted from our CRVs based on the intended use of the information (i.e. a comparative analysis).

Facility Area Assumptions

Many of the facilities in the study include multi-sport or multi-functional buildings, as well as buildings that are dedicated to just an arena function. The square footage of the arena facilities used for our analysis was based on the building areas used for the arena, and any related support and circulation spaces. Where this information was not provided by the facility operator(s), area measurements were either obtained from previous reports or estimated

using the Google Earth measuring tool. All the parameters in the Facility Assessment Summary (refer to Appendix C), including the CRV, were calculated using just the arena portion of each facility.

Comparison of CRVs Included in the Arena Study to CRVs Listed in the Infrastructure Status Report (ISR)

The CRVs included in the Arena Study were calculated using the square footage assumption stated above (refer to Facility Area Assumptions). The results may differ from the ISR report values based on two possible differences:

- Building area used for the calculation (ft²)
- Building replacement unit construction cost (\$/ft²)

Regarding the different building areas used for the CRV calculations, confirmation or verification of the facilities' gross area were out of the scope of this assessment.

We compared our results to the CRV provided in the ISR report using the Average Unit Cost obtained from the Square Foot Estimator tool and the areas provided in the ISR report.

The following table summarizes the comparison of the Arena Study CRVs to the ISR CRVs.

CRV COMPARISON							
ARENA NAME	FACILITY TYPE	AREA (ft²) USED FOR CRV CALCULATIONS	AREA (ft²) AS PER ISR REPORT	AVERAGE UNIT COST	CRV	CRV AS PER ISR *	CRV USING AVERAGE UNIT COST AND ISR REPORT AREA
Ernie Starr Arena	Arena	25,836	30,750	\$212.53	\$5,490,925.08	\$7,111,619.00	\$6,535,325.13
Father David Bauer and Norma Bush Arena	Arena	111,400	125,334	\$206.85	\$23,043,090.00	\$28,415,474.00	\$25,925,337.90
Frank McCool Arena	Arena	27,513	28,949	\$210.91	\$5,802,766.83	\$6,834,568.00	\$6,105,732.72
Max Bell Centre – 1974	Arena	80,320	62,617	\$185.01	\$14,860,003.20	\$9,035,941.00	\$11,584,845.17
Max Bell Centre – 2007	Arena	37,964	39,848	\$199.65	\$7,579,512.60	\$39,570,518.00	\$7,955,653.20
Optimist and George Blundun Arenas	Arena	53,820	60,314	\$221.19	\$11,904,445.80	\$19,509,203.00	\$13,340,789.51
Rose Kohn and Jimmie Condon Arenas	Arena	63,612	68,912	\$231.99	\$14,757,347.88	\$19,944,219.00	\$15,986,788.16
Shouldice Arena	Arena	25,825	25,825	\$209.77	\$5,417,310.25	\$6,570,766.00	\$5,417,310.25
Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas	Multi-Plex/Recreation Centre	66,648	155,202	\$218.02	\$14,530,596.96	\$91,116,000.00	\$33,837,140.04
Stew Hendry and Henry Viney Arenas	Arena	56,725	58,142	\$221.54	\$12,566,856.50	\$13,715,980.00	\$12,880,778.68
Stu Peppard Arena	Arena	26,362	33,418	\$213.55	\$5,629,605.10	\$11,672,427.00	\$7,136,505.73
Thornhill Aquatic and Recreation Centre, Murray Copot Arena	Multi-Plex/Recreation Centre	24,498	27,577	\$213.95	\$5,241,347.10	\$6,553,231.00	\$5,900,099.15
Village Square Leisure Centre	Multi-Plex/Recreation Centre	52,200	206,721	\$218.68	\$11,415,096.00	\$121,362,000.00	\$45,205,748.28

***Note: It is assumed that this value is for the entire facility and not just the arena portion of the facility.**

Findings from the comparison are as follows:

- Many of the facilities included in this study were not included in the ISR report. The facilities listed in the table above are only the facilities included both in the Arena Study and the ISR report.
- It appears that for some facilities, the CRV in the ISR report was calculated based on the entire facility (Southland Leisure Centre and Village Square Leisure Centre), and therefore cannot be compared directly to the results of this study.
- When comparing the unit construction costs with those used in the ISR, the replacement unit construction cost and the ISR report's building areas yielded similar results for 5 of the building (results within 10% of one another); for another 5 buildings, results were within 10–30% of one another. Three facilities were outliers: the Village Square Leisure Centre, Southland Leisure Centre, and the 2007 Max Bell Centre had results that differ by greater than 30%.
- When comparing the building areas in the Arena Study and the ISR report, only 6 of the buildings had less than a 10% difference between the areas reported in the two documents. The remaining building areas reported differed by greater than 10%.

The CRV results are generally comparable between the Arena Study and the ISR report where the building areas reported for the same facility are similar; the CRV results are based on the unit construction costs used to calculate the CRV for the Arena Study. Some information in the ISR report cannot be referenced because it accounts for building areas used for other functions. There are also some sites in the ISR report that are reported to have very high unit construction costs that could be based on information not available at the time of this report.

Documents Reviewed to Assess Facility Conditions

Documents provided by the City and/or facility operators that include details relevant to the physical condition of the facilities were reviewed. The opinions included in the comments section of the Facility Assessment table (refer to Appendix C) were based on the information in the documents provided for review. The review of these documents did not include commenting on the accuracy of the information, or the methodology or protocols followed in creating the documents. Site visits and interviews were not completed. **Any renovations, system or component replacements or repairs, and/or upgrades to the facilities that took place after the relevant documents were published were not considered in our evaluation of facility conditions.**

Refer to Appendix C for a table that lists all documents referenced during the assessment of facility conditions.

Facility Condition Ratings

The facility condition ratings attributed to each facility noted in this report were based on the rating system used for the physical condition of the components/systems observed or reported, as described in the Facility Condition Ratings table. The ratings were supported by information included in the client- or facility-operator-provided reference documents, and the mathematical analysis of the Average Reserves as % of CRV Per Year (refer to Average Reserves as % of CRV Per Year on the following page).

Average Reserves as % of CRV Per Year

Calculating the Average Reserves as % of CRV Per Year is a widely accepted means of determining the condition of a building asset relative to a performance benchmark. The Average Reserves as % of CRV is a percent ratio of the amount of accumulated asset renewal requirements (expressed in dollars), as a fraction of the CRV of a facility over a set time period. For example, if a facility has accumulated asset renewal requirements of \$50,000 and has a CRV of \$1 million, then its current year Average Reserves as % of CRV will be 5%.

The Average Reserves as % of CRV values presented in this report can be used as a measure of the current condition of the properties, and are useful will be useful in comparing individual properties within the Client's portfolio.

The Average Reserves as % of CRV values in this report reflect the condition on the arena(s) only, and do not consider the condition of—or value of repair/replacement costs for—the entire facility and/or external site amenities and utilities. Because of this, the Average Reserves as % of CRV values discussed in this report may not accurately represent the overall condition of each property. This context must be considered when comparing the Average Reserves as % of CRV values of facilities this portfolio to the FCI values from the

ISR, other buildings/facilities, and/or industry benchmarking standards.

The industry standard for expressing a condition rating value using the Average Reserves as % of CRV classifies facilities into the following categories based on their condition:

- “Good” Condition – the Average Reserves as % of CRV is less than 5%
- “Fair” Condition – the Average Reserves as % of CRV is between 5% and 10%
- “Poor” Condition – the Average Reserves as % of CRV is greater than 10%
- “Critical” condition – the Average Reserves as % of CRV are greater than 30%

These guiding definitions were used in Stantec's analysis to identify facility condition ratings for each of the facilities.

Condition Rating Summary

Condition ratings applied to each facility are summarized in the following table. Refer to Appendix C for further detail.

FACILITY ASSESSMENT SUMMARY							
#	WARD	ARENA NAME	CONDITION RATING				
			CRITICAL	POOR	FAIR	GOOD	EXCELLENT
1	11	Acadia Recreation Complex			✓		
2	1	Bowness Sportsplex			✓		
3	4	Brentwood Sportsplex			✓		
4	12	Brookfield Residential YMCA at Seton					✓
5	13	Cardel Rec South				✓	
6	1	Crowchild Twin Arena			✓		
7	2	Crowfoot Arena			✓		
8	9	East Calgary Twin Arena			✓		
9	9	Ernie Starr Arena				✓	
10	7	Father David Bauer and Norma Bush Arenas				✓	
11	14	Frank McCool Arena				✓	
12	9	Great Plains Recreation Facility				✓	
13	4	Huntington Hills Community Association			✓		
14	14	Lake Bonavista Community Association			✓		
15	9	Max Bell Centre			✓		
16	9	Millican Ogden Community Association, Jack Setters Arena			✓		
17	7	Mount Pleasant Sportsplex				✓	
18	10	North East Sportsplex, Don Hartman Arena			✓		
19	11	Oakridge Community Association			✓		
20	6	Optimist and George Blundun Arenas				✓	
21	11	Rose Kohn and Jimmie Condon Arena				✓	
22	1	Shane Homes YMCA at Rocky Ridge					✓
23	7	Shouldice Arena			✓		
24	11	Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas			✓		
25	9	Stew Hendry and Henry Viney Arenas				✓	
26	11	Stu Peppard Arena				✓	
27	4	Thornccliffe Greenview Community Association, Forbes Innes Arena			✓		
28	4	Thornhill Aquatic and Recreation Centre, Murray Copot Arena			✓		
29	11	Trico Centre for Family Wellness			✓		
30	4	Triwood Community Association			✓		
31	10	Village Square Leisure Centre		✓			
32	3	Vivo for Healthier Generations			✓		
33	7	West Hillhurst Community Association			✓		
34	6	Westside Recreation Centre				✓	
TOTAL # FACILITIES / CONDITION RATING			0	1	20	11	2

2.2.4 CITY OF CALGARY DOCUMENTS BACKGROUND SUMMARY

The assessment of local arena needs and demands has been a frequent topic of discussion within the CoC for the past several years. The following documents discuss key steps and decisions related to CoC arena infrastructure and operations to date.

Recreation Master Plan (2010–2020)

The mandate of this study was to develop and manage a comprehensive recreation service delivery continuum whereby the CoC is actively engaged in ensuring that a variety of opportunities are available across the lifespan of a facility. It acknowledges that Calgary Recreation can play a variety of roles in delivering these opportunities, from direct delivery through to partnerships. To develop the recreation service delivery continuum, a management framework that embraced the CoC's TBL was created, which directed council and staff to incorporate the sustainable development principles of social equity, environmental responsibility, and economic viability in all municipal service delivery decisions. This was intended as the philosophy and blueprint for delivering recreation opportunities to Calgarians over the next 10 years, to where we are today.

This document acknowledged that most facilities managed by Calgary Recreation were built in the 1960s and 1970s, and that many of them were operating at or beyond their capacity and had not kept pace with facility technological improvements. Furthermore, they either needed retrofitting, upgrades, and additions, or were nearing the end of their expected life span. While there had been significant investment in facilities since then, they were aimed at some of the newest communities in the last decade, and there were still numerous older facilities with ongoing issues that had yet to be addressed.

Calgary Sport for Life Policy (2018)

Calgary Recreation implemented this city council policy in close alignment with the nationally recognized movement Canadian Sport for Life (CS4L) to improve the quality of sport and physical activity in Canada through integration between all stakeholders in the sport system. The purpose of the policy is to define the CoC's commitment to advance sports in Calgary through a coordinated approach with respect to facility development and partnership opportunities (i.e. delivering quality sports experiences in the school setting and within the local community). The policy recognizes the fundamental role of municipalities as the primary supplier of Calgary Recreation services, and emphasizes overarching objectives regarding allocation principles, infrastructure targets per population, and strategic partnerships.

Facility Development and Enhancement Study (2016)

In 2014, Calgary Recreation initiated the FDES to assess the current state of CoC recreation facilities, identify gaps in the provision of service delivery, and provide direction on investment based on long-term optimization of the CoC's inventory of recreation assets. One of the key findings of the study relates to measurement of existing levels of service against current and future demand, to identify gaps or opportunities for improvement.

The results of the FDES reveal an urgent need to replace inadequate, deteriorating, or operationally costly facilities, and address underserved areas of Calgary. The FDES also contributed to the identification of the following key challenges that could potentially impact the CoC's ability to maintain current service levels:

- Aging infrastructure requires more resources to maintain
- Aging mechanical systems are inefficient, operationally costly, and potentially environmentally unsustainable.
- Several facilities are past their useful life and require redevelopment or complete replacement, while other facilities are deficient in space and amenities

- There is a service gap in growth areas of the CoC
- Rapid population growth has resulted in increased demand
- Changes in legislation and best practices are outpacing upgrades and investment
- Service maintenance contract fees are escalating beyond inflation rates
- There is a shortage of available land for expanded/new developments to meet service requirements in some of the existing community catchment areas

With respect to arenas, the FDES recognizes there is a gap in the number of quality arenas because of inconsistent standards throughout the CoC's inventory. For example, the rinks are not all regulation size, changerooms are undersized for their intended use, and there is little space available for parent and team meetings or uninformed sibling activities. Spectator seating and support facilities are generally inadequate and/or uninviting and uncomfortable. Finally, there are several single arenas, which are proportionally more costly than twin arenas to operate, thus eroding overall service delivery efficiencies.

The FDES references guidelines specific to Calgary that identify space requirements for individual amenities and catchments, providing the basis for observing gaps based on those requirements. For ice arenas, the acceptable standard is one rink per population of 32,000 and one twin ice arena per population of 64,000. A study conducted by Sport Calgary in 2012 confirmed survey results indicating that ice facilities in Calgary were adequate in number.

The FDES did not highlight distinctions within the arena landscape between city-operated and community-/partner-operated facilities, which is an important consideration for this study, as this distinction likely contributes to inconsistent building and allocation standards. However, the FDES does reference the Sport Calgary *Sport Facility Supply and Demand Study Report 2014* study, which suggested that while there was generally high satisfaction related to provision and access to arenas within the city, there was also user preference (sport organizations and facility

operators including community representatives) for upgrades and enhancement of existing arenas.

Sport Calgary – Sport Facility Supply and Demand Study Report (2014)

In 2013, Sport Calgary initiated this study to analyze the status of facilities in terms of meeting the programming needs of the sport community, to assist in planning initiatives for future sport needs and facility priorities over the next 10 years. The study engaged 208 sport organizations, 130 facilities and their operators (including non-city operators such as community associations and private facilities), 67 provincial and national sport organizations, and 1,000 members of the public. It also highlighted gaps related to various facility categories; while the need for developing new facilities was apparent in some cases, other cases (i.e. arenas) indicated gaps with respect to enhancements to existing facilities and better booking methods.

Based on data provided by operators in the Facility Operators Survey, less than half of facility operators stated that a documented lifecycle plan had been developed for the facility. This suggests that many operators are unprepared for necessary investments in ongoing lifecycle maintenance to sustain aging buildings in the long term. In addition, almost half of facility operators reported that reserve funds were less than \$250,000, and some indicated that no reserve funds were available.

For this study, a set of facility categories was developed by Sport Calgary to provide a frame of reference. Ice facilities were categorized as **Arena: Ice – Boarded**, **Arena: Ice – Laned**, and **Arena: Dry pad**. Utilization rates based on surveyed data for Arena: Ice – Boarded facilities in the city were 95% during prime time, and 56% during non-prime time.

Some findings were relevant from a social and economic standpoint as well, highlighting perceived gaps in the city's sports facilities with respect to access and affordability. Arena-specific concerns included lack of equitable access for some sport organizations who do not have long established relationships with facility operators; a perception of

aging and outdated facilities; lack of dry pad facilities; and cost of ice sports for certain demographics (e.g. northeast Calgary residents).

A Triple Bottom Line Policy Framework (2011)

Since 2005, City Council adopted the TBL Policy to advance efforts to “create and sustain a vibrant, healthy, safe, and caring community”. This was the CoC’s formal recognition of the importance of fully considering the environmental, social, and economic benefits and costs of projects, strategic plans, and operations to the long-term success and wellbeing of the city and its residents. Since then, Calgary Recreation has embarked on efforts to apply a new TBL framework and tool that uses evidence-based methods and best practices to identify, quantify, and value the benefits of the city’s existing recreation infrastructure and programs, to optimize investments in new facilities and enhancements to existing ones.

Per the TBL Policy Framework, the purpose of the TBL Policy is:

- To advance City Council’s vision to “create and sustain a vibrant, healthy, safe, and caring community”
- To embed the TBL approach into corporate policies, performance measures, actions, and implementation procedures, and enhance decision making
- To place Calgary’s efforts to achieve its vision in the broader context of cities around the world, to contribute to global sustainability



Social

The role of recreational facilities in our communities is more than just to serve as a place for exercise. They serve as a hub for sports, arts, and culture; physical and leisure activities; community festivals; and multicultural events. As described in the TBL Policy Framework, the CoC is pursuing broad initiatives that promote active living, and vibrant and “integrated communities with varied social composition and a strong sense of place”. Two examples of recreational hubs within the CoC’s neighbouring communities that have incorporated elements of those initiatives are the Village Square Leisure Centre and the Southland Leisure Centre. While each facility has contributed to the health and wellbeing of generations of Calgarians, they are also aging facilities that require further assessment to determine how they can meet changing needs.

Economic

The TBL approach provides a framework that quantifies the city’s objectives related to infrastructure management, investment in strategic community infrastructure, and the promotion of quality of life. Whether it is investing in the renovation of a current facility or the development and construction of a new facility, the economic impact of investing in Calgary recreational facilities contributes to the TBL objectives.

The Calgary Recreation study entitled *A Triple Bottom Line Framework to Quantify Recreational Benefits* describes economic impact as a “direct, indirect, and induced economic contribution of investments”. A direct economic impact can be described as “dollars spent on materials, equipment, and human resources required to accomplish an activity”.

Economic impact due to facility investment describes the impact of expenditures allocated for the renovation of existing facilities and the construction of new facilities. It also includes investment in facility maintenance and operations.

Economic impact due to sports and event tourism describes the economic benefits from out-of-town visitors for sports, events, and festival tourism. Spectators and participants from out of town pay for lodging, food, and travel, and can even purchase event-related merchandise; these purchases can have direct, indirect, and/or induced economic impacts. While large sporting events have the most apparent economic benefits, smaller events can also have a significant impact on the local economy.

Environmental

Calgary's 2011 TBL Framework highlights the importance of environmental benefits to the CoC's long-term wellbeing, with two objectives directly applicable to Calgary Recreation's facilities and programming. First, the CoC seeks to reduce greenhouse gas emissions by decreasing total energy use. Second, the CoC seeks to protect and conserve its water resources to ensure sufficient supply for its growing population. Calgary Recreation has an opportunity—through efficiencies in operations and new infrastructure—to support each of these objectives.

As described in *A Triple Bottom Line Framework to Quantify Recreation Benefits 2020: City of Calgary Recreation*, energy-consumption-related savings can be attained through equipment and facility upgrades. Measures such as modifying operational parameters (e.g. heating/cooling set points or facility hours) and incorporating solar panels in aging facilities can also reduce total energy demands.

Growing water demand due to population growth, climate change, and a finite water supply have required the CoC to undertake a long-term conservation program to reduce demand and protect supply. Calgary Recreation construction and operational practices can contribute to these conservation goals by upgrading equipment and improving water conservation practices.

A Triple Bottom Line Framework to Quantify Recreation Benefits 2020: City of Calgary Recreation

Earth Economics, a non-profit consultant, prepared this recreation benefits framework report and a valuation tool to help Calgary Recreation staff understand and communicate the broad social, economic, and environmental impacts that the department's work can have on the greater community.

For the purposes of the study, Calgary Recreation programming and facilities were organized into Triple Bottom Line categories to identify their value benefits. While the objectives of the study did not focus on specific information regarding activities and facilities, economic considerations (e.g. tourism impact benefits) and environmental considerations (e.g. energy reduction through equipment and facility upgrades) that would be directly applicable to activities and facilities (e.g. arenas) were noted as value benefits.

City of Calgary Ice Arena Study (2006)

This study built on the original 2000 Calgary Arena Business Case, which recommended careful development of new arenas and phasing out the oldest arenas, in response to research that indicated a decline in per-capita ice use at the time. The 2006 study responds to updated research suggesting that per-capita ice use in Calgary stabilized and marginally increased (i.e. higher percentage of midget level players, participation in ringette) between the years 2000 and 2006. The 2006 study's recommendation was therefore to develop six new ice sheets, mostly to accommodate higher levels of service to existing players (i.e. a combination of more ice time each week and better, earlier ice times).

Further recommendations included employing multiple sheets of ice instead of single sheets for greater (operations) cost effectiveness; considering the replacement of Calgary's oldest arenas in the future; and consistently increasing user fees for prime time use to offset cost impacts to operations of all existing and new ice surfaces.

Community Services Program Policy (2006)

The CoC Community Services Program Policy is based on the belief that public recreation services play a significant role in the health and stability of communities. The city's role in the facilitation of recreation programs enhances the quality of life of Calgarians and reduces barriers to participation. To respond to the public's diverse needs, the policy is based on four directives:

1. Provision of a level of tax support for introductory and basic skill development programs focusing on children, youth, families, and low-income Calgarians
2. Provision of recreation programming in publicly operated facilities and open spaces through direct delivery
3. Provision of leadership in the coordinated and co-operative planning and delivery of recreation programming through collaboration and partnerships
4. Provision of support to build community capacity and enable community-driven recreation program delivery

As a result of this policy, the CoC uses a regional, integrated-outcome-based approach to facilitate recreation programming by adopting one or more roles. Role may include acting as a direct provider of services; a supporter of—and collaborator with—other leisure service organizations; and a monitor of leisure activities and partnership obligations.

This continuum recognizes that there are numerous leisure providers within the city, and provides a variety of methods by which the municipality can facilitate the availability of recreation opportunities. The requirements of this policy must be applied in the city- and partner-operated arena facilities that are the focus of this report.

License of Occupation – Social Recreation Agreement

This document is based on a 2012 City Council resolution regarding granting licenses of occupation to community associations and social recreation groups to promote recreational, cultural, and social activities for their members. Licensees are granted the non-exclusive right to use and occupy the lands and facility subject to provisions outlined in the document.

Significant provisions include the Licensee's obligation to consult with the CoC regarding charging reasonable rates and fees for the use of the property (i.e. rates that are in alignment with CoC policies, and that provide access to all as per Section 9.10 a)(i) of the agreement), and maintaining the property in good working order and repair (at the Licensee's cost). Licensees are required to submit a lifecycle study to the city within one year of the agreement commencement date, and an updated study every five years thereafter, to facilitate any repairs and maintenance.

Community Growth in Calgary

Understanding where and when growth will occur within the city is critical to deciding where new recreation infrastructure and arenas will need to be developed and when they should be built. Calgary's Municipal Development Plan (MDP) sets a target of achieving 50% of new population growth in established communities, and 50% in new greenfield communities. Historically, most of Calgary's new population growth has occurred in the new communities along the city's edges. As shown on the Ice Provision Map on page 10, newer residential communities along the city's periphery are already underserved by existing arenas; this will be further exacerbated with additional population growth.

The CoC's New Community Growth Strategy includes eleven business cases for new neighbourhoods. While these business cases were not approved by City Council in November 2020, they may be approved in the next evaluation cycle in 2022⁶. In addition to these 11 areas, the map below shows the location of the new communities approved in 2018. These developing communities are projected to be fully built out with new residents over the next 16 years. Future arena development will need to plan for and accommodate this population growth.

As outlined in Section 2.4.1, it will be important to consider how arenas within the Calgary Metropolitan Region may contribute to addressing the needs of growing communities on the periphery of the city, as well as how to optimize their use and sustainability.

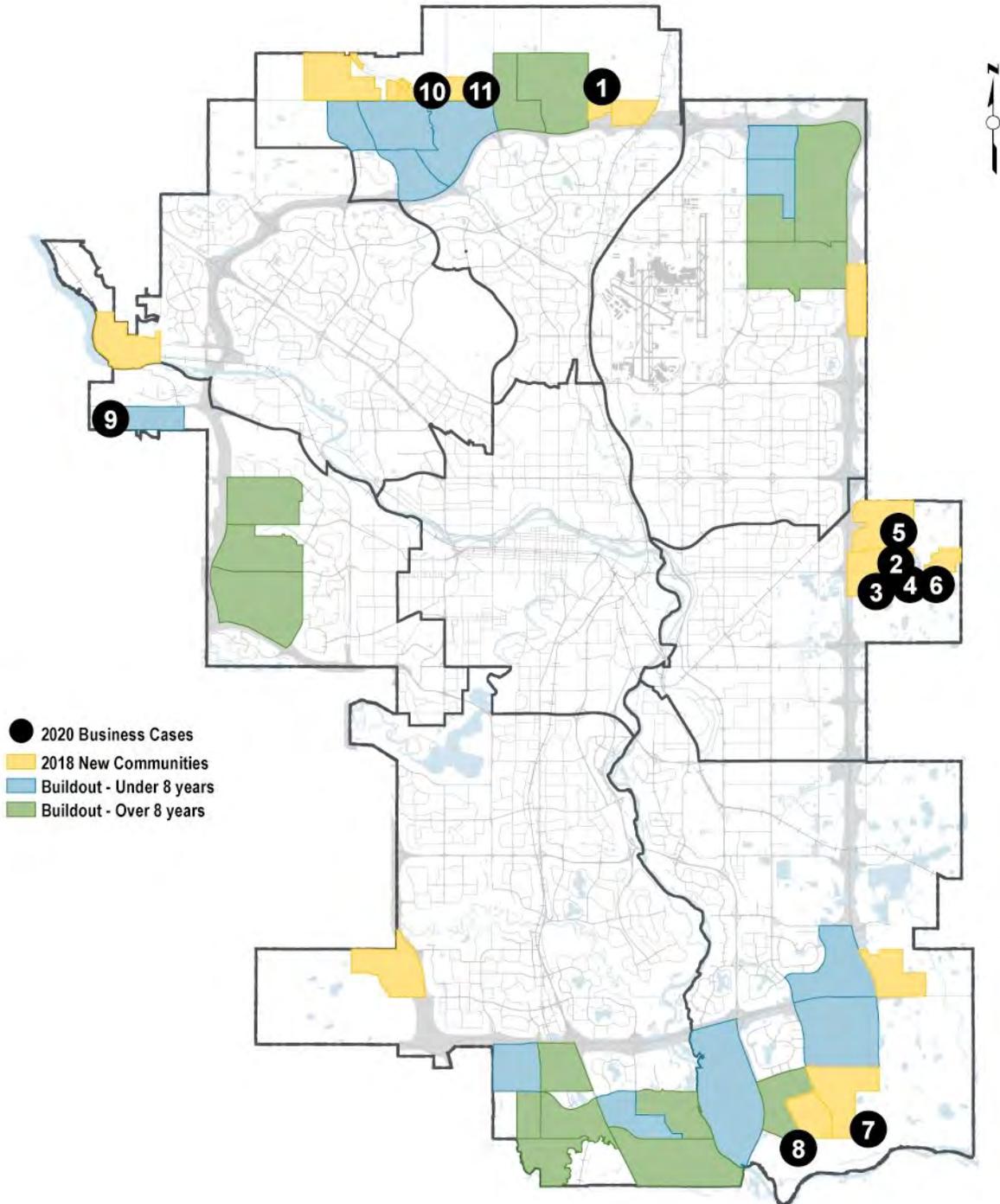
Moving forward, the CoC will need to strike the right balance between building facilities in new communities and investing in aging arenas in

Calgary's established communities, so that all residents can access quality facilities. In addition to population growth, the management of aging facilities in communities with changing needs is a significant issue. Work will need to be done to develop sustainable strategies that address the long-term capital planning for existing and new arenas.

The proposed new communities include those listed in the following table.

BUSINESS CASE #	NEW COMMUNITY
1	Keystone Hills
2–6	Belvedere
7	Rangeview
8	Ricardo Ranch
9	West View
10–11	Glacier Ranch

⁶ New Community Growth in Calgary, 2021, <https://www.calgary.ca/pda/pd/current-studies-and-ongoing-activities/new-community-growth-in-calgary.html>



Location of the Proposed New Communities ⁷

⁷ New Community Growth in Calgary, 2021, <https://www.calgary.ca/pda/pd/current-studies-and-ongoing-activities/new-community-growth-in-calgary.html>

2.3 COMPARISON TO RELEVANT MUNICIPALITIES

2.3.1 BENCHMARKING – INDOOR ICE PROVISION

Benchmarking research suggests that the CoC's supply of indoor ice arenas is on par with or better than urban municipalities of similar size. The CoC's population of 1,239,220 (2016 Census) is served by 64 ice sheets within the Calgary city limits, or one ice sheet for every 19,363 residents.

Additionally, if the provision ratio considers the Calgary CMA population of 1,392,609, then there are 89 ice sheets available within a 20- to 45-minute drive from CoC limits, or one ice sheet per 15,647 residents. In both cases, this is significantly better than the acceptable standard of one ice rink per population of 32,000, as per guidelines described in the 2016 Recreation FDES.

In comparison to municipalities that have conducted similar strategic studies within the last five years that state targeted provision ratios (Toronto 1:50,000 people, Winnipeg 1:15,000 – 20,000 people, Red Deer 1:15,000 people)⁸, the FDES standard may be considered an average target. Other municipalities (e.g. Saskatoon, Ottawa, Kelowna) have not conducted comparable studies or identified provision targets, but appear to be currently operating within a similar mid-level standard.

The FDES study noted that perceptions of a need for more ice in Calgary may be due to inefficiencies with the current booking system, which can be improved by instituting a centralized, city-wide facility booking system.

Other key points from the below table regarding urban municipalities in Western Canada include the following:

- Ratios can vary greatly within a municipality between the core and its CMA. For example, Edmonton may appear to have a higher ratio (worse) in comparison to Calgary, but the two cities are on par when considering all indoor ice sheets located throughout their respective CMAs (Calgary has one sheet per 15,647, Edmonton has one sheet per 15,921).
- There is wide distribution of rinks throughout the Vancouver metropolitan area, and city-operated facilities in the metropolitan area are much fewer in number in comparison to the Vancouver CMA. Therefore, understanding the provision of arenas for comparable municipalities should consider the metropolitan region and not only the core area.
- The City of Winnipeg recently conducted a recreation strategy study that identifies existing and targeted indoor ice sheet provisions. There are currently 34 city-owned ice sheets—12 being city operated and 22 being community or third-party operated—providing the city with a ratio of one sheet per 20,742 residents. An additional 11 sheets are privately operated, resulting in a total of 45 ice sheets across the city, or one sheet per 17,300 residents.
- The study states that Winnipeg is currently well served, and the target level of service for the next 25 years will be to maintain a ratio of 1:15,000–20,000 people. Similar to Calgary, several arenas are single-sheet, stand-alone facilities that range in age from 35–50+ years, and many are in poor condition and have functional limitations. The CoC's focus over the next 25 years will be to support the replacement of the current inventory and build multi-pad facilities at multi-use locations, in lockstep with population growth and demand.

⁸ Toronto Implementation Strategy for the Parks and Recreation Facilities Master Plan 2019, Winnipeg Recreation Strategy 2021, City of Red Deer Ice Facilities Plan 2016

- The City of Toronto developed a 20-year master plan for parks and recreation facilities that identified a provision target of one indoor ice rink per 50,000 residents. Some key points from the strategic report that may factor into that service target level include an abundance of existing outdoor rinks available (feasible in a milder climate), declining youth hockey participation rates in the city, decreased city arena use with the availability of newer and more functional private sector options, and significant disparity between high prime-time and very low off-peak usage rates.
- Smaller municipalities in Alberta (e.g. Lethbridge, Red Deer, and Medicine Hat) have lower ratios (better) compared to Edmonton and Calgary (within city limits); however, it is expected that as they grow, provision ratios will worsen. The City of Red Deer produced an ice facilities plan in 2016 that identifies guidelines for target service levels depending on urban municipality size (i.e. small, mid-sized, and large); this trend is a reasonable expectation as cities grow.
- In 2007, the City of Edmonton (CoE) developed a 10-year arena development strategy (2009–2019) that compared service levels amongst municipalities, and recommended maintaining a target provision of one municipal ice sheet per 19,100 people within the next 10 years. Based on current research, Edmonton’s municipal supply falls short of that standard (one sheet per 23,313), although the total supply of municipal and private facilities (one sheet per 15,921) within the Edmonton CMA exceeds the standard.

Ice Sheet Capacity Per Capita

According to the most current data available from the Statistics Canada (StatsCan) 2016 Census, Calgary’s population is 1,239,220, and the Calgary CMA population is 1,392,610. There are 64 sheets of ice located within the Calgary city limits, and 89 ice sheets within a 20- to 45-minute drive of the city limits, including the municipalities and communities that make up the Calgary CMA.

Within Calgary city limits, this computes to:

- One sheet of ice within the city limits for every 19,363 citizens, or
- One sheet of ice within the Calgary sport community for every 13,924 citizens (includes ice within the CoC and ice within a 20- to 45-minute drive of the city limits).

When this is expanded to include the Calgary CMA, this computes to:

- One sheet of ice within the city limits for every 21,760 citizens of the Calgary CMA, or
- One sheet of ice within the Calgary sport community for every 15,647 citizens of the Calgary CMA (includes ice within the CoC and ice within a 20- to 45-minute drive of the city limits).

COMPARISON TO RELEVANT MUNICIPALITIES					
MUNICIPALITY	CENSUS (2016) POPULATION	MUNICIPAL ICE SHEETS	NON-MUNICIPAL ICE SHEETS	TOTAL ICE SHEETS	PROVISION RATIO
ALBERTA					
Calgary CMA	1,392,610	54	35	89	15,647
Edmonton CMA	1,321,426	34	49	83	15,921
Calgary	1,239,220	54	10	64	19,363
Edmonton	932,546	34	6	40	23,313
Lethbridge	117,394	7	0	7	16,771
Red Deer	100,418	6	2	8	12,552
Medicine Hat	63,260	6	0	6	10,543
BRITISH COLUMBIA					
Vancouver CMA	2,463,431	8	52	60	41,057
Vancouver	631,486	8	0	8	78,936
Kelowna CMA	194,882	5	3	8	24,360
Kelowna	127,380	5	0	5	25,476
Victoria	85,792	4	0	4	21,448
Prince George	74,003	6	0	6	12,334
MANITOBA					
Winnipeg CMA	778,489	34	11	45	17,300
Winnipeg	705,244	34	0	34	20,742
ONTARIO					
Toronto	2,731,571	65	0	65	42,024
Ottawa CMA	1,323,783	35	9	44	30,086
Ottawa	934,243	35	0	35	26,693
Oshawa CMA	379,848	7	0	7	54,264
Kingston CMA	161,175	9	0	9	17,908
Sarnia	96,151	5	0	5	19,230
SASKATCHEWAN					
Saskatoon	246,376	6	1	7	35,197
Regina	215,106	14	0	14	15,365

2.3.2 MARKET DEMAND

While the methodology for determining provision ratios aims to be consistent by using confirmed population data (i.e. the 2016 Census), it is important to consider population growth estimates for insight into future impacts. According to the most current data available from StatsCan, growth estimates in most large urban regions (i.e. CMAs) for 2019/2020 continued to outpace other regions of the country (+1.7% vs. +0.6%) despite lower international migration due to COVID-19 travel restrictions.

The Calgary CMA is estimated to have the third fastest growing population at 1.9%⁹ (or a 2020 population of 1,543,283), while the five-year average growth rate for the region has been 1.75%.

Assuming the Calgary CMA growth rates fall between 1.5% (low) and 2.5% (high) for growth projections, the overall population can be expected to reach between 2,412,275 and 3,237,140 residents by 2050.

Under the medium growth scenario and assuming no new ice facilities are built, the Calgary CMA inventory will not exceed the recommended CoC provision ratio standard of one ice rink per 32,000 residents until after 2050.

There is likely a relevance gap concerning this standard as it does not necessarily reflect the surrounding municipalities' own provision ratio targets. More contextually relevant data can be determined once updated CoC population census data is available.

Calgary CMA Population	2020	2025	2030	2035	2040	2045	2050
Low (1.5%)	1,543,283	1,662,554	1,791,043	1,929,462	2,078,578	2,239,219	2,412,275
Medium (2.0%)	1,543,283	1,703,909	1,881,253	2,077,056	2,293,237	2,531,919	2,795,444
High (2.5%)	1,543,283	1,746,083	1,975,533	2,235,134	2,528,849	2,861,160	3,237,140

Year	2020	2025	2030	2035	2040	2045	2050
Projected Population (2.0% Growth)	1,543,283	1,703,909	1,881,253	2,077,056	2,293,237	2,531,919	2,795,444
Provision Ratio (89 Ice Sheets)	17,340	19,145	21,138	23,338	25,767	28,449	31,409

⁹ Canada's population estimates: Subprovincial areas, July 1, 2020, Released 2021, Statistics Canada, <https://www150.statcan.gc.ca/n1/daily-quotidien/210114/dq210114a-eng.htm>

2.3.3 ALLOCATION AND UTILIZATION

Research was conducted regarding arena utilization rates and facility allocation policies across comparable Canadian municipalities, with the goal of establishing a comparative analysis to Calgary's arena landscape. It was apparent that some municipalities have undertaken similar studies to determine the needs and long-term planning for their local arenas, and were grappling with similar issues of aging facilities, operational inefficiencies, and changing user patterns. Edmonton, Red Deer, and Sarnia are available examples of municipalities that have completed arena-specific studies within the last 15 years. Cities such as Winnipeg and Toronto have also conducted strategic planning studies with a broader emphasis on recreation facilities that include notable analysis of ice arenas.

In addition to these studies, several municipalities have detailed ice allocation policies and procedures that are readily available for public reference. These documents typically identify various groups (e.g. city recreation program users, minor sports groups, tournament organizers, seasonal clients, boards of education, commercial users) and their assigned prioritization with respect to a methodology for fair distribution of prime and non-prime ice time. Examples of municipalities with published policies include Edmonton, Winnipeg, Vancouver, Kingston, Oshawa, Waterloo, and Toronto. Data that was available and pertinent to allocation and utilization considerations are included in the following table.

A critical aspect of this study was to gather information regarding utilization rates and allocation policies from CoC arena operators. This process was challenged by facility lockdowns and restrictions as a result of the ongoing COVID-19 pandemic, with several operators being unable to

provide responses to survey inquiries. Prime-time and non-prime-time usage are key elements of utilization data that are unavailable from half of the facilities, and thus require further validation.

Of the 34 arenas, data regarding prime-time and non-prime-time usage for 17 arena operators. The remaining 17 arenas were either fully missing data, were partially complete, or had conflicting information such as booked hours significantly exceeding the available hours.¹⁰

Extrapolating complete data from the remaining 17 arenas indicated that the current utilization rate is 80% for prime times during weekdays, 32% for non-prime times during weekdays, and 80% for prime times during weekends (all weekend hours are typically considered prime time by operators). These arenas represent 50% of the total inventory; therefore, an assumption cannot be made regarding usage patterns throughout the CoC. There is also enough significant variation to utilization rates reported in an earlier *Sport Calgary: Sport Facility Supply & Demand Study* completed in 2014 (see table below) that suggest the data gaps will need to be validated in a future study.

With respect to ice allocation, it does not appear that there exists a comprehensive CoC policy that provides overarching guidance regarding equitable distribution of ice time within City or partnered operated arenas. Currently, the individual arena operators determine scheduling priorities, and sports organizations with longstanding relationships with specific arenas may have distinct booking advantages.

¹⁰ Arenas that were incomplete and not included in the average utilization rate are: Acadia Recreation Complex; Bowness Sportsplex; Crowfoot Arena; Father David Bauer and Norma Bush Arenas; Frank McCool Arena; Huntington Hills Community Association; Mount Pleasant Sportsplex; North East Sportsplex, Don Hartman Arena; Oakridge Community Association; Optimist and George Blundun Arenas; Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas; Stew Henry and Henry Viney Arenas; Stu Peppard Arena; Trico Centre for Family Wellness; Village Square Leisure Centre; and Westside Recreation Centre.

COMPARISON TO RELEVANT MUNICIPALITIES – ALLOCATION + UTILIZATION				
MUNICIPALITY	ALLOCATION + UTILIZATION	SOURCE	PRIME TIME ICE	
			MON-FRI	SAT-SUN
ALBERTA				
Calgary	- Arena utilization identified as 95% prime time and 56% non-prime time	Sport Calgary: Sport Facility Supply and Demand Study Report 2014	4:00 p.m. to 12:00 a.m.	6:00 a.m. to 12:00 a.m.
	- Utilization rate (17 out of 34 arenas reporting) is 80% prime time during weekdays, 32% non-prime time during weekdays, and 80% prime time during weekends - Weekend hours typically considered prime time	CoC Arena Study 2021	4:00 p.m. to 12:00 a.m. (may vary by operator)	4:00 p.m. to 12:00 a.m. (may vary by operator)
Edmonton	- Unique user-managed allocation model whereby CoE is the facilitator of the process and groups may negotiate with each other for time - The booking system (CLASS) works well in providing equitable share of time and conflicts are almost non-existent - CoE provided more ice time than Vancouver, Winnipeg, and Ottawa, but not more than Calgary - Recommendation to review full-cost ice and public skate programs to improve ice allocation and access respectively - No utilization rates were identified	Review of CoE Ice Allocation and Booking Process (2008)	6:00 p.m. to 11:00 p.m.	8:00 a.m. to 11:00 p.m.
	- Recognition of growing trend towards leisure ice in arena complexes for increased opportunity for spontaneous public skating and programs - Large arenas increasingly used for non-ice sports and events (e.g. concerts, trade shows) - No utilization rates were identified	10-Year Arena Capital Development Strategy 2009–2019 (2007)		
Lethbridge	- No utilization rates were identified - 90% of residents indicated the number of ice centres are meeting community needs but shortage of available prime-time ice was the most pressing concern - Users preferred funding to address this issue rather than functional upgrades to aging facilities - A new twin arena complex was one of three top priorities for new recreation complex to host tournaments and increase revenue	Lethbridge Cultural Facilities & Recreation Master Plan 2007	N/A	N/A
Medicine Hat	N/A	N/A	3:45 p.m. to 10:00 p.m.	N/A

COMPARISON TO RELEVANT MUNICIPALITIES – ALLOCATION + UTILIZATION				
MUNICIPALITY	ALLOCATION + UTILIZATION	SOURCE	PRIME TIME ICE	
			MON-FRI	SAT-SUN
Red Deer	<ul style="list-style-type: none"> - User group survey feedback: when queried whether their organization is able to access sufficient indoor ice time, 17 groups indicated "yes, completely"; 9 groups indicated "yes, somewhat"; and 6 groups indicated "no" - More access to ice during peak weekday and weekend hours is desired - Utilization is 83% prime time and 51% non-prime time at city-owned-and-operated facilities 	City of Red Deer Ice Facilities Plan (2016)	4:00 p.m. to 10:00 p.m.	8:00 a.m. to 10:00 p.m.
BRITISH COLUMBIA				
Kelowna	N/A	N/A	N/A	N/A
Prince George			N/A	N/A
Vancouver	<ul style="list-style-type: none"> - Vancouver Park Board oversees policy and assigns implementation practice to two ice allocation committees (consisting of management staff, recreation programmers, community association representatives, and cross section of rink user groups) - Priority for ice allocation is (1) public skating and programs, (2) minor sport/children and youth programs, (3) adult sport groups, and (4) commercial groups - Ice entitlements are expressed through a ratio of ice time per team or number of skaters and differ based on sports' activity requirements and caliber/level of play (e.g. Atom hockey gets 1.75 hours/week per team and Midget gets 2.75 hours/week per team; figure skating allowed 1 hour/week per skater) 	Vancouver Ice Allocation Policy (2003)	5:00 p.m. to 11:00 p.m.	7:00 a.m. to 11:00 p.m.
Victoria	N/A	N/A	N/A	N/A

COMPARISON TO RELEVANT MUNICIPALITIES – ALLOCATION + UTILIZATION				
MUNICIPALITY	ALLOCATION + UTILIZATION	SOURCE	PRIME TIME ICE	
			MON-FRI	SAT-SUN
ONTARIO				
Kingston	<ul style="list-style-type: none"> - City-Council-endorsed guideline of 70% youth ice within usable winter ice allotment - Client allocation priorities are (1) city recreational ice programs, (2) tournaments and special events hosted by partner groups, (3) partner groups (e.g. non-profits dedicated to minor sports), (4) seasonal clients (e.g. adult leagues, pick-up hockey), (5) Boards of Education – high school hockey and school ice, and (6) occasional/commercial users - Ice time is booked via a centralized Facility Booking Office (FBO) - Partner groups will receive equitable distribution of prime and non-prime hours - All partner groups, regardless of gender, level of competitiveness, and total hours of entitlement, must not receive more or less prime time than a similar client 	Kingston Ice Allocation Policy and Guidelines (2018)	4:30 p.m. to close	8:00 a.m. to 12:00 a.m.
Oshawa	<ul style="list-style-type: none"> - Ice is allocated according to following priority levels: (1) City of Oshawa programs, (2) minor associations and organizations/groups, (3) adult associations and organizations/groups, (4) Boards of Education – high school hockey and school ice, and (5) occasional/commercial users - Ice time is booked via a centralized FBO 	City of Oshawa Ice Allocation Policy (developed in 2005 but current as per city website)	4:30 p.m. to 10:45 p.m.	All day
Ottawa	N/A	N/A	4:00 p.m. to 11:00 p.m.	6:00 a.m. to 11:00 p.m.
Sarnia	<ul style="list-style-type: none"> - Prime-time usage is 80%; adult league rentals accounted for 24% of that - Typical weekly ice allocation (prime and non-prime) is (1) youth sports (hockey, figure skating, high schools) – 62%, (2) adult leagues – 22%, (3) junior hockey – 9%, and (4) other (e.g. public skate, sledge hockey, hockey schools) – 6% 	Sarnia Arena Management Study 2015	5:00 p.m. to 10:00 p.m.	7:00 a.m. to 10:00 p.m.
Toronto	N/A	N/A	5:00 p.m. to 11:00 p.m.	7:00 a.m. to 11:00 p.m.
SASKATCHEWAN				
Regina CMA	N/A	N/A	4:00 p.m. to close	All day
Saskatoon CMA	N/A	N/A	5:00 p.m. to 11:00 p.m.	8:00 a.m. to 11:00 p.m.
MANITOBA				
Winnipeg CMA	N/A	N/A	4:00 p.m. to 10:30 p.m.	8:00 a.m. to 10:30 p.m.

2.4 REGIONAL ICE FACILITIES

2.4.1 CALGARY METROPOLITAN REGION

Calgary is surrounded by several municipalities and communities that have their own arena facilities.

When planning for future arenas within Calgary, especially near the city's periphery, it is important to consider the proximity of arenas outside of Calgary. Potential users travelling from outside of the city to use the facility and competition from other facilities are important considerations when assessing the economic sustainability of a new or expanded arena. The regional planning of arenas and other recreation facilities between the CoC and other Calgary Metropolitan Region Board (CMRB) municipalities has several positive benefits, including the sharing of costs, risks, and rewards; less duplication; heightened coordination; and the improvement of quality of life for more residents. All of these benefits contribute to creating a more desirable and economically competitive region. As the population of the Calgary Metropolitan Region grows and municipal boundaries become less pronounced, coordinated recreation planning will become more important.

A high-level summary of arena facilities in the surrounding area of Calgary is included in the table below, including the year the facility was constructed; the number of indoor ice sheets; the size of ice sheets; the distance to Calgary arenas; and whether the facility is publicly accessible. If an arena is considered publicly accessible, the facility may be rented by the public and/or the facility offers public drop-in times. The regional ice facilities and their location outside of Calgary are also mapped on page 33.

Calgary's Metropolitan Region includes the following:

Cities

- Airdrie
- Chestermere

Towns

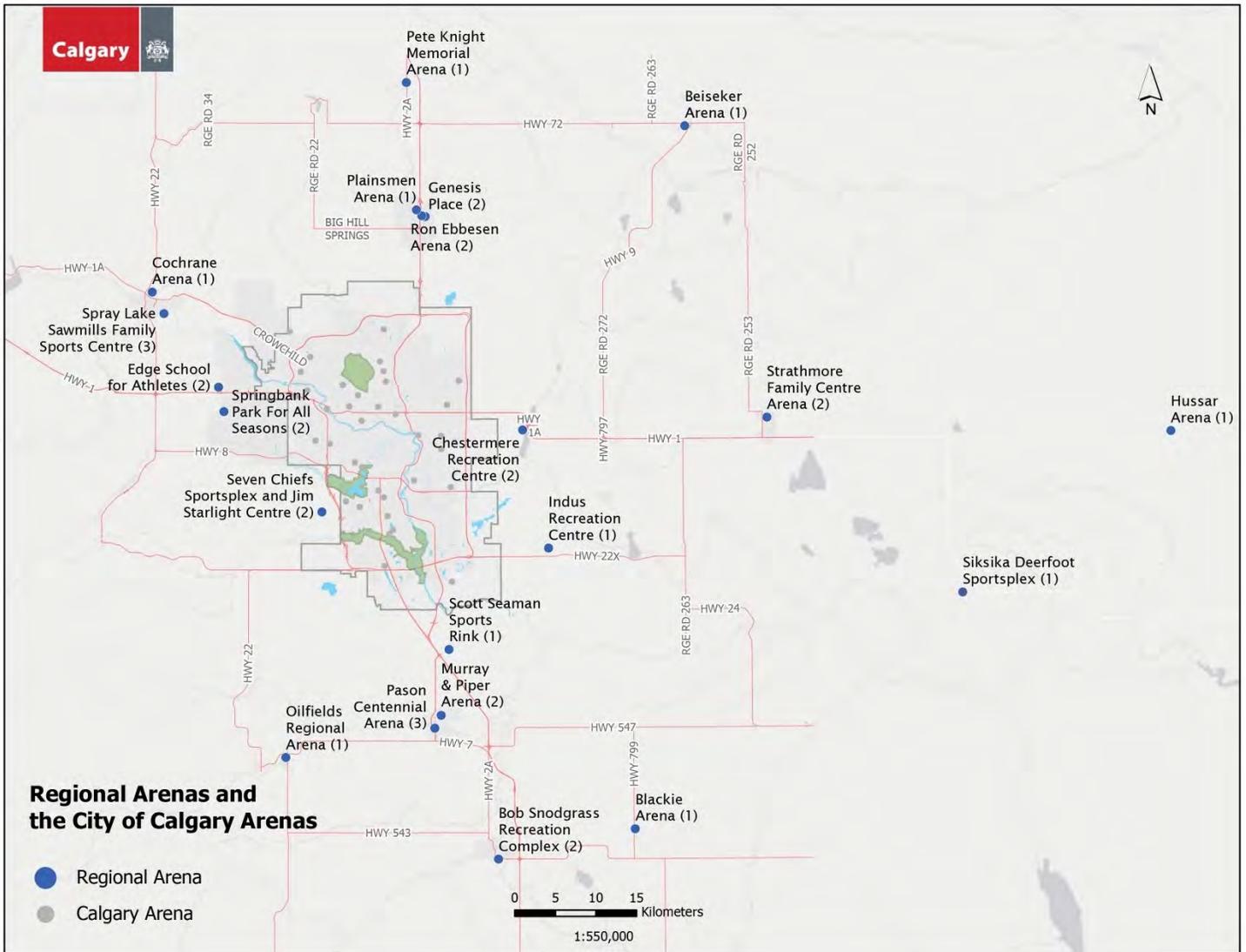
- Black Diamond
- Cochrane
- High River
- Okotoks
- Strathmore

Municipal Districts

- Foothills County
- Rocky View County
- Wheatland County

First Nations

- Tsuut'ina Nation 145



CALGARY METROPOLITAN REGION ICE FACILITIES					
MUNICIPALITY/ ARENA	YEAR CONSTRUCTED	# ICE SHEETS	SIZE OF ICE SHEET(S)	APPROXIMATE DISTANCE TO AN ARENA IN CALGARY	PUBLICLY ACCESSIBLE
AIRDRIE					
Genesis Place Twin Arena	2012	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	20–22 km	✓
Plainsmen Arena	1974	1	Unknown	19–20 km	✓
Ron Ebbesen Arena	1991	2	200 ft × 85 ft (TBC)	20 km	✓
BLACK DIAMOND					
Oilfields Regional Arena	1988	1	180 ft × 84 ft	46 km	✓
CHESTERMERE					
Chestermere Recreation Centre	1983	2	1: 184 ft × 84 ft 2: 200 ft × 100 ft	12–14 km	✓
COCHRANE					
Cochrane Arena	1960	1	Unknown	23 km	✓
Spray Lakes Sawmill Family Sport Centre	2001, 2017 addition	3	1: 200 ft × 85 ft 2: 200 ft × 85 ft 3: 200 ft × 85 ft	24 km	✓
FOOTHILLS COUNTY					
Blackie Arena	1977	1	200 ft × 85 ft (TBC)	54 km	✓
Scott Seaman Sports Rink	2013	1	180 ft × 84 ft	16 km	✓
HIGH RIVER					
Bob Snodgrass Recreation Complex	Unknown, 2014 addition	2	1: 200 ft × 85 ft (artificial ice) 2: 145 ft × 56 ft	43 km	✓
OKOTOKS					
Murray and Piper Arena (Okotoks Recreation Centre)	1985	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	23 km	✓
Pason Centennial Arena	2006	3	1: 200 ft × 85 ft 2: 200 ft × 85 ft 3: Leisure skating rink	24.7 km	✓

CALGARY METROPOLITAN REGION ICE FACILITIES					
MUNICIPALITY/ ARENA	YEAR CONSTRUCTED	# ICE SHEETS	SIZE OF ICE SHEET(S)	APPROXIMATE DISTANCE TO AN ARENA IN CALGARY	PUBLICLY ACCESSIBLE
ROCKY VIEW COUNTY					
Beiseker Arena	1974	1	Unknown	65 km	✓
Indus Recreation Centre	1972	1	200 ft × 85 ft	23.6 km	✓
Kyle Stuart Memorial Arena and Kyle Stuart Alumni Arena (Edge School for Athletes)	2008	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	17.3 km	✓
Pete Knight Memorial Arena	Unknown	1	Unknown	37 km	✓
Red Dutton and Joe Phillips Arenas (Springbank Park for All Seasons)	1969 (Dutton), 1997 (Phillips), 2007 (outdoor rink)	2	1: Unknown (Dutton) 2: 200 ft × 85 ft (Phillips)	13.6 km	✓
TSUUT'INA					
Seven Chiefs Sportsplex and Jim Starlight Centre	2019	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	7.5 km	✓
WHEATLAND COUNTY					
Hussar Arena	2001	1	195 ft × 58 ft	95.5 km	✓
Siksika Deerfoot Sportsplex	Unknown	2	1: 200 ft × 85 ft 2: Unknown	76.6 km	✓
Strathmore Family Centre Arena	1990	2	1: 200 ft × 100 ft 2: 200 ft × 85 ft	67 km	✓

2.4.2 CITY OF EDMONTON

The CoE currently has a total of 26 public arena facilities, as follows:

- 23 city facilities
- Three partner facilities
- Five private facilities, which are excluded from the table below:
 - Rogers Place
 - Northern Alberta Institute of Technology Arena
 - Clare Drake Arena (University of Alberta)
 - Royal Glenora Club
 - Knights of Columbus Sports Complex

A high-level understanding of arena facilities in the CoE is summarized in the table below. The ownership, year of construction, number and size of ice sheets, amenities provided, prime-time hours, and booking information are noted.

COE ICE FACILITIES								
ARENA	LOCATION	OWNERSHIP	YEAR CONSTRUCTED	# ICE SHEETS	SIZE OF ICE SHEET(S)	SPECTATOR VIEWING	AMENITIES	ICE ALLOCATION/BOOKINGS
Argyll	Edmonton NW 9933 Argyll Road	Partner	1984	1	200 ft × 85 ft	- 220 seating	- Four dressing rooms - Adjacent hotel	- Prime time: 7:00 a.m. to 11:00 p.m. weekdays, 6:00 a.m. to 11:00 p.m. weekends - Lower prices apply to non-prime time and minor league - Booked by phone or email
Bill Hunter (formerly Jasper Place)	Edmonton NW 9200 163 Street	City	1963	1	190 ft × 85 ft	- 1,600 seating - 200 standing	- Summer ice capabilities - Six dressing rooms - Concession - Designated warm-up area - Large lobby - Room available for booking	- Winter prime time: 6:00 p.m. to 11:00 p.m. weekdays, 8:00 a.m. to 11:00 p.m. weekends - Summer prime time: 6:00 p.m. to 12:00 a.m. weekdays, 6:00 a.m. to 12:00 a.m. weekends - Lower prices apply to non-prime time and summer bookings - Booked by phone or email through the CoE
Callingwood	Edmonton NW 17740 69 Avenue	City	1988	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	1: 220 seating 2: 220 seating	- Large lobby - Summer ice capabilities - Four dressing rooms - Two community rooms (one has a stage and kitchen) - Concession - Pro shop with skate sharpening	- The same as other CoE facilities, see Bill Hunter
Castle Downs	Edmonton NW 11520 153 Avenue	City	1989	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	1: 300 seating 2: 180 seating	- Summer ice capabilities - Four dressing rooms - Designated warm-up area (west side of lobby) - Figure skating room - Large lobby - Concession - Pro shop with skate sharpening	- The same as other CoE facilities, see Bill Hunter
Clareview	Edmonton NE 3804 139 Avenue	City	1991	2	1: 210 ft × 100 ft 2: 200 ft × 85 ft	1: 600 seating 2: 150 seating	- Summer ice capabilities - Four dressing rooms - Figure skating room - Designated warm-up area - Concession - Accessible rinks	- The same as other CoE facilities, see Bill Hunter
Confederation	Edmonton SW 11204 43 Avenue	City	1972	1	190 ft × 80 ft	- 900 seating - 200 standing	- Four dressing rooms - Designated warm-up area - Summer ice capabilities - Community rooms - Concession - Sledge hockey compatible	- The same as other CoE facilities, see Bill Hunter
Coronation	Edmonton NW 13500 112 Avenue	City	1970	1	190 ft × 85 ft	- 800 seating - 200 standing	- Summer ice capabilities - Four dressing rooms - Concession - No designated warm-up area	- The same as other CoE facilities, see Bill Hunter
Crestwood	Edmonton NW 9940 147 Street	City	1971	1	185 ft × 81 ft	- 150 seating - 100 standing	- Four changerooms, no showers - No designated warm-up area	- The same as other CoE facilities, see Bill Hunter
Donnan	Edmonton SE 9105 80 Avenue	City	1972	1	190 ft × 85 ft	- 108 seating - 242 standing	- Four dressing rooms, no showers - No designated warm-up area - Accessible rink	- The same as other CoE facilities, see Bill Hunter
Downtown Community	Edmonton NW 10245 105 Avenue	City	2016	1	200 ft × 85 ft	- 1000 seating	- Summer ice capabilities - Five dressing rooms - Rooms available for booking - No designated parking	- The same as other CoE facilities, see Bill Hunter

COE ICE FACILITIES								
ARENA	LOCATION	OWNERSHIP	YEAR CONSTRUCTED	# ICE SHEETS	SIZE OF ICE SHEET(S)	SPECTATOR VIEWING	AMENITIES	ICE ALLOCATION/BOOKINGS
George S Hughes South Side	Edmonton SW 10525 72 Avenue	City	1961	1	185 ft × 85 ft	- 1,100 seating	- Summer ice capabilities - Four dressing rooms - Concession - No designated warm-up area	- The same as other CoE facilities, see Bill Hunter
Glengarry	Edmonton NE 13340 85 Street	City	1972	1	190 ft × 85 ft	- 150 seating - 200 standing	- Four dressing rooms - No designated warm-up area	- The same as other CoE facilities, see Bill Hunter
Grand Trunk	Edmonton NW 13025 112 Street	City	1973	1	200 ft × 85 ft	- 350 seating - 100 standing	- Summer ice capabilities - Four dressing rooms - Designated warm-up area - Concession - Unisex washroom - Accessible rink	- The same as other CoE facilities, see Bill Hunter
Ice Palace at West Edmonton Mall	Edmonton NW 8770 170 Street	Partner	1983	1	200 ft × 85 ft	- Limited seating in lobby/skate change	- Dressing rooms - Dry pad activities (concerts, fundraising events)	- Public skating or group bookings - Booked by phone
Kenilworth	Edmonton SE 8311 68A Street	City	1969	1	190 ft × 85 ft	- 200 seating - 324 standing	- Four dressing rooms - Designated warm-up area - Concession	- The same as other CoE facilities, see Bill Hunter
Kinsmen Twin	Edmonton SW 1979 111 Street	City	1997	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	1: 400 seating 2: 200 seating	- Summer ice capabilities - Five dressing rooms	- The same as other CoE facilities, see Bill Hunter
Londonberry	Edmonton NE 14520 66 Street	City	1971	1	200 ft × 85 ft	- 450 seating - 75 standing	- Summer ice capabilities - Four dressing rooms - Designated warm-up area - Concession - Boardroom and offices	- The same as other CoE facilities, see Bill Hunter
Michael Cameron	Edmonton SE 10404 56 Street	City	1972	1	190 ft × 85 ft	- 110 seating - 240 standing	- Four dressing rooms - No designated warm-up area	- The same as other CoE facilities, see Bill Hunter
Mill Woods	Edmonton SE 7207 28 Avenue	City	1980	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	- 300 seating - 200 standing	- Summer ice capabilities - Four dressing rooms - Accessible rink	- The same as other CoE facilities, see Bill Hunter
Oliver	Edmonton NW 10335 119 Street	City	1974	1	190 ft × 85 ft	- 50 seating - 50 standing	- Four dressing rooms - No designated viewing area	- The same as other CoE facilities, see Bill Hunter
Russ Barnes	Edmonton NE 6725 121 Avenue	City	1966	1	190 ft × 81 ft	- 640 seating - 120 standing	- Summer ice capabilities - Four dressing rooms - Concession - No designated warm-up area	- The same as other CoE facilities, see Bill Hunter

COE ICE FACILITIES								
ARENA	LOCATION	OWNERSHIP	YEAR CONSTRUCTED	# ICE SHEETS	SIZE OF ICE SHEET(S)	SPECTATOR VIEWING	AMENITIES	ICE ALLOCATION/BOOKINGS
Subway (Terwillegar Community Recreation Centre)	Edmonton SW 2051 Leger Road	City	2011	4	1: 200 ft × 85 ft 2: 200 ft × 85 ft 3: 200 ft × 85 ft 4: 200 ft × 85 ft	1: 750 seating 2: 200–260 seating 3: 200–260 seating 4: 200–260 seating	<ul style="list-style-type: none"> - Large lobby - Warm viewing areas - Summer ice capabilities - Six community rooms - Concession - Restaurant 	- The same as other CoE facilities, see Bill Hunter
The Meadows (Meadows Community Recreation Centre)	Edmonton SE 2704 17 Street	City	2014	2	1: 200 ft × 85 ft 2: 200 ft × 85 ft	1: 250 seating 2: 500 seating	<ul style="list-style-type: none"> - Large lobby - Summer ice capabilities - Four dressing rooms per rink - Fully accessible ice sheet for sledge hockey - Multi-purpose rooms available for booking – indoor playground, child minding, part rooms, program rooms, community rooms - Concession - Outdoor public skating rink 	- The same as other CoE facilities, see Bill Hunter
Tipton	Edmonton SW 10828 80 Avenue	City	1972	1	190 ft × 85 ft	- 350 seating	<ul style="list-style-type: none"> - Four dressing rooms 	- The same as other CoE facilities, see Bill Hunter
Westwood	Edmonton NE 12040 97 Street	City	1972	1	176 ft × 80 ft	- 200 seating	<ul style="list-style-type: none"> - Large lobby - Summer ice capabilities - Four dressing rooms - No designated warm-up area - Accessible rink 	- The same as other CoE facilities, see Bill Hunter

3 TRENDS

3.1 INTRODUCTION

With shifting ideologies regarding what a community arena should offer, who should participate, how it should be managed, and how the facility should be designed, there are new opportunities for promoting community play, socialization, and adaptive sports.

Arenas lay the foundation for future competitive and high-performance athletes. These arenas provide space in which new athletes can be introduced to sports, on or off the ice, and they support the community.

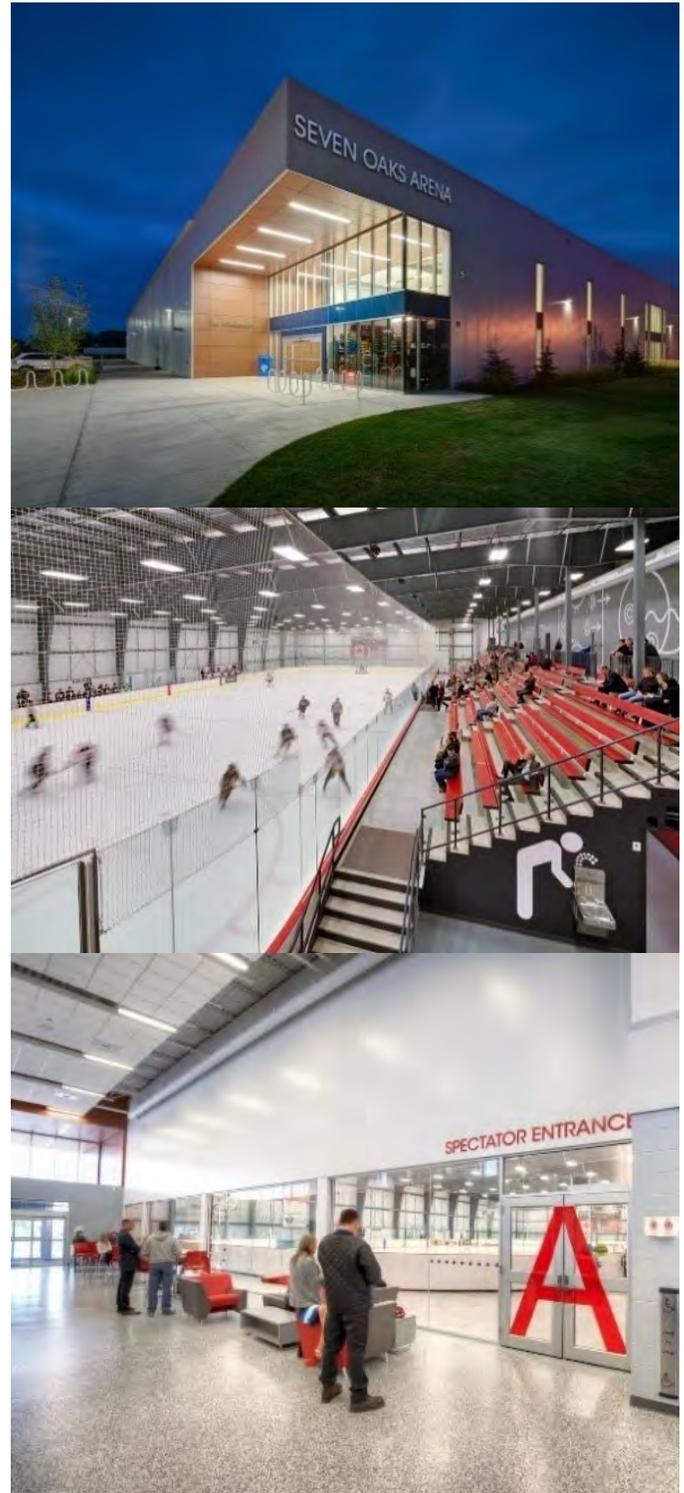
Trends that fall under the following three categories improve attraction, wellbeing, and satisfaction of communities, individuals, user groups, athletes, and sport teams:

- Social influences
- Environmental initiatives
- Economic and infrastructure function

If these trends are applied to CoC arenas, they should employ sustainable practices in the management of current CoC facilities and future builds.

“The recreation field needs to recruit and inspire new leaders (of all ages) who can address emerging trends and have knowledge in cultural diversity and emerging technologies.”¹¹

Framework for Recreation in Canada



Seven Oaks Arena, Winnipeg, Stantec¹²

¹¹Framework for Recreation in Canada, Pathways to Wellbeing, Canadian Parks and Recreation, 2015, pg.28

¹² Seven Oaks Arena, Winnipeg, Manitoba

3.1.1 TREND IDENTIFICATION

Dividing trends into three distinct categories allow for the information to be presented from social, environmental, and economic perspectives, based on the CoC TBL philosophy.

SOCIAL INFLUENCES

*participation data / diversity
equity and inclusion / ice
sports/facility design / wellness*

ENVIRONMENTAL INITIATIVES

*environmental sustainability /
siting / communities*

ECONOMIC AND INFRASTRUCTURE FUNCTION

*economic scale / aging
infrastructure / affordability /
capacity and supply / arena use
and revenue / asset
management*

3.1.2 IMPORTANCE OF TRENDS

Understanding trends—on both a statistical and behavioral level—facilitates the shifting of ideas and practices to keep pace with market demand and expectations of user groups, and to plan and manage financial responsibilities.

Benefits of trend identification include:

- Enhancing forecasting ability and road mapping of possible actions
- Establishing industry leaders
- Supporting informed proactive decisions
- Allowing for early warning indicators and opportunities for action
- Supporting user groups and community expectations regarding future needs
- Identifying available choices and options
- Discovering new and revolutionary opportunities
- Creating an environment of adaptability
- Identifying opportunities for improvement

Future projects should consider emergent trends and guidelines to ensure investment is consistent with current and best practices¹³.



RDC Gary W Harris, Hockey Practice ¹⁴

¹³ City of Calgary, 2016, Recreation Facility Development & Enhancement Report, (FDES) pg. 27 3.2.2

¹⁴ RDC Gary W Harris, Stantec, 2019

3.2 SOCIAL INFLUENCES

Social trends include observations based on socio-economical and socio-demographical data, and the general expectations of an individual, group, community, and city.

“Socio-demographic challenges and issues has seen an increase in sedentary behavior and obesity, decreased contact with nature, threats to the environment and inequities that limit participation.”¹⁵

Framework for Recreation in Canada

Arenas provide a space for ice sports including ice skating, hockey, sledge hockey, and ringette. When the ice is off or protected, dry pads allow for activities such as lacrosse, dry land training, and ball hockey. When children are exposed to sports early on in their lives, they have opportunities to learn life lessons, and some may even become aspiring athletes.

Arena amenities (e.g. dressing rooms, washrooms and showers, locker spaces, concession stands, lobbies and waiting areas, spectator viewing areas, and meeting rooms) are part of the collective experience of a community arena.

The Sport for Life policy mandates it will make daily life better for Calgarians by acknowledging sport as a fundamental human desire. It will create opportunities for all Calgarians to participate, experience, and enjoy sport to the fullest extent of their abilities and interest. The CoC’s ongoing commitment to support, collaborate, and work with Calgary’s vibrant Sport Sector and Partners to design and deliver appropriate sports programs for all Calgarians through all stages of life.¹⁶

FDES Summary | User Demand for Ice Arenas

The perception of ice facilities has changed. They were once perceived as dedicated spaces for hockey and figure skating, but communities now expect comprehensive recreational facilities that can adapt to individuals, families, and team sport groups to accommodate work, life, and play schedules.

The FDES indicates emergent trends, requirements, and requests from user groups, including the following:¹⁷

- One ice rink per population of 32,000, or one twin rink per population of 64,000
- Better allocation of ice time, ideally facilitated by a centralized booking system for all rinks
- Greater quality of ice rinks
- Not all rinks are regulation size
- Ice rinks should be standard NHL size (85 ft × 200 ft [1,579 m²])
- Changerooms are undersized; expectations include the following:
 - Participants changeroom: Eight 950-ft² (88-m²) changerooms including showers
 - Auxiliary changeroom: Four 500-ft² (46-m²) changerooms including showers
 - Officials changeroom: Two 320-ft² (30-m²) changerooms including showers
- Availability of meeting rooms (one 600-ft² [56-m²] room and/or one 800-ft² [746 m²] room)
- Spectator seating to accommodate 250 spectators
- A multi-activity court (MAC) (7,200 ft² [669 m²]) to function as a field house and accommodate:
 - Hockey warm-up
 - Space for uninvolved siblings
- The drive to the facility should be 20 minutes or less

¹⁵ Canada Parks and Recreation, A Framework for Recreation in Canada 2015, Pathways to Wellbeing https://static1.squarespace.com/static/57a2167acd0f68183878e305/t/5926efacebbd1a74b7b584d8/1495723950196/Framework+for+Recreation+In+Canada_2016+w+citation.pdf

¹⁶ City of Calgary, Sport for Life Policy, May 28, 2018

¹⁷ City of Calgary, 2016, Recreation Facility Development & Enhancement Report, (FDES) pg. 30

3.2.1 RECREATION PARTICIPATION

RECREATION FACILITY (USER PATTERNS)¹⁸

CoC recreation facility user patterns include the following:

- Approximately one-third (32%) of Calgarians use city recreation facilities
- Approximately 34% will use recreation facilities not run by the CoC
- Approximately half of users (47%) go to recreation facilities with their children
- Swimming and fitness are the main draws
- Original polling indicated 35% of Calgarians preferred smaller number of larger centres, while 42% wanted to see more local, community-based facilities
- A noted preference for larger centres could offer a greater comprehensive range of amenities and services
- A second poll indicated different findings, with a more even split between preferences for smaller local facilities and larger facilities

RECREATION PROGRAMMING

The arena profiles (see Appendix A) provide information on the variety of programs offered at each CoC arena facility. Ice programming includes hockey, sledge hockey, shinny hockey, ringette, skating lessons for children and adults, and free public skating. Dry pad programming includes lacrosse, soccer, basketball, in-line skating, ball hockey, skateboarding, yoga, day camps, craft sales, markets, trade shows, concerts, and community events.

Key findings on recreation activity and participation frequency from the demographic analysis are summarized in the adjacent table. Appendix D provides a more detailed breakdown of the information pertinent to the programming of all arena facilities, and details regarding how Calgarians use and spend money on sports and recreation. The data used in this analysis are taken from the CoC's 2016 census.

RECREATION ACTIVITY	
PHYSICAL ACTIVITY TYPE	DATA
Calgarian's Physical Activity Choices	Top 5 Activity Types
	Walking/hiking – 62%
	Exercise at home – 52%
	Bicycle ride – 42%
	Swimming – 40%
	Local arena and recreational facility – 31%
Children's Activities	Top 10 Children's Sports
	Swimming – 41%
	Soccer – 35%
	Other – 31%
	Hockey – 23%
	Gymnastics – 22%
	Ice skating – 13%
	Dancing – 11%
	Skiing – 10%
	Baseball – 10%
Martial arts – 7%	
ARENA ACTIVITIES	
ICE HOCKEY	
14% of population over the age of 15 play hockey	38% of 14% play 1–2 times per year
	62% of 14% play 3+ times per year
ICE SKATING	
22% of population over the age of 15 ice skate	39% skate 1–2 times per year
	38% skate 3–9 times per year
	23% skate 10+ times per year

¹⁸ City of Calgary, 2016, Recreation Facility Development & Enhancement Report, (FDES) pg. 7, pg. 15

ICE SKATING AND HOCKEY USER DEMAND SUMMARY

The following table focuses on ice skating and hockey usage. Percentages indicate how much of each arena's population participates in ice skating and hockey sports. Refer to Figure 8 and Figure 9 in Appendix D, for the top five arenas with the highest participation and bottom five arenas with the lowest participation.

ARENA PARTICIPATION ICE SKATING + HOCKEY					
WARD	BUILT	ARENA NAME	SKATING %	HOCKEY %	ASSOCIATED NEIGHBOURHOODS
Ward 1	1974	Bowness Sportsplex	16.67	24.44	Bowness, Crestmont, Greenwood/Greenbriar, Rocky Ridge, Royal Oak, Scenic Acres, Silver Springs, Tuscany, Valley Ridge, and Varsity
	1982	Crowchild Twin Arena	13.88	22.40	
		Shane Homes YMCA at Rocky Ridge	13.56	18.84	
Ward 1 average			14.24	21.23	
Ward 2	1991	Crowfoot Arena	13.10	25.43	Arbour Lake, Citadel, Evanston, Hamptons, Hawkwood, Kincora, Nolan Hill, Ranchlands, Royal Oak, Royal Vista, Sage Hill, and Sherwood
Ward 2 average			13.10	25.43	
Ward 3	2004	Vivo for Healthier Generations	18.01	22.08	Carrington, Country Hills, Country Hills Village, Coventry Hills, Harvest Hills, Hidden Valley, Keystone Hills, Livingston, and Panorama Hills
Ward 3 average			18.01	22.08	
Ward 4	1986	Brentwood Sportsplex	16.83	27.85	Beddington, Brentwood, Cambrian Heights, Charleswood, Collingwood, Dalhousie, Edgemont, Greenview, Highland Park, MacEwan, North Haven, Queens Park Village, Rosemont, Sandstone Valley, Thorncliffe
	1978	Huntington Hills Community Association	9.70	26.12	
	1972	Thornhill Aquatic and Recreation Centre, Murray Copot Arena	10.07	25.46	
	1967	Thorncliffe Greenview Community Association, Forbes Innes Arena	8.97	24.45	
	1972	Triwood Community Association	12.96	24.03	
Ward 4 average			11.78	25.59	
Ward 6	1971	Optimist and George Blundun Arenas	11.17	16.16	Coach Hill-Patterson Heights/Discovery Ridge/ Glamorgan/Glenbrook/ Glendale – Glendale Meadows/Signal Hill/Springbank Hill/Strathcona Park-Christie Park-Aspen Woods/ West Springs Cougar Ridge/ Westgate
	2000	Westside Recreation Centre	14.53	24.54	
Ward 6 average			13.15	19.61	
Ward 7	1963	Father David Bauer and Norma Bush Arenas	15.98	26.28	Banff Trail, Capitol Hill, Chinatown, Crescent Heights, Downtown Commercial Core, Downtown East Village, Eau Claire, Hillhurst, Hounsfeld Heights/Briar Hill, Montgomery, Mount Pleasant, Parkdale, Point McKay, Rosedale, St. Andrews Heights, Sunnyside, Tuxedo Park, University District, University Heights, University of Calgary, West Hillhurst, and Winston Heights/Mountview
	1972	Mount Pleasant Sportsplex	9.95	25.79	
	1972	Shouldice Arena	17.35	28.86	
	1971	West Hillhurst Community Association	15.90	25.85	
Ward 7 average			14.84	26.54	

ARENA PARTICIPATION ICE SKATING + HOCKEY					
WARD	BUILT	ARENA NAME	SKATING %	HOCKEY %	ASSOCIATED NEIGHBOURHOODS
Ward 9	1981	East Calgary Twin Arena	11.49	21.33	Albert Park/Radisson Heights, Applewood Park, Belvedere, Bridgeland/Riverside, Dover, Erin Woods, Fairview, Forest Heights, Forest Lawn, Inglewood, Manchester, Ogden, Penbrooke Meadows, Ramsay, Red Carpet, Renfrew, and Southview
	1968	Ernie Starr Arena	10.82	16.57	
	2016	Great Plains Recreation Facility	9.73	19.57	
	1972	Millican Ogden Community Association, Jack Setters Arena	11.38	20.41	
	1974	Max Bell Centre	10.80	19.88	
	1966	Stew Hendry and Henry Viney Arenas	9.45	23.70	
Ward 9 average			10.52	20.55	
Ward 10	1995	North East Sportsplex, Don Hartman Arena	11.33	30.21	Abbeydale, Coral Springs, Marlborough, Marlborough Park, Mayland Heights, Monterey Park, Pineridge, Rundle, Temple, Vista Heights, and Whitehorn
	1981	Village Square Leisure Centre	14.96	24.10	
Ward 10 average			13.01	27.38	
Ward 11	1981	Acadia Recreation Complex	16.38	25.12	Acadia, Bayview, Bel-Aire, Beltline, Braeside, Britannia, Cedarbrae, Chinook Park, Eagle Ridge, Elbow Park, Elboya, Erlton, Haysboro, Kelvin Grove, Kingsland, Lakeview, Maple Ridge, Mayfair, Meadowlark Park, Mission, North Glenmore Park, Oakridge, Palliser, Parkhill, Pump Hill, Rideau Park, Roxboro, Southwood, Willow Park, and Windsor Park
	1970	Oakridge Community Association	18.45	31.75	
	1968	Rose Kohn and Jimmie Condon Arenas	15.96	23.99	
	1983	Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas	16.12	29.09	
	1962	Stu Peppard Arena	18.22	19.42	
	2008	Trico Centre for Family Wellness	16.73	28.70	
Ward 11 average			16.75	26.61	
Ward 12	2019	Brookfield Residential YMCA at Seton	3.89	11.39	Auburn Bay, Copperfield, Cranston, Douglas Glen, Mahogany, McKenzie Towne, New Brighton, Quarry Park, Riverbend, Seton, Shepard
Ward 12 average			3.89	11.30	
Ward 13	2001	Cardel Rec South	12.27	23.73	Belmont, Bridlewood, Canyon Meadows, Evergreen, Millrise, Shawnee Slopes, Shawnessy, Silverado, Somerset, Woodbine, Woodlands, and Yorkville.
Ward 13 average			12.27	23.73	
Ward 14	1975	Frank McCool Arena	19.11	30.13	Bonavista Downs, Chaparral, Deer Ridge, Deer Run, Diamond Cove, Douglasdale /Glen, Lake Bonavista, Legacy, McKenzie Lake, Midnapore, Parkland, Queensland, Sundance, Walden, and Wolf Willow
	1978	Lake Bonavista Community Association	16.16	28.53	
Ward 14 average			17.26	29.13	

ICE HOCKEY PARTICIPATION

The following table indicates the percentage of each arena's population that is actively involved in the sport of hockey. Percentages are ordered from least to greatest.

ICE HOCKEY PARTICIPATION (ASCENDING AVERAGE)				
POSITION	WARD	BUILT	ARENA	%
1	Ward 12	2019	Brookfield Residential YMCA at Seton	11.39
			Ward 12 average	11.30
2	Ward 6	1971	Optimist and George Blundun Arenas	16.16
		2000	Westside Recreation Centre	24.54
			Ward 6 average	19.61
3	Ward 9	1981	East Calgary Twin Arena	21.33
		1968	Ernie Starr Arena	16.57
		2016	Great Plains Recreation Facility	19.57
		1972	Millican Ogden Community Association, Jack Setters Arena	20.41
		1974	Max Bell Centre	19.88
		1966	Stew Hendry and Henry Viney Arenas	23.70
			Ward 9 average	20.55
4	Ward 1	1974	Bowness Sportsplex	24.44
		1982	Crowchild Twin Arena	22.40
		2014	Shane Homes YMCA at Rocky Ridge	18.84
			Ward 1 average	21.23
5	Ward 3	2004	Vivo for Healthier Generations	22.08
			Ward 3 average	22.08
6	Ward 13	2001	Cardel Rec South	23.73
			Ward 13 average	23.73
7	Ward 2	1991	Crowfoot Arena	25.43
			Ward 2 average	25.43
8	Ward 4	1986	Brentwood Sportsplex	27.85
		1978	Huntington Hills Community Association	26.12
		1972	Thornhill Aquatic and Recreation Centre, Murray Copot Arena	25.46
		1967	Thornccliffe Greenview Community Association, Forbes Innes Arena	24.45
		1972	Triwood Community Association	24.03
			Ward 4 average	25.59
9	Ward 11	1981	Acadia Recreation Complex	25.12
		1970	Oakridge Community Association	31.75
		1971	Rose Kohn and Jimmie Condon Arenas	23.99
		1983	Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas	29.09
		1962	Stu Peppard Arena	19.42
		2008	Trico Centre for Family Wellness	28.70
			Ward 11 average	26.61
10	Ward 7	1963	Father David Bauer and Norma Bush Arenas	26.28
		1972	Mount Pleasant Sportsplex	25.79
		1972	Shouldice Arena	28.86
		1971	West Hillhurst Community Association	25.85
			Ward 7 average	26.54
11	Ward 10	1995	North East Sportsplex, Don Hartman Arena	30.21
		1981	Village Square Leisure Centre	24.10
			Ward 10 average	27.38
12	Ward 14	1975	Frank McCool Arena	30.13
		1978	Lake Bonavista Community Association	28.53
			Ward 14 average	29.13

ICE SKATING PARTICIPATION

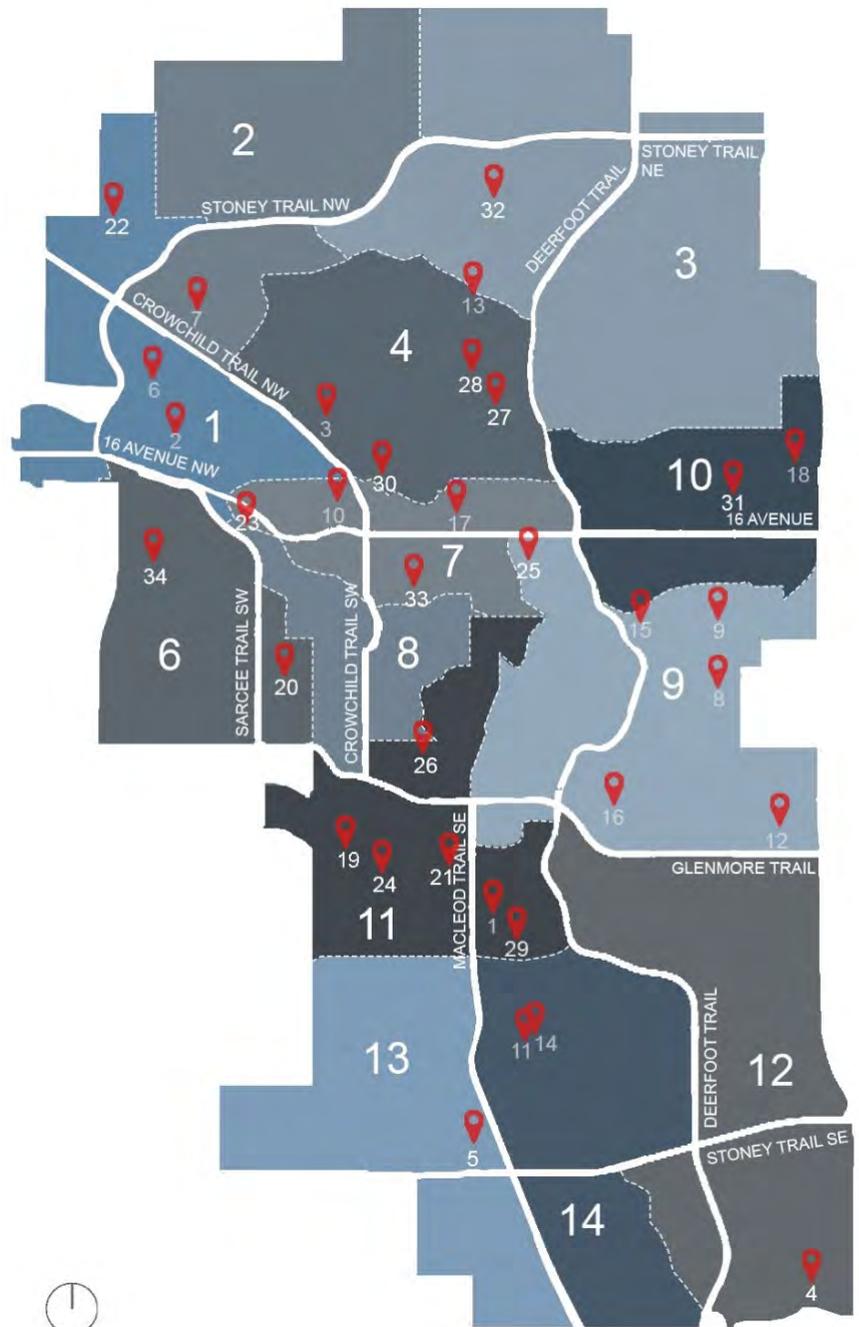
The following table indicates the percentage of each arena's population that is actively involved in ice skating. Percentages are ordered from least to greatest.

ICE SKATING PARTICIPATION (ASCENDING AVERAGE)				
POSITION	WARD	BUILT	ARENA	%
1	Ward 12	2019	Brookfield Residential YMCA at Seton	3.89
			Ward 12 average	3.89
2	Ward 9	1981	East Calgary Twin Arena	11.49
		1968	Ernie Starr Arena	10.82
		2016	Great Plains Recreation Facility	9.73
		1972	Millican Ogden Community Association, Jack Setters Arena	11.38
		1974	Max Bell Centre	10.80
		1966	Stew Hendry and Henry Viney Arenas	9.45
			Ward 9 average	10.52
3	Ward 4	1986	Brentwood Sportsplex	16.83
		1978	Huntington Hills Community Association	9.70
		1972	Thornhill Aquatic and Recreation Centre, Murray Copot Arena	10.07
		1967	Thornccliffe Greenview Community Association, Forbes Innes Arena	8.97
		1972	Triwood Community Association	12.96
			Ward 4 average	11.78
4	Ward 13	2001	Cardel Rec South	12.27
			Ward 13 average	12.27
5	Ward 10	1981	Village Square Leisure Centre	14.96
		1995	North East Sportsplex, Don Hartman Arena	11.33
			Ward 10 average	13.01
6	Ward 2	1991	Crowfoot Arena	13.10
			Ward 2 average	13.10
7	Ward 6	1971	Optimist and George Blundun Arenas	11.17
		2000	Westside Recreation Centre	14.53
			Ward 6 average	13.15
8	Ward 1	1974	Bowness Sportsplex	16.67
		1982	Crowchild Twin Arena	13.88
		2014	Shane Homes YMCA at Rocky Ridge	13.56
			Ward 1 average	14.24
9	Ward 7	1963	Father David Bauer and Norma Bush Arenas	15.98
		1972	Mount Pleasant Sportsplex	9.95
		1972	Shouldice Arena	17.35
		1971	West Hillhurst Community Association	15.90
			Ward 7 average	14.84
10	Ward 11	1981	Acadia Recreation Complex	16.38
		1970	Oakridge Community Association	18.45
			Rose Kohn and Jimmie Condon Arenas	15.96
		1983	Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas	16.12
		1962	Stu Peppard Arena	18.22
		2008	Trico Centre for Family Wellness	16.73
			Ward 11 average	16.75
11	Ward 14	1975	Frank McCool Arena	19.11
		1978	Lake Bonavista Community Association	16.16
			Ward 14 average	17.26
12	Ward 3	2004	Vivo for Healthier Generations	18.01
			Ward 3 average	18.01

Map provided for reference of arena locations and designated wards.

ARENA NAME

- 1 Acadia Recreation Complex
- 2 Bowness Sportsplex
- 3 Brentwood Sportsplex
- 4 Brookfield Residential YMCA at Seton
- 5 Cardel Rec South
- 6 Crowchild Twin Arena
- 7 Crowfoot Arena
- 8 East Calgary Twin Arena
- 9 Ernie Starr Arena
- 10 Father David Bauer and Norma Bush Arenas
- 11 Frank McCool Arena
- 12 Great Plains Recreation Facility
- 13 Huntington Hills Community Association
- 14 Lake Bonavista Community Association
- 15 Max Bell Centre
- 16 Millican Ogden Community Association, Jack Setters Arena
- 17 Mount Pleasant Sportsplex
- 18 North East Sportsplex, Don Hartman Arena
- 19 Oakridge Community Association
- 20 Optimist and George Blundun Arenas
- 21 Rose Kohn and Jimmie Condon Arenas
- 22 Shane Homes YMCA at Rocky Ridge
- 23 Shouldice Arena
- 24 Southland Leisure Centre, Ed Whalen and Joseph Kryczka Arenas
- 25 Stew Hendry and Henry Viney Arenas
- 26 Stu Peppard Arena
- 27 Thorncliffe Greenview Community Association, Forbes Innes Arena
- 28 Thornhill Aquatic and Recreation Centre, Murray Copot Arena
- 29 Trico Centre for Family Wellness
- 30 Triwood Community Association
- 31 Village Square Leisure Centre
- 32 Vivo for Healthier Generations
- 33 West Hillhurst Community Association
- 34 Westside Recreation Centre



3.2.2 DEMOGRAPHIC TRENDS

CALGARY POPULATION AND DEMOGRAPHIC OVERVIEW

As of 2016, Calgary's population was 1,392,610. The city's median age is 37.2 years, making it the fourth youngest city in Canada.

The percentages of women and men in each age group are similar, excluding the age group of 65 and older, in which the number of women increases.¹⁹

The demographic analysis summary (refer to Appendix D) notes the following populations for each representative age group:

- Children 0–14 represent 220,030
- People ages 15–49 represent 471,305
- People 50 and older represent 417,075

CALGARY CMA POPULATION/AGE/GENDER DEMOGRAPHICS					
AGE	TOTAL	FEMALE	MALE	AGE GROUPED	% POPULATION BY AGE GROUP
0–4	89,105	43,365	45,740	180,905	12%
5–9	91,800	44,510	47,295		
10–14	80,545	39,420	41,125	160,025	11%
15–19	79,480	38,635	40,845		
20–24	86,685	42,680	40,005	196,190	14%
25–29	109,505	55,210	54,295		
30–34	121,380	60,940	60,440	234,270	16%
35–39	112,890	56,905	55,980		
40–44	105,290	52,585	52,705	204,135	14%
45–49	98,845	48,800	50,050		
50–54	97,860	48,890	48,970	264,070	19%
55–59	92,715	46,275	46,440		
60–64	73,495	36,580	36,015		
65+	153,005	82,680	70,325	153,005	14%
TOTAL	1,392,610	697,480	695,130	1,392,610	100%

¹⁹ Census Profile, 2016 Census, Statistics Canada, <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CMACA&Code1=825&Geo2=PR&Code2=47&Data=Count&SearchText=Langdon&SearchType=Begins&SearchPR=01&B1=All>

DEMOGRAPHIC BREAKDOWN

The following describes demographic details regarding Calgary's population, including ages, cultural diversity, and underrepresented groups in relationship to participation and access to arena facilities and ice sports.

Sport for Life Canadian Summit recognizes that participating in quality sport and having strong physical literacy offers rich benefits to the individual and society through improved health, stronger communities, higher sporting achievement, and greater national identity.²⁰

Physical Literacy in Alberta: Continuing the Conversation ²¹

"Physical literacy is the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life."

The International Physical Literacy Association, May 2014

Through the many affiliated Canadian, Alberta and Calgary health, recreation, and sport organizations, it is clear that a higher level of physical literacy influences who and how much exercise and sports people of all ages and diversity participate in.

Calgary's Aging Population

It is estimated that by 2031, one in four Canadians will be older than 65+; people 100 years and older will contribute to the fastest growing demographic group.

- Calgary Census 2016 – 153,005 Calgarians are over the age of 65 ²²
- Older adults over the age of 65+ will surpass children under the age of 14 by 2033 ²³
- Active Aging Strategy Calgary 2015 survey of physical activity indicates 42% of adults over the age of 65+ are physically active enough to benefit from this activity ²⁴

Physical activity is critical to the health and wellbeing of all people. Scientific data and research provide indisputable evidence related to the importance of participating in physical, social, and creative activities as people age. ²⁵

Regular exercise (i.e. approximately 150 minutes per week) can reduce the severity of age-related disease, help maintain independence, and provide positive physical, mental, and cognitive benefits. ²⁶

Barriers identified as obstacles to participation include affordability, transportation, concern of falling, access to program information (both written and digital), decrease of motivation in older adulthood, and chronic disease.

Calgary has a high proportion of older adults that are new Canadians, and they may experience language and cultural barriers. Social isolation plays a large factor in participation, and governments and communities are looking to come up with ways to reach and support more people.

²⁰ 2021 Sport for Life Canadian Summit, 2021, <https://sportforlifecanada.ca/>

²¹ Advancing Physical Literacy in Alberta: Continuing the Conversation, WinSport Institute, Calgary, March 9, 2016, <https://albertasport.ca/uploads/Continuing-the-Conversation-2016-PL-AB.pdf>

²² Census Profile, 2016 Census, <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CMACA&Code1=825&Geo2=PR&Code2=47&Data=Count&SearchText=Langdon&SearchType=Begins&SearchPR=01&B1=All>

²³ Calgary's Aging Population, September 2015, www.calgary.ca/csp/cns/research-and-strategy/seniors-and-aging-population.html, pg. 2

²⁴ Calgary Recreation, Active Aging 2016–2018, December 2015, v1, pg., 5

²⁵ Ibid.

²⁶ Ibid, pg. 3

The CoC Recreation Active Aging Strategy 2016–2018 identifies four goals strategic objectives to work toward encouraging a larger number of older adult Calgarians to be more active and creative at a greater frequency: ²⁷

1. Getting More Older Adult into Programs and Facilities
2. Providing Inspiring Customer Service
3. Keeping Our Customers
4. Sustaining Our Commitment to Active Aging Strategies

Positive trends that support greater physical activities and social interaction in the 65+ age group include participating in Masters Games, volunteering, grandparent and grandchild participation, and personal training and coaching.

Calgary Recreation offers recreation programs to encourage participation, including Seniors' Week, Active Aging Week, recreation program registration, gentle fitness, and a recreation fee assistance program.

Other programs include drop-in seniors' skate, specialized training with fitness specialists, piloting programs with Alberta Health Services, and planned social and coffee events at most recreation facilities.

KEY STRATEGIES FOR OLDER ADULT RECREATIONAL ARENA ENGAGEMENT

The following actionable items could promote arena participation for older adults: ²⁸

- Provide inspiring customer experience with well-trained and supportive staff, in a safe and welcoming environment
- Develop incentives for customer retention and motivation
- Create arena programs that encourage social interaction on and off ice
- Reduce the transportation barrier
- Encourage older adult women to learn an ice sport, such as hockey or ringette
- Provide support for health rehabilitation and injury prevention, particularly on the ice
- Create opportunities to encourage isolated adults to watch and participate in activities
- Connect with Calgary Senior Services and Resources, Affordable Housing Calgary, and private senior housing operators

STRATEGIES FOR FACILITY DESIGN

The following design strategies could promote participation in facility programs:

- Create spaces with warming centres and access to warm beverages
- Ensure that all common area flooring is slip resistant (rubber flooring) and not a hard surface
- Ensure that spaces are well lit and free of hidden obstacles and tripping hazards
- Plan for graphic and technology-based messaging boards and screens

²⁷ Active Aging Strategy 2016-2018 Calgary, December 2015, pg. 16

²⁸ City of Calgary, Calgary's Aging Population: An Overview of the Changing and Aging Population in Calgary, September 2015, <https://www.calgary.ca/CSPS/CNS/Documents/Social-research-policy-and-resources/calgary-aging-population.pdf>

GENDER PLAY GAP

According to the 2016 Census, there are 697,480 females in Calgary, accounting for 51% of the population. One third of Canadian women do not get enough exercise, and an alarming 62% of Canadian girls are not participating in any kind of sport.²⁹

DECLINE OF CANADIAN WOMEN'S PARTICIPATION IN SPORTS

1992 – 50% of women aged 15 and older participated in sports

2010 – 35% of women aged 15 and older participated in sports

2020 1 – 8% of women aged 16 to 63 are involved in sports

Girls and young people are often not engaging in physical activity and sports during formative years (i.e. 0–14 years). Canadian Women and Sport found that one in three girls are likely to leave sports in their late teens, while only one in ten boys aged 16–18 is likely to leave sports.³⁰

Females typically choose different types of activities, particularly those focused on creativity and individual forms of play. The top 10 organized sports that girls participate in are swimming, dance, soccer, ballet, gymnastics, skating, running, basketball, volleyball, and trampoline.

If by age 10 a girl has yet to join a sport of some kind, there is only a 10% chance that she will be physically active as an adult. As girls enter adolescence, the participation drops another 22%, and school sport drops by 26%.³¹

Social pressure from parents, guardians, and peers plays a significant role in starting and continuing sports. Peer pressure, social support, encouragement, positive role models, self-confidence, and finances are the top contributing factors to young people staying in or dropping out of sports. Young girls reported the following issues as contributing to their decision to drop out of sports:

- One in three girls reported low confidence, negative body image, perceived lack of skill, and not belonging
- One in five girls reported bullying and safety concerns
- One in ten reported religion or culture

Adult women state that the single biggest deterrent is not having enough time while managing career demands, child rearing, parental caregiving, and unequal household management. Affordability can also play a role in attending classes and sports.

Older adult women can benefit immensely from regular exercise. Physical activity can improve outcomes of cardiovascular disease, stroke, diabetes, and some types of cancer. It is also associated with improved mental health, quality of life, and wellbeing. Exercise has shown to reduce falls by 21% when combined with balance activities, or when an individual exercises more than three hours/week.³²

There are significant physical, psychological, and social benefits to women continuing in sports, including long-term health, wellbeing, and academic and career success. To reap the benefits of sports and physical activity, an individual must continue to play throughout their life span and must overcome the challenges that hinder their participation.

²⁹ The Rally Report: Encouraging Action to Improve Sport for Women and Girls, Canadian Women & Sport, June 2020, https://womenandsport.ca/wp-content/uploads/2020/06/Canadian-Women-Sport_The-Rally-Report.pdf, pg. 7

³⁰ CBC (2020) 1 in 3 girls drop out of sports by late teens, June 11, 2020, <https://www.cbc.ca/sports/youth-sports-teenagers-female-male-participation-1.5607509>

³¹ The Rally Report: Encouraging Action to Improve Sport for Women and Girls, Canadian Women & Sport, June 2020, https://womenandsport.ca/wp-content/uploads/2020/06/Canadian-Women-Sport_The-Rally-Report.pdf

³² Langhammer, B., Bergland A., Rydwick, E., Importance of Physical Exercise among Older People, PMC63004477, December 5, 2018, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC63004477/>

To encourage girls and women's participation in arena environments, exposure to ice sports is critical, as well as safety of changerooms and site access, mentorship and engagement availability, and community and parental involvement.

The COVID-19 pandemic has further impacted girls in sports; it is expected that one in four girls are not committed to returning to sports.³³ This is a concerning trend that may see over 350,000 girls in Canada not participating in physical activity and organized sports, and missing out on the associated mental and physical health benefits, social connection opportunities, and leadership development opportunities.

CALGARY'S CULTURAL DIVERSITY

Calgary is the third most ethnically diverse city in Canada, with 33.7% of the population designated as Black, Indigenous, and other people of colour (BIPOC) and new Canadians. For BIPOC and new Canadians, recreation facilities play an important role in social connection, sport development, and access to programs.

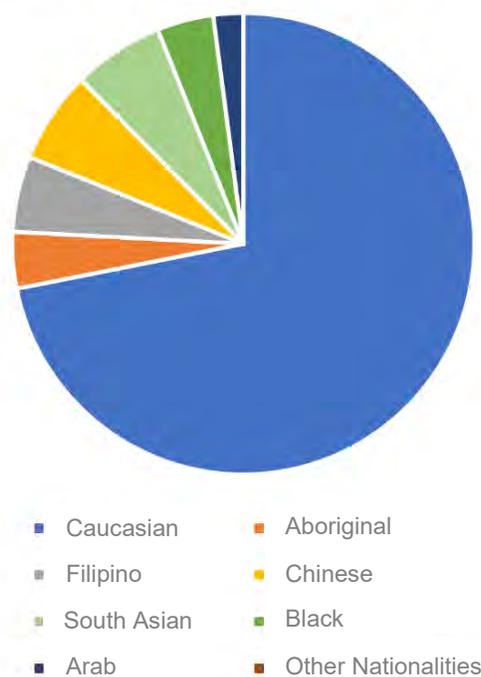
CoC demographic trends related to BIPOC and new Canadians are as follows:

- In 2020, the Alberta BIPOC/new Canadian population is estimated to have reached almost 500,000 with China, South Asia, Philippines, and India as lead source countries for immigration into the province³⁴
- 29.4% of Calgary's population are new Canadian immigrants³⁵
- Calgary's population diversity is expected to continue over the next decade, providing the city with increasingly rich cultural contributions;

there are over 120 different languages spoken within the city

- For many years, people used to move elsewhere in Canada to find jobs and opportunity; however, in the last 12 years, Calgary has been the destination for new immigrants despite the economic turbulence in Alberta's oil and gas industry³⁶
- Data indicates that new Canadians, with their families, use recreation facilities much more often than other Calgarians³⁷
- Gender diversity indicates that 72% of foreign-born men (over the age of 15) and 61% of Canadian-born men participate in sports on a regular basis, whereas women's number are reversed³⁸

Calgary's Ethnocultural Demographic



³³ COVID Alert: Pandemic Impact on Girls in Sport, Canadian Women & Sport, July 2021, <https://womenandsport.ca/wp-content/uploads/2021/07/COVID-Alert-final-English-July-2021.pdf>

³⁴ Census Profile, 2016 Census, StatsCan, <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CMACA&Code1=825&Geo2=PR&Code2=48&Data=Count&SearchText=calgary&SearchType=Begins&SearchPR=01&B1=Visible%20minority&TABID=1>

³⁵ "Why Calgary? Our Economy in Depth". Calgary Economic Development, 2020, <https://calgaryeconomicdevelopment.com/dmsdocument/22>

³⁶ Economic Profile Series: Calgary, Alberta. Immigration, Refugees, And Citizenship Canada, 2020, pp. 1–2, <https://www.canada.ca/content/dam/ircc/migration/ircc/english/pdf/immigration-matters/economicprofile-calgary-ab-en-final-update.pdf>. Accessed 22 Dec 2020.

³⁷ Playbook 2030, Active City Collective, City of Calgary (2019) pg. 39

³⁸ Ibid.

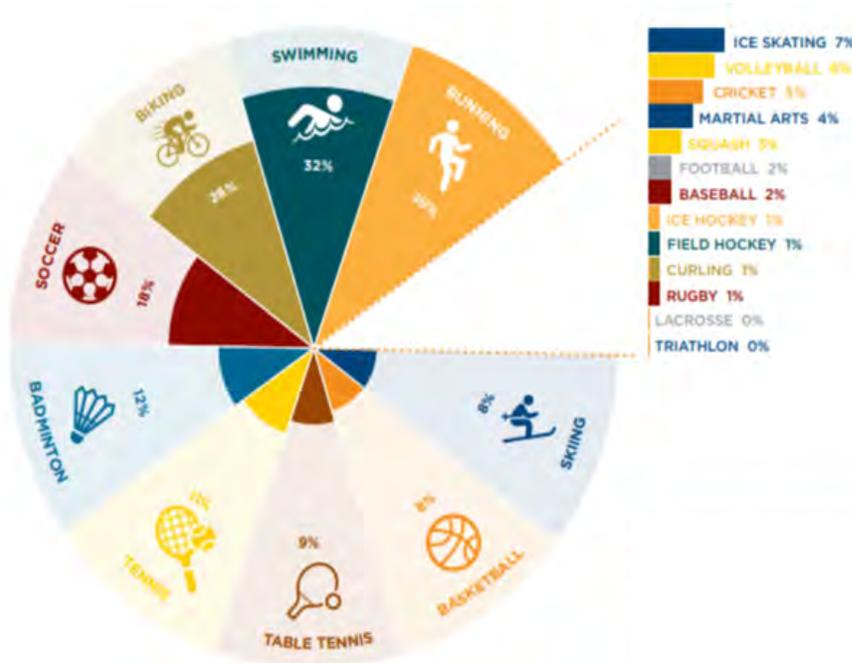
The Institute for Canadian Citizenship (ICC) completed a report entitled *Playing Together new citizens, sports and belonging*. The report identifies and discusses barriers for new Canadians getting involved in sports and provides recommendations and ideas to implement or encourage participation for all ages and levels.³⁹

The below chart indicates that ice sports and arena attendance for new citizens is a fraction of the available activities chosen. Research indicates that new Canadians are not as likely to register their children for hockey as they are for other sports; hockey is viewed as excessively violent and costs for equipment and registration are considered unaffordable. Getting to hockey practices and tournaments can be also difficult with lack of proper transportation for children and equipment.⁴⁰

KEY STRATEGIES FOR ENGAGEMENT

The following actionable items could promote arena participation from BIPOC and new Canadians:

- Create opportunities to connect and learn about Canadian culture
- Find ways to make participating more affordable via equipment sharing programs, financial subsidies, and commitment from citizens for the advancement of sports within new Canadian communities
- Aid in signing up for programs and lessons; reduce confusion and heighten awareness regarding registration requirements
- Teach rules for ice and dry pad sports so that residents better understand the sports' intents
- Seek to understand the issues new Canadian's face, including adapting to weather, settling into new surroundings, and adjusting to new and potentially confusing processes
- Support increasing physical literacy gaps and inform on the benefits of physical activities



³⁹ Playing Together: new citizens, sports & belonging, Institute for Canadian Citizenship, 2014, https://www.inclusion.ca/site/uploads/2016/10/PlayingTogether-Highlights_FINAL.pdf

⁴⁰ London Free Press, 2018, Area minor hockey group blows whistle on shrinking enrolment numbers, Beiman, J. March 13, 2018 Area minor hockey group blows whistle on shrinking enrolment numbers | London Free Press (lfpress.com)

INDIGENOUS PEOPLES OF CALGARY

Based on the 2016 Census, the demographic of Indigenous peoples living in Calgary includes First Nations, Metis, Inuit, and other Aboriginal identities. Statistics regarding the Indigenous peoples living in Calgary are as follows:

- 46,385 individuals call the city home in 2016, accounting for 2.84% of the population: an increase of 6.33% from 2011⁴¹
- The median age is 28 years, 9.2 years younger than Calgary's average of 37.2⁴²

Information on how CoC arena facilities are utilized by Indigenous peoples is not readily available at this time.

Aboriginal Sport Circle (ASC) is Canada's national organization supporting Aboriginal sport, physical activity, and recreation.⁴³ In partnership with Sport for Life, Long-Term Participant Development Pathways presents a roadmap for developing and encouraging sport and physical activity among First Nations, Inuit, and Metis peoples.⁴⁴

The report lists ten key factors for building a foundation for participant development; Physical Literacy, Specialization, Developmental Age, Optimal Training Periods, Planning Training Competition and Recovery, Excellence Takes Time, Working Together, and Continuous Improvement.

The following sporting events highlight the need for recreational facilities within Aboriginal and rural/urban communities for the development of physical activity and sporting excellence:

- The National Aboriginal Hockey Championships (NAHC) established by ASC in 2022 serves as the premiere competition for young Aboriginal male and female hockey players from across thirteen provinces and territories⁴⁵
- The North American Indigenous Games (NAIG) is a multi-sport event and cultural celebration involving Indigenous Athletes from across North America staged intermittently since 1990.⁴⁶

The Truth and Reconciliation Commission of Canada (TRC) Calls to Action 87–91⁴⁷ tell stories of Aboriginal athletes, as follows:

- Ensure Aboriginal long-term participant development
- Create a pathway leading to a vibrant, well-funded NAIG
- Amend the Physical Activity and Sport Act to reduce barriers and increase numbers of high-performing athletes
- Ensure that national sports policies, programs, and initiatives are inclusive

⁴¹ Playbook 2030, Active City Collective, City of Calgary, 2019, pg. 41

⁴² Calgary% Aboriginal Population., Alberta Public Affairs Bureau, <https://regionaldashboard.alberta.ca/region/calgary/percent-aboriginal-population/#/>

⁴³ Aboriginal Sport Circle, 2021, <https://www.aboriginalsportcircle.ca>

⁴⁴ Indigenous Sport for Life, Long Term Participant Development Pathway, Sport for Life, 2019, https://sportforlife.ca/wp-content/uploads/2019/09/ILTPD_Sept2019_EN_web.pdf

⁴⁵ NAIG History, Aboriginal Sport Circle, 2021, <https://www.aboriginalsportcircle.ca/naig>

⁴⁶ National Aboriginal Hockey Championships(NAHC), Aboriginal Sport Circle, 2021, <https://www.aboriginalsportcircle.ca/nahc>

⁴⁷ Truth and Reconciliation Commissioning of Canada: Calls to Action, 2015, http://trc.ca/assets/pdf/Calls_to_Action_English2.pdf

Indigenous Sporting and Rink Development Initiatives

Tsuut'ina opened the largest sports complex in a Southern Alberta First Nation in 2019: the Seven Chiefs Sportsplex and Chief Jim Starlight Centre.⁴⁸ The 21,180 m² facility features two indoor NHL-regulation-sized ice rinks, with seating for 2,000 and 400 spectators in the first and second rink, respectively. A third, year-round, covered outdoor rink provides additional flexibility for training, scrimmages, practice, and other uses. A state-of-the-art field house and training centre supports the complex, community, and competitive and high-level athlete training and sports development.

The Seven Chiefs Sportsplex and Chief Jim Starlight Centre's mission statement is:

"To provide an outstanding experience, professional service, and the legendary hospitality of the Tsuut'ina way for our Nation members, our neighbors in the Calgary community and guests from across Canada and around the world when they visit the 7 Chiefs Sportsplex and Chief Jim Starlight centre⁴⁹".

SPORTS AND WELLNESS LGBTQ2IAS+

Results from the StatsCan Canadian Community Health Survey (CCHS) for 2015 and 2016 indicate 1.4% of individuals in Canada aged 15 and older identify as homosexual, and 1.5% identify as bisexual, with differences from province to province.

Other estimates suggest the percentages are higher and could be closer to 10% of the population, with an increasing number of Canadians identifying at a younger age than in the past. Assuming that a similar proportion (3%) of the Calgary population identifies as lesbian, gay, or bisexual (LGB), the LGB population in Calgary would range from 33,000 up to 110,000 individuals.

Participation in sports is important for health and social development; however, some LGBTQ2IAS+ athletes can feel isolated, and either feel the need to hide their identity or are a target of discrimination and harassment. On a positive note, younger athletes and coaches are feeling more comfortable with sexual gender diversity and are coming out during their sport career.⁵⁰ With shifting behaviours and increasing awareness, progress is being made in terms of acceptance, with inspiration coming from groups that strive to break down barriers of discrimination.

Calgary Inclusive Hockey Association (CIHA)⁵¹

The CIHA was formed with a single goal to create a local hockey organization that focuses on LGBTQ2IAS+ equality in sports. The Calgary Pioneers have been playing in the WinSport Hockey Canada League since 2015, with the newest team—the Villagers—starting up in 2017.

NHL Hockey is for Everyone⁵²

The NHL provides support for 26 grassroots hockey organizations across North America to help more than 120,000 children, and leverage the game to teach commitment, perseverance, and teamwork to reinforce the idea that hockey is for everyone.

⁴⁸ Tsuut'ina sportsplex, southern Alberta First Nation, May 21, 2019, <https://www.cbc.ca/news/canada/calgary/seven-chiefs-sportsplex-chief-jim-starlight-centre-1.5144121>

⁴⁹ 7 Chiefs Sportsplex & Chief Jim Starlight Centre <https://www.7chiefs.com/>

⁵⁰ ESPURG/ Dec 2011/ 2nd edition/ page 28 / <https://sirc.ca/wp-content/uploads/2020/06/Encouraging-Sport-Participation-in-UnderRepresented-Groups-2nd-Edition-Final-Dec-31.pdf>

⁵¹ Calgary Inclusive Hockey Association, Pioneer Hockey, 2021, <https://pioneershockey.ca/>

⁵² NHL Hockey is for Everyone / website / <https://www.nhl.com/community/hockey-is-for-everyone>

You Can Play⁵³

You Can Play's mission is to ensure the safety and inclusion of all who participate in sports, including LGBTQIAS+ athletes, coaches, and fans. By creating a community of allies, they foster a true feeling of belonging in sports. The program's focus is on each person's skills, work ethic, and competitive spirit, and not on sexual orientation and gender identity.

KEY STRATEGIES FOR ENGAGEMENT

Recommendations from the CoC Cultural Plan (2019–2022) include the following:

- B 1.1: Deepen engagement with youth, seniors, and LGBTQIAS2+ communities when developing cultural programs and facilities. (CoC, Partners)⁵⁴
- B 1.3: Explore the establishment of an Ethno-Cultural Advisory Committee to Council to inform and ensure transparency and accountability related to plans, policies, and programs directed at addressing the needs of ethnocultural communities. (CoC, ECCC)⁵⁵
- A 3.4: Reduce the facility challenges facing community halls to enable community associations to focus their energy and resources on the delivery of community programs (CoC, Federation, BRZ)⁵⁶

The common messaging for all those identifying as LGBTQ2IAS+ is the need for access to safe and harassment-free environments, including washrooms and changerooms within sport and athletic training facilities.

Refer to Section 3.2.4 for information relating to design, messaging, and signage that can contribute to greater positive experiences in arena settings, supporting the wellness and inclusion of all.

⁵³ You Can Play, 2021, <https://www.youcanplayproject.org/>

⁵⁴ Cultural Plan, City of Calgary, pg. 38 <https://www.calgary.ca/csps/recreation/arts-and-culture/cultural-plan-for-calgary.html>

⁵⁵ Ibid, pg.38

⁵⁶ Ibid, pg. 40

3.2.3 ICE SPORT TRENDS

Women's and Men's Amateur Hockey Canada

The game of hockey has continued to grow nationally, with Alberta consistently maintaining the third highest amateur registration numbers (behind Ontario and Quebec) for decades up to the 2019–2020 season, despite the unprecedented cancellation of the remainder of the 2020 season.

According to Hockey Canada's 2019–2020 Annual Report, between the 2007–2008 to the 2019–2020 seasons, hockey experienced a national growth rate of 8.4%, with female registration at 31.5%, significantly outpacing male registration at 4.7%. Over this period, female players—as a percentage of all hockey players—grew from 13.9% to 17%.

Hockey Calgary is the largest minor hockey association in Alberta and one of the fastest growing in North America, with 20 member associations and over 14,300 players. While there are clear regional distinctions with respect to hockey's influence, the trends suggest the sport will continue to play a dominant role in local arena demand for years to come.

Skate Canada: Alberta-NWT/Nunavut Section

According to the Skate Canada Annual Report 2018–2019, the Alberta-NWT/Nunavut Section is the third largest section in the nation, with over 25,000 registrants in 159 clubs and skating schools, representing 14% of the total registrants.

Between 2014–2015 to 2018–2019, there has been a 6.6% increase in the number of total registrants.

Ringette Canada

Shortly after its conception in the 1960s, ringette has continued to grow. Over 32,000 players registered for the 2019–2020 season, on nearly 2,000 teams. While it is primarily a female sport, there are currently over 700 males playing ringette across the country. Similar to organized ice skating and hockey, Alberta has been among the top three provinces (alongside Ontario and Quebec) in

number of registrants, with 6,500 players as per available provincial data from the 2017–2018 season.

The sport has strong representation in Calgary, with over 1,500 players registered across 106 teams and Ringette Calgary in its 42nd season of operation. Over the last 10 years, ringette registration has grown in Calgary by over 20%.

Para Hockey Development – Hockey Canada

Sledge hockey, or para hockey, was developed in the early 1960s, and is an adaptation of ice hockey for athletes with physical disabilities. Following its debut on the Paralympic program in 1994, para hockey has become one of the biggest attractions for spectators at the Paralympic Winter Games. Canada's first national team was formed in 1993; in 2004, sledge hockey came under the umbrella of Hockey Canada, resulting in new regulations for facilities, enhanced accessibility standards for the game, and an increase in popularity in Canada. Hockey Canada's goal is to increase awareness and promote opportunities to experience sledge hockey⁵⁷.

Through Hockey Alberta, the sport is open to both male and female able-bodied and disabled players of all ages, making it a sport that everyone can play.

Alberta Sport Connection (2019–2029)

The Alberta Sport Connection document describes an action plan developed through a consultative process overseen by Alberta Sport Connection, a provincial corporation within the Ministry of Culture and Tourism, which supports the delivery of sport programs and services on behalf of the Government of Canada.

The intent of the action plan is to improve gender equity and programming for under-represented populations, increase shared-use facilities to improve access and programming availability, strive for athletic excellence and boost provincial pride, and improve the health of individuals through

⁵⁷ Sledge Hockey...Past to Present, Hockey Canada, 2011, https://cdn.hockeycanada.ca/hockey-canada/Z-Archive/pdf/document_07BF3FF8-9376-9CD7-E995CE611F44B51D.pdf

physical literacy and activity, among other objectives.

One of the most applicable objectives concerns development of a strategy to maximize the use of existing facilities, so that all sports have access facilities, and municipalities and facility owners make full use of their facilities for community use, school use, sport training, and event hosting.

Actions include compiling and maintaining a facility inventory and standards assessment, developing an inventory of shared use between school boards and community facilities, and consulting with sport organizations on the development and maximization of facilities.

Ice Hockey in Canada: 2015 Impact Study Summary

The stated objective of the research report was to *“provide a conservative yet accurate assessment of the economic impact of hockey and its influence on a number of stakeholders involved in the sport”*.

Noteworthy benefits and values of hockey in Canada identified in the report include the following:

- Economic activity related to hockey (but not as a direct benefit) is estimated to be more than \$11.2 billion annually in Canada, broken down as follows:
- 3.4% minor hockey participation
- 47.1% tourism (inter-community and international related)
- 40.5% spectator related sales
- 2.5% professional players/coaches
- 2.1% corporate activity (sponsorship, activation, marketing)
- 1.7% federations (national and branch)
- 1.1% arena facility operations
- 3.4% minor hockey participation,
- 2.5% professional players/coaches related
- 2.1% corporate activity (sponsorship, activation, marketing)
- 0.9% to capital investments
- 0.7% to adult hockey participation

- Hockey-related tourism in small towns acts as a key driver of direct economic impact
- Of the \$2.6 billion in direct hockey-related impact, more than \$1 billion flows into communities of less than 100,000 people
- Large cities account for 8% of the total hockey-related economic tourism benefits
- Volunteerism in hockey is extensive, with more than 150,000 Canadians volunteering at an average of five hours/week
- 5–10 years after a new Canadian move to Canada, the NHL is the most likely sports organization that they will follow (68% become fans); 10+ years after moving to Canada, 80% of new Canadians are fans of the NHL
- Hockey rinks are part of Canada’s landscape, with nearly 2,500 rinks reported in the country, and 420 in the Province of Alberta

The Future of Men’s Hockey

Factors impacting male hockey registration numbers include an aging population, fewer births, and parents and new Canadians who consider hockey to be a violent and expensive sport.⁵⁸

These factors are concerning for Canadian hockey organizations and across the globe.

The financial commitment for the sport is coming under consideration, as minor hockey registration has retracted from 2015 to 2019. In comparison, registration for other sports have increased; basketball increased by 6% while tennis for children under 12 increased by 32%.

Hockey Canada and its equipment partner, Bauer, have added introductory programs to reduce equipment costs or provide equipment for free. The NHL has a Learn to Play program that provides opportunities for children to experience playing hockey.

⁵⁸ In Canada, the Cost of Youth Hockey Benches the Next Generation, The New York Times, <https://www.nytimes.com/2020/02/22/sports/hockey/canada-youth-hockey-cost.html>

The Explosive Growth of Women's Hockey

Since the first ever International Ice Hockey Federation (IIHF) World Championship in 1990, women's hockey has grown from 8,146 registrants in 1990/91 to 85,624 in the 2009/10 season, with continued increase throughout the last decade⁵⁹.

NHL Hockey news reports that hockey pioneers such as Angela James, Cammie Granato, Hayley Wickenheiser, and Cassie Campbell have played an important role in elevating the sport to the level it is at in North America today.

Calgary Female Sports Development Association (CFSDA)

To ensure girls and young women are introduced to hockey and continue playing it, strategies to support and coach groups include the following:⁶⁰

- Always be encouraging and focus on one-on-one instructions
- Be mindful that the social aspect of the sport is just as important as the competitive aspect
- Focus on skill development
- Treat girls the same as everyone else on your team
- Consider that many girls do not start hockey until later ages

Scotia Bank and Flip Give report on the Real Cost of Hockey in Canada (2019)⁶¹

The following lists cost-related information regarding hockey in Canada:

- National stats for percentage of hockey players in one family are:
 - 1 player: 37%
 - 2 players: 45%
 - 3 players: 14%
 - 4+ players: 4%
- Close to 60% of hockey parents spend an average of \$5,000 or greater per year
- Nearly 90% of hockey parents are concerned about hockey's impact on family finances

- 83% of hockey parents reported that the cost of the sport has gone up since 2018
- 70% of kids that play hockey play the sport for more than 7 months of the year
- 80% of hockey parents spend a weekly average of five hours or more of hockey-related events
- Close to 20% of hockey parents reported that the time commitment required to attend practices, games, and tournaments is their biggest source of stress
- 88% of Canadian hockey parents say that hockey positively impacts their child's academics
- 65% of hockey parents did not play hockey growing up
- 77% of parents are hopeful that playing hockey could lead to their child's attaining a college athletic scholarship
- 79% of hockey parents fundraise to support a minimum of 25% of the costs required to play hockey; these are league fundraisers to support the organizations and reduce costs for players

⁵⁹ Statistics & History, <https://www.hockeycanada.ca/en-ca/hockey-programs/female/statistics-history>

⁶⁰ Calgary Female Sport Development Association, 2021, <https://www.cfsda.ca/about-us>

⁶¹ FlipGive & Scotiabank report on the Real Cost of Hockey , https://www.flipgive.com/stories/flipgive-scotiabank-report-on-the-real-cost-of-hockey?utm_source=pr&utm_medium=media-outreach&utm_campaign=hockey-state-of-play&utm_term=pr-hockey

3.2.4 FACILITY DESIGN TRENDS

FACILITY ACCESSIBILITY AND INCLUSIVITY

The *Policy and program considerations for increasing sport participation among members of underrepresented groups in Canada, 2nd Edition, December 31, 2019* identifies sports should be available to all Canadian residents with the goal to benefit themselves and community through physical, psychological, and social well-being.⁶²

However, there remain sectors of Canadian society that are unable to participate for varying reasons. Women and girls, Indigenous peoples, person with disability, new Canadian and recent immigrants, socio-economically disadvantages, older adults, and member of LGBTQIAS+ community do not participate at the same rates as their counterparts.

To create inclusion for all marginalized groups critical actions as:

Ensuring physical literacy is learnt from an early age, reduce barriers as fear of judgement, provide relevant role models and subsidies without a welcoming environment will not entice people to stay. A holistic approach to sport participation involves addressing the whole person and emphasizing the benefits of sports and physical activities.

It is imperative that policy makers and practitioners work with members of each target group they are hoping to serve, to gain an understanding of the group's culture, challenges, sports inclusion needs,

*and preferred solutions, and then tailor a critical mass of context-specific solutions.*⁶³

Adaptive Sports and Facility Accessibility

The following statistics support the need to ensure that arenas facilitate adaptive sports and accessibility:

- More than 6.2 million Canadians (one in five or 22%) over the age of 15 have one or more disabilities, whether it is related to hearing, vision, mobility, memory, or other forms of progressive, recurrent, fluctuating, or continuous limitations⁶⁴
- In 2012, 12.5% (369,190) of Albertans aged 15 or older reported a disability⁶⁵
- In 2012, 9.7% of Calgaryans over the age of 15 reported having a disability⁶⁶

Calgary's Sport for Life Policy includes a commitment to designing and delivering sport programs and initiatives that are equitable, inclusive, and accessible to remove barriers that prevent underrepresented groups from participating in and enjoying sports.

Adaptive sports are defined as competitive or recreational sports for people with disabilities⁶⁷. These sports run in conjunction with other organizations, with modifications as required for accommodating participants. CoC arenas identify the accessibility features or their facilities and programs via their websites and messaging.

The popularity and growth of adaptive sports have necessitated modifications to existing arenas.

⁶² Cragg, S. Policy and program considerations for increasing sport participation among members of underrepresented groups in Canada, 2nd Edition, Sport Canada, December 2019, <https://sirc.ca/wp-content/uploads/2020/06/Encouraging-Sport-Participation-in-UnderRepresented-Groups-2nd-Edition-Final-Dec-31.pdf>

⁶³ Ibid.

⁶⁴ Alberta Official Statistics | Prevalence of Disability by Age Group and Sex, Alberta and Canada, Alberta Government, July 6, 2015, <https://open.alberta.ca/dataset/d5fcb733-518e-4660-9d37-a098e189bd2b/resource/741f08b5-582d-409d-9d48-b1834e81d378/download/0706201590prevalenceofdisabilitybyagegroupandsexonepage.pdf>

⁶⁵ The Dynamics of Disability: Progressive, Recurrent or Fluctuating Limitations, Canadian Survey on Disability Reports, December 3, 2019, www150.statcan.gc.ca/n1/pub/89-654-x/89-654-x2019002-eng.htm.

⁶⁶ Prevalence of Disability by Age Group and Sex, Alberta and Canada, Alberta Official Statistics, 6 July 2015, open.alberta.ca/dataset/d5fcb733-518e-4660-9d37-a098e189bd2b/resource/741f08b5-582d-409d-9d48-b1834e81d378/download/0706201590prevalenceofdisabilitybyagegroupandsexonepage.pdf.

⁶⁷ Adaptive Sports, <https://www.sportcalgary.ca/sport-directory-listing/adaptive-sport>

When building new facilities, the latest accessibility standards must be applied to the design.

The following facilities can currently accommodate sledge/para hockey:

- Great Plains Recreation Facility
- Village Square Leisure Centre
- Shane Homes YMCA at Rocky Ridge
- Parkdale Community Association outdoor arena
- WinSport Arena
- Seven Chiefs Sportsplex and Chief Jim Starlight Centre

Facility Accessibility

The Accessible Canada Act Bill C-81 was passed and came into force on July 11, 2019. The purpose of the act is to make Canada barrier free by January 1, 2040⁶⁸. It involves removing and preventing barriers in federal jurisdiction in the form of employment, built environment, information and communication technologies, procurement of goods and services, design of programs, and transportation.

The Federal Government defines barriers as:

*“Anything physical, architectural, technological or attitudinal, ... based on information or communications or ... the result of a policy or a practice—that hinders the full and equal participation in society of persons with an impairment, including a physical, mental, intellectual, cognitive, learning, communication or sensory impairment or a functional limitation.”*⁶⁹

Accessible Calgary

Calgary has barrier-free mandates in place to maintain the city’s status as a world leader in accessibility. Passed in 2016, the Access Design Standards enhance accessibility by mandating design measures that exceed those of the Alberta Building Code⁷⁰.

City properties must incorporate accessible standards in:

- All new buildings constructed on city-owned land
- Spaces leased by the CoC in buildings that are not city owned
- City renovation projects

The accessibility of a recreation facility starts from one’s home, with easy access to schedules and program information using devices and technology. Arrival from either public transportation, personal vehicle or drop off, and sidewalks must be accommodated to support safe travel.

Facilities doors must be easy to enter while using assistive devices such as scooter, wheelchairs, walkers, and canes. Adequate signage and lighting, and provisions to facilitate ease of accessing changerooms and washrooms to participate in activities are vital for accessibility.



Prevalence of disability by sex, Calgary CSD			
	Males	Females	Total
Total population, 15 years and over	479,350	461,600	940,950
Persons with disabilities	42,450	48,600	91,050
Persons without disabilities	436,900	413,000	849,900
Disability prevalence	8.9%	10.5%	9.7%

Source: Statistics Canada, 2012, special tabulation based on Canadian Survey on Disability, 115-0001 (table), accessed using the Community Data Program.

⁶⁸ Summary of the Accessible Canada Act, November 20, 2020, <https://www.canada.ca/en/employment-social-development/programs/accessible-people-disabilities/act-summary.html#h2.01>

⁶⁹ Summary of the Accessible Canada Act, November 20, 2020, <https://www.canada.ca/en/employment-social-development/programs/accessible-people-disabilities/act-summary.html#h2.01>

⁷⁰ The City of Calgary, Access Design Standards, 2016, <https://publicaccess.calgary.ca/ldm01/livelink.exe?func=ccpa.general&msgID=XTTrqAgrAAO&msgAction=Download>

INSPIRING GREATER ACCESSIBILITY

The Parkdale Community Rink and Hub is Alberta's first fully accessible outdoor rink for ice skating, hockey, and sledge hockey.⁷¹ Elements such as wider benches, gates, and transparent boards were installed in Phase 1. Phase 2 will be completed in summer 2021; changerooms, washrooms, and the parking lot will be fully accessible. These renovations have created more options for sledge hockey players to practice in the city.



WASHROOM DESIGN AND DIVERSITY

Today's trends are reshaping the restroom of the future, from non-binary design to touch-free technology, and increased privacy and washroom traffic management. Gender-neutral and accessible washrooms and changerooms *for all* are being built in educational institutions, and commercial, public, retail, and fitness facilities.

The move to change how we perceive and use public washrooms was influenced by the changing conversation within the younger generation. Today's current traditional gender-segregated washrooms are under increased scrutiny since they fail to recognize the non-binary nature of gender and do not allow for inclusive and equitable use.

Recreation facilities across Calgary have commenced designing shared changerooms with washrooms imbedded in the design to support family use.

Education facilities within Calgary have made changes. For example, the University of Calgary's Kinesiology building has instituted a Washroom for Everyone and S.A.I.T. with single washrooms to address and meet the needs for accessibility, and non-binary and family use.

To build gender-neutral washrooms, key design differences include the following:⁷²

- Location, visibility, and openness
- Full-height walls, doors, and hardware
- Modifications to mechanical, electrical, and plumbing design

Research has that indicated that inclusive facilities will save space, eliminate the need for separate accessible washrooms as per codes, and reduce the number of fixtures as the male/female code ratio has shifted.

⁷¹ "Ice now open in Parkdale, at Alberta's first accessible outdoor rink." *CBC*, 2021, <https://www.cbc.ca/news/canada/calgary/fully-accessible-outdoor-rink-parkdale-association-alberta-community-sledge-hockey-1.5916992>

⁷² "Inclusive Restrooms." *Cunningham*, 2021, <https://cunningham.com/2018/06/25/all-inclusive-restrooms>

“By expanding the washroom options on campus, we are able to offer conveniently located, accessible and comfortable facilities for a greater number of people. We heard from UTM community members – staff, inclusivity includes ensuring space is available where people feel comfortable, and the physical structure reflects their identity.”

Nic Weststrate, U of T Mississauga's Equity & Diversity Officer



TECHNOLOGY

A modern technology trend is to connect all components and devices within a facility. Sensors pick up on and compile data, and manage and monitor critical elements within a facility, such as temperature and pressure in industrial systems, machinery statuses, and use of water and electricity among operating devices. As the Internet of Things (IoT) matures, expectations include that arena operations will be managed through handheld devices and Power over Ethernet (PoE), and that there will be greater tracking of water and chemical usage through these technologies.⁷³

Digital encounters are a form of interaction and communication designed for humans and augmented by technology.

Fitness activity trackers are devices worn throughout the day or during a physical workout to track effort and output. With the evolution of Bluetooth technology, the devices became mainstream over the last 10–15 years. Whether they are a step counter, heart monitor, or calorie counter, these pieces of wearable technology play a role in today’s fitness regime.

Recreational parks in the US are implementing wearable technology for accessing, confirming, and purchasing passes. This allows users to be informed when the attraction or facility is free for use and enables them to purchase tickets for events through electronic systems.⁷⁴

Technology can make it possible to purchase products at ice rinks and receive information regarding public washroom capacity, all through an app on one’s phone. From a pandemic management perspective, the use of technology lowers the risk of exposure to COVID-19 by establishing how many people attend an event and reducing the amount of time people wait in lineups.

⁷³ Network World, <https://www.networkworld.com/article/3258812/the-future-of-iot-device-management.html>.

⁷⁴ Wearable technology, Orlando ParkStop, <https://orlandoparkstop.com/news/theme-park-news/technical-details-for-volcano-bays-taputapu-wearable-revealed/>

ART AND CULTURE

Bringing art into arena facilities supports culture and inclusion for all and creates spaces to be enjoyed. Arenas provide large walls and dynamic corridors to display art in all forms.

The Great Plains Recreation Facility was one of four public art projects to be developed as part of the CoC's investment in new recreation facilities. This also included the YMCAs located in Quarry Park, Rocky Ridge, and Seton. A public art strategy allowed for the allocation of funds for public art at each facility depending on budget, scale, and scope.⁷⁵



The CoC strives to challenge and transform how we think about and experience the diverse presentation of sports as culture, where appropriate or applicable in the development of public art.⁷⁶

Imagine Calgary Target Goals:

Target 85: by 2035, 90% of citizens report that Calgary is a beautiful city.

Target 86: by 2036, 95% of Calgarians report that they have a range of opportunities for the aesthetic enjoyment of nature, arts, and culture.

The Cultural Plan for Calgary

Recommendation B 3.4 – It is recommended that Calgary examine the opportunity to access funding from the CoC's Public Art Program to install more public art in neighbourhoods, which may include small, large, temporary, iconic, or permanent pieces that reflect and add to the character of CoC neighbourhoods.⁷⁷

RECREATIONAL FACILITY MESSAGING

Community centres and arenas have opportunities to share important messages through graphic or technology-based reminders regarding anti-racism, anti-bullying, inclusion, and encouragement to build community trust and credibility, and promote healthy lifestyles. Direct and indirect methods can inspire fair and inclusive decision making for an individual, community, and city.

Anticipated outcomes include removal of obstacles to change, adoption of healthy lifestyles, or recognition of unhealthy social norms. Opportunities exist within the CoC's mandates to use public art opportunities, wayfinding, and branding design to convey messaging.



⁷⁵ Great Plains Recreation Facility Public Art, 2021, <https://www.calgary.ca/csps/recreation/public-art/great-plains-recreation-facility-public-art.html>

⁷⁶ City of Calgary, Sport for Life Policy, May 28, 2018, pg. 8

⁷⁷ Cultural Plan, City of Calgary, PDF, pg. 40 <https://www.calgary.ca/csps/recreation/arts-and-culture/cultural-plan-for-calgary.html>

OPERATIONAL INGENUITY AND SAFETY

Data indicates that sport-related concussions are being reported more often among children and adolescents. Between 10–12% of injured minor league hockey players aged 9–17 report a type of head injury, the most common being a concussion.⁷⁸

Hockey leagues, associations, parents, Hockey Canada, NHL, and multitude of health organizations are looking at ways to make hockey safer.

In March 2018, the Pittsburgh Penguins teamed up with Covestro and Carnegie Mellon University to take on an initiative entitled Rethink the Rink. Through a group of students, engineers, and industry and manufacturing leaders, dasher boards are being re-designed to allow for critical puck deflection while offering safer human impact. The initiative has moved into the product testing phase. Innovation and ingenuity through industrial design will lead to new products that decrease the risk of concussions and injury to players.⁷⁹

Specialists in ice arena design are at the forefront of the latest in products/design to promote safety, affordability, and environmental incentives.

BIOPHILIC DESIGN

The science is clear: when humans can work, live, and play in nature, the benefits are profound. Biophilic design is the practice of incorporating elements of the natural world in human design. By designing with nature in focus, benefits can include healing the body and mind, reducing the harmful effects of stress, improving cognitive function, and increasing longevity.

Biophilic design is known for its benefits to human inhabitants of a space. Opportunities for biophilic design exist in art, views to outdoors, water features, patterns and textures, and provision of natural lighting. Green living walls, murals, and visuals can all help to connect spaces to nature.



Edmonton International Airport Terminal

⁷⁸ Head Injury in Youth Hockey, 14 July 2020, <https://journals.sagepub.com/doi/full/10.1177/2059700220911285#:~:text=Perhaps%20even%20more%20alarming%20is,frequency%20among%20children%20and%20adolescents.&text=It%20has%20been%20reported%20that,injury%2C%20most%20commonly%20a%20concussion>

⁷⁹ Athletica Sports Systems, <https://www.athletica.com/rethink-the-rink-project-moves-to-product-testing-phase/>

ARENA DESIGN INSPIRATION

Through innovation, new designs, technology, and user behaviors are changing the ways in which community arenas and ice sports are experienced.

Changing the Building Form of Ice Arenas

Architecture, design, and engineering play will roles in how the arena of the future affects people, operators, and the environment.

The Seattle Community Ice Centre and Central Park concept rethinks the next generation of community arenas; the facility transformed the traditional hockey barn concept into a facility lit by natural light that prioritizes sustainability and local materials.

Innovative arena design philosophies included the following: ⁸⁰

- Embrace non-traditional design
- Revitalize an outdated mall site
- Reimagine how community, transportation, and wellness affect the experience of ice sports
- Apply sustainable strategies, including using local materials, recycled steel, concrete, and glass
- A high-performance envelope, green roofs, solar energy, graywater, co-generation ice systems for waste heat recovery, recycled content materials were considered
- Glulam beams were proposed to extend the lifecycle of the roof while embracing local craftsmanship
- The building form should allow for natural light and transparency
- Community-oriented programming was focused on one rink and a shared outdoor connection space between both rinks
- Use retractable glass panels for flexibility to accommodate activities such as farmers markets and other non-ice activities in indoor and outdoor spaces
- Build the first net-zero (or nearly net-zero) ice facility in the US
- Rethink and lower power use



⁸⁰ The Seattle Kraken, Kraken Community Iceplex, 2021, <https://www.nhl.com/kraken/fans/ice-centre>

3.2.5 INDIVIDUAL/COMMUNITY HEALTH AND WELLBEING

WELLNESS BENEFIT OF ARENA SPORTS

Individual Health and Wellbeing

Science directly links making good choices with food, exercising, managing stress, and spending time connected to nature and the outdoors to extending one's life and improving mental health. Statistics Canada has tracked the physical activities levels of Canadians from 2016 and 2017 with the following outcomes.⁸¹

- For children and youth, the recommended physical activity target is a daily average of 60 minutes of moderate to vigorous physical activity (MVPA)
- Approximately two in five children of youth aged 5 to 17 meet this recommended guideline; boys (52%) are twice as likely as girls (26%) to meet the guideline
- Children aged 5 to 11 (47%) are 1.5 times more likely than youth aged 12 to 17 (31%) to meet the recommended guidelines
- The recommended physical activity target for adults is 150 minutes of MVPA per week, in sessions of 10 minutes or more
- Less than 2 in 10 adults aged 18 to 79 meet the recommended guidelines
- There are no significant differences between men (18%) and woman (15%), or between age groups: 18 to 39 (16%), 40 to 59 (17%), and 60 to 79 (17%)

“Community wellbeing is the combination of social, economic, environmental, cultural, and political conditions identified by individuals and their communities as essential for them to flourish and fulfill their potential.”

Public health researchers Wiseman and Brasher

PANDEMIC PREPAREDNESS AND THE CHANGING GAME OF GATHERING

The pandemic of 2020/21 affected the global population socially and economically; it also affected wellness (mental and physical) and how community recreational facilities are used and managed.⁸²

The COVID-19 pandemic has changed how we exercise and participate in indoor and outdoor sports. However, the ways in which COVID-19 has impacted ice sports and usage of community arenas are different from the ways in which the pandemic affected other recreational facilities, such as aquatic centres.

Science suggests it is easier to transmit the virus in an arena setting due to the rink's cold air which provides favourable conditions for transmission.

Emerging Trends for Sport Venues and Recreational Facilities Post COVID-19⁸³

Emerging trends include the following:

- Wearable technology
- Introducing virtual reality experiences
- Doorless or automatic door options for washrooms
- Small group gathering spaces outside facilities
- The use of technology to purchase products at the ice rink's concession stand or provide information on the public washroom's capacity
- Apps providing real-time information and updates
- Wider corridors for people to pass one another with ample space between them

⁸¹ “Tracking physical activity levels of Canadians, 2016 and 2017.” *Statistics Canada*, released April 17, 2019, <https://www150.statcan.gc.ca/n1/daily-quotidien/190417/dq190417g-eng.htm?idid=20803-1&indgeo=0>

⁸² “How COVID-19 Spreads.” Centers for Disease Control and Prevention, <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html>

⁸³ “The Future of Stadiums: How Will America's Sports Venues Be Transformed By The Pandemic?”. *Sports.Yahoo.Com*, 2020, <https://sports.yahoo.com/the-future-of-stadiums-how-will-americas-sports-venues-be-transformed-by-the-pandemic-171657482.html>. Accessed 22 Dec 2020.

3.3 ENVIRONMENTAL TRENDS

3.3.1 ENVIRONMENTAL SUSTAINABILITY

The future of sustainability involves building better facilities that require fewer building materials, uses less energy and natural resources (especially water), and reduces transportation to and from; as well as greater connection to nature.

Sustainable actions include:

- Work with governing bodies (e.g. LEED, WELL Building, and Fitwel) to guide the process of designing and selecting site, materials, and energy use
- Find ways to reuse, renovate, and repurpose infrastructure
- Do not use land that is/could be used for green space; avoid large box stores with solid structures; use locations where people can easily get to without driving
- Find local materials that represent the character of the community and fit well into the landscape
- Consider green roofs and wood structures
- Use LED lighting, IoT, and PoE systems for smart facility management
- Invest in energy modelling for a greater predictable outcome on consumption
- Apply new energy management and conservation ideas, as follows:
 - Heat recovery used on exhaust air
 - Multiple ice sheets, to increase refrigeration plant use twofold
 - Electrical ice resurfacing equipment, to provide cleaner indoor air quality
 - Control ventilation and variable volume fans used throughout, to regulate temperature and humidity
 - High performance envelope, including triple-pane windows
 - Rooftop photovoltaics, to offset electrical loads

Sustainable Building Policy

The principles outlined in the CoC's Sustainable Building Policy works are to ensure the planning, design, renovation, operating, and demolition of all city-owned and city-financed facilities is performed in the most sustainable approach, with focus on the environment, social, and economic impacts. The CoC is looking to go beyond the cost of construction, perform smart investments, and address the lifecycle impacts to current facilities regarding the operating costs.

Technological innovations in equipment and artificial ice surface development have allowed ice sports to thrive year-round in light of the effects of climate change. It is important to consider modernization opportunities to ensure that arenas are part of the solution in combatting climate change (i.e. ensuring alignment with the CoC TBL Policy Framework).

Trending CO₂ Rink Management ⁸⁴

Ammonia has long been the refrigerant of choice for ice rink installation, but in the last 10 years CO₂ has offered another natural refrigerant option. The International Hockey Federation called for the adoption of CO₂ as primary the refrigerant for ice rinks, but it was not until 2010 that a CO₂ rink was installed in Saint Gedeon, Quebec. There are 25–30 CO₂ rinks in the world, with 20 being in Canada (mostly in Quebec). Two CO₂ rinks in Alberta are as follows:

- Outdoor skating surface (to be operational in Fall 2022), West Campus, University of Calgary
- Strathcona Olympiette Centre and Fultonvale Arena, Sherwood Park

With refrigeration systems consuming close to 43% of total energy, heat reclaim can help to mitigate costs. In Gimo, Sweden, excess heat was used to heat the swimming pool in an adjacent facility via a secondary loop. Heat allocation can be reused for sanitary hot water, underground heating for arena seating, and annexed food and bar service areas to reduce energy costs.

⁸⁴ "Will ice rinks go CO₂ in the future?" R744, 2021, <https://r744.com/will-ice-rinks-go-co2-in-future/>

Advances in Ice

Making ice and creating a smooth and bubble-free surface requires intense energy usage and uses billions of litres of water worldwide. Ice arena water consumption and treatment needs to be made part of the sustainability solution, by introducing state-of-the-art refrigeration systems and by implementing initiatives such as REALice technology.

REALice uses unheated water to resurface ice rinks, resulting in a 79% reduction of natural gas usage and a 12% reduction in energy consumption.⁸⁵ REALice has recently been installed in the majority of the CoC's ice facilities.

Benefits of REALice include the following:

- Reduced draw on compressors and boilers
- Less dehumidifier run time
- Less rust on structural beams
- Fewer ice cleans needed
- Less condensation in the arena
- Less water is used and wasted
- Longer amortization on equipment

3.3.2 GREENER RINK INITIATIVES

The NHL Greener Rinks Initiative champions and challenges the notion of how to be a cleaner sport when it comes to the environment, how to be healthier to encourage people to participate, and how to support the greater good of gathering for entertainment⁸⁶. Strategies include the following:

- On the ice, look at ways to use better and less harmful refrigerants; careful water purification to reduce waste; efficient ice thickness; white ice paint that is less toxic and can be disposed of; type of ice resurfacing vehicles; and LED fixtures to light the surface and stands
- Off the ice, consider heat recovery systems and building controls and automation; rethink conversion floors for reuse; and consider low emissivity ceilings

- For guest areas, use water for food and for the public efficiently; reduce waste and garbage; and look for sustainable champions

Local Arenas Practicing Greener Rink Initiatives

Calgary ice facilities that apply Greener Rink Initiatives include:

- North East Sportsplex, Don Hartman Arena
- Thorncliffe Greenview Community Association, Forbes Innes Arena
- Thornhill Aquatic and Recreation Centre, Murray Copot Arena
- Lake Bonavista Community Association
- Scotia Bank Saddledome

Alberta ice facilities that apply Greener Rink Initiatives include:

- Rogers Place, Edmonton
- Killam Memorial Arena, Killam
- Canalta Centre, Medicine Hat
- Valley Polar Palace, Valleyview
- Barrhead Agrena, Barrhead

3.3.3 FACILITY SITING/COMPLETE COMMUNITIES

Decisions to build new facilities or renovate existing ice facilities are not only dictated by building performance, but also by the correlation between the site and the community.

The future of urban design includes applying the idea that cities and their inner workings should be planned as a complex ecosystem. Communities are being designed as mini cities centred around the idea of walkability, with close proximity between stores, restaurants, healthcare facilities, and recreation facilities.

The following should be when selecting a site for an arena facility:

- Proximity to pathways, bikeways, and sidewalks to encourage users to walk or ride their bike to the facility

⁸⁵ "REALice vs. Hot Water." REALice, 2020, <https://realice.ca/realice-vs-hot-water/>

⁸⁶ NHL Green Rinks, 2014, <https://greenerrinks.nhl.com/desktop/index.html>

- Proximity to roads; it is recommended to provide at least two vehicular entry points
- Safe access to public transportation; locating a new facility close to a transit line minimizes the carbon footprint of the facility and offers the opportunity to reduce surface parking
- Opportunities to anchor an arena within a site that already includes other amenities, such as a fitness centre, grocery store, retail store, restaurant, office, library, social housing, or a daycare; after parents drop their children off at a ringette or hockey game, they can complete a grocery run or fit in a workout
- Opportunities to create outdoor social gathering spaces for the community and facility users, such as a seasonal skating rink or spray park

These considerations focus on supporting a network of systems for successful, continued use and minimizing amounts of empty spaces to maximize efficiency and reduce waste.

New arenas can adapt to become one component of a larger facility/community.

3.4 ECONOMIC AND INFRASTRUCTURE TRENDS

3.4.1 ECONOMIES OF SCALE

It is common knowledge that one of the most difficult programming challenges facing arena development proponents is the seasonal demand for ice sports. Arenas are highly used during seven or eight months of the year, but participation drops dramatically during the remaining four or five months. The key to overcoming this participation drop—and the resulting loss of cash flow—is designing a multi-purpose venue that can meet other community needs by hosting events, exhibits, and other non-athletic activities. An in-depth demand analysis of the surrounding communities and the CoC as a whole will help determine what type of non-ice events would be well received and attended.

In addition, multi-sheet ice facilities and co-location with multi-purpose recreation complexes are essential to sustained and positive economic return (refer to Multi-Use Spaces under Section 3.4.4). Capital and operating costs are extremely high when compared to other types of athletic facilities, due to the need for a refrigeration plant and other intensive mechanical requirements. Co-location allows for an economy of scale with respect not only to equipment but to other costly aspects of operations, such as staffing. Connecting disparate activities within a single complex can dramatically reduce the cost of staffing during both prime-time and non-prime-time usage periods.

Properly designed and programmed ice facilities can bring significant opportunities for community involvement and economic impact, by hosting hockey tournaments, skating competitions, amateur hockey games, professional hockey exhibitions, ice shows, concerts, trade shows, craft fairs, and other seasonal sports activities. Visitors attending and participating in these events spend money that can

add up to significantly boost the community's economy.

3.4.2 AGING INFRASTRUCTURE

Changing demands and participation levels, evolving facility requirements, new multi-pad arena projects, and aging arenas without modern amenities have created surplus facilities in several communities across Canada⁸⁷. Certain municipalities have been confronted with the need to explore adaptive reuse of redundant arena facilities, for such purposes as follows⁸⁸:

- Community centre space (e.g. Kingsdale Community Centre in Kitchener)
- Indoor soccer (e.g. Syl Apps Community Centre in Paris, Ontario)
- Gymnasiums (e.g. Ken Giles Recreation Centre in Brampton)
- Indoor playgrounds (e.g. Kerrisdale Arena, Vancouver)
- Indoor skateboarding (e.g. Zurich, Ontario)
- Dry floor activities/theatre venue (e.g. New Hamburg Arena in Wilmot Township, Ontario)
- Temporary storage (e.g. AMA Arena in Amherstburg, Ontario; since demolished)

Other examples of adaptive reuses include permanent or seasonal conversion of the floor area to curling rinks, indoor tennis, box lacrosse, and roller derby. Repurposing can extend the life of an existing facility, but can also just be as costly as building a new facility, given the need to refurbish and reconfigure building components. For this reason, the most common response in the province of Ontario has been to decommission and demolish surplus arenas. Infrastructure in Ontario tends to be significantly older than in younger provinces such as Alberta, and the trends seen there can signify the economic realities of aging arenas that the CoC will eventually face with a significant portion of its inventory.

⁸⁷ <https://www.hockeycanada.ca/en-ca/corporate/facilities/arena-census>

⁸⁸ <https://www.northdumfries.ca/en/living-here/resources/Documents/Arena-Strategy-Phase-1-and-2-Arena-Strategy---Oct-2020.pdf>

3.4.3. PARTICIPATION AND AFFORDABILITY

Ice sports, particularly minor hockey, are commonly recognized as some of the costliest recreation activities. Due to the financial barriers, sector trends generally indicate that households with higher household incomes are more likely to participate in organized recreation activities such as arena sports. Current demographic analysis conducted by PwC for CoC arenas reflects those findings (with certain exceptions), as catchment areas in northeast and southeast Calgary with lower household incomes tend to have a lower participation rate in ice skating and minor hockey. However, while affordability may be a major factor, reports such as the Calgary Sport Facility Supply and Demand Study in 2014 acknowledge that other possible issues affecting participation include the demographic composition of residents and the types of sport activities that are of interest.

The same report also made note of feedback from sports representatives regarding impediments to facility use, which included lack of facilities or access to them as influencing the imposed registration caps. Some organizations had expressed frustration at the lack of equitable access, as there are already several facility operators who had long-established relationships with other sports organizations. As a whole, this suggests that certain obstacles remain that can impact the growth of ice sports, demand for arenas, and revenue generation opportunities.

COVID-19 has imposed additional constraints on sports participation, recreational activities, and use of sports facilities. Once COVID-19 is part of the past, ice arenas and recreational facilities will need to become more affordable in order to draw users back.

3.4.4 ARENA CAPACITY AND SUPPLY

The recreation facility industry has evolved, and with it, the leading practices. How we design new ice arenas will determine building functionality and performance. This has a direct effect on profit, facility use, and the environment. The recreation industry has developed rapidly, and will continue to evolve with regard to the recent COVID-19 pandemic. The adaptability of communities, facilities, and planning has been and must continue to be flexible and adaptable to embrace the current situation and provide input for a successful future.

The following practices have been used in both new builds and modernizations to arena facilities. These practices include developing and implementing strategies to best support ice arenas and to promote a healthy environment for all Calgarians. The following considerations and changes to existing facilities will improve functionality, minimize operational costs, and increase the quality of the space for users.

MULTI-USE SPACES

Multi-purpose facilities have grown in popularity, as it is more convenient to host multiple sports and activities in the same location to accommodate busy, everyday life. This trend not only benefits the communities served, but also generates a higher revenue for the arena and offers operating cost savings compared to running different facilities that offer the same services. As an example, users prefer to pay a single membership where they can play hockey, access fitness space, access private event rooms, and play summer sports on a dry pad program. Being able to do so within the same facility is highly preferred over having to commute to different facilities and pay different fees.

Consider the following when designing multi-use facilities:

- Multiple ice sheets
- Flexible gathering areas
- Offering an alternative programming during the summer to aid revenue generation, as it typically lowers during summertime:
- Alternate programs would have to be studied and verified to see which are demographically driven in the community
- Some programs include indoor soccer, lacrosse, rock climbing, volleyball, and tradeshow
- Incorporating tenant spaces for services, such as physiotherapy
- Providing programming to circulation space can be advantageous to other types of activity (e.g. retail and revenue generation) which can include community event rental, pop-up shops, and product showcases
- Adding childminding services or play areas for kids that are too young to participate in ice programs and activities would allow an even younger demographic to participate in and experience the facility
- Considering community preferences for future planning (e.g. if they are inclined to having more seating, restrooms, and concession areas)
- Incorporate additional recreational programming, depending on the demand of surrounding communities, such as:
 - Fitness centre
 - MAC or gymnasium
 - Studio spaces
 - Walking or running track
 - Aquatic centre
 - Indoor fields
 - Athletic parks

GATHERING AREAS

Gathering areas for small gatherings and community-based activities have evolved to create opportunities as revenue-generating space for the facility. Gathering spaces are also a source for social activity and interaction. As a result, gathering spaces can be designed to be flexible and to host different services and activities. These areas are

multi-purpose spaces and offer diverse uses (e.g. art gallery exhibitions, community markets, meeting spaces, and showcase space for larger tradeshow events). They can also be used as recreational spaces, although this depends on the facilities' available space and intended use.

Gathering spaces seen in the design of new arenas include the following:

- Enlarged lobbies
- Lounges and seating areas
- Open activity space for different seasonal activities and sports
- Community rooms offered to the public for private events
- Indoor or outdoor ice, for warming up prior to activity on the main ice sheet or for leisure skating
- Food and beverage services in the form of a concession or sit-down environment
- Theatre
- Display spaces

These areas transform the facility from an ice arena into a destination space for the community that can offer a wider range of opportunities that promote social inclusion and an active lifestyle.

SPECTATOR VIEWING

Spectator seating is a critical component to the programmatic requirements of ice arenas. Current practices have established a variety of options for public viewing and seating, as follows:

- Fixed seating
- Retractable or bleacher seating
- Standing bar/counter viewing
- Enclosed warm viewing spaces or lounges
- Standing around the ice rink

Indirect views to the ice sheet from adjacent programming create dynamic spaces with visual interest and intrigue as one moves through the arena. Views from the lobby, lounge spaces, and fitness spaces (e.g. running tracks or open fitness areas) should be considered in the design of new arena facilities.

ICE SHEET SIZES

Indoor ice arenas have evolved since the first indoor game in Montreal in 1875. The NHL ice surface is 60.96 m (200 ft) long and 25.91 m (85 ft) wide, and was the standard ice sheet size until the arrival of the International Olympic Committee ice surface in 1983. Olympic-sized ice surfaces are 60.96 m (200 ft) long and 30.00 m (100 ft) wide. The goal behind a wider ice sheet is to provide players with greater opportunity and time, ultimately increasing the creativity of play. However, it is found that there is less contact and there are less goals during games played on wider ice sheets. The leading practice has moved away from NHL- and Olympic-sized rinks, and is moving toward a hybrid-sized sheet. Hybrid surfaces have dimensions between those of the NHL and Olympic standards; they are commonly 60.96 m (200 ft) long and 27.43 m (90 ft) wide. Hybrid ice sheets provide players with space to perform and allow an increased speed of play.

Hybrid ice rinks accommodate the evolving development of hockey players (faster/stronger) and hockey rules/regulations. They provide extra length for cross-ice play to young players, are better suited for figure skating than NHL-sized sheets, and are more suitable for sledge hockey requirements. Hybrid rinks are popular in Europe and are becoming more popular in North America. The hybrid rink provides the most flexibility for the facility, and provides the most opportunities on and off the ice for players and other events.

CONVERTIBLE ICE SHEETS

The design of convertible ice sheets has become an industry-leading practice, as these provide the most flexibility for an arena. Examples include a hybrid ice surface with the capability of converting to an NHL-sized rink, or a rectangular curling rink ice sheet that can be converted to an NHL-sized arena. Well-lit and acoustically controlled spaces for the ice sheets allow for flexibility of programming, from hockey and other ice sports to

dry-land events (e.g. lacrosse, volleyball, indoor soccer, or community events).

SPORT TOURISM AND EVENT HOSTING

It is important that the design of new facilities considers future events that may be hosted, and that these possible events are communicated early in the design process. Engaging stakeholders and understanding their expectations is also key in determining the facility requirements. The following sporting events may be hosted at ice facilities:

- Minor ice hockey, NHL, and Olympic events
- Canada Winter Games
- Mac's AAA Hockey Tournament
- Figure ice skating events
- Ringette
- Para (formerly sledge) hockey
- Lacrosse
- Tournaments
- Sport camps
- Event hosting space/planning
- Virtual gaming events

3.4.5 MAXIMIZING ARENA USE/REVENUE GENERATION

Operating a financially viable arena can be difficult, given the high maintenance costs, seasonal demand, and historically low margin of profit. This is a common thread given the debt service associated with arenas, whether privately owned or government owned. For municipal entities responsible for overseeing a large inventory of arena infrastructure with aging refrigeration plants and mechanical equipment, the revenue needed for arenas to be self-sustaining can quickly be wiped out by snowballing operational costs over the years. An in-depth analysis of strategies for successfully operating an arena is required to counter these challenges.

Recreation Management, a US-based publication that explores ideas and solutions for recreation facilities⁸⁹, notes that struggling rinks need to reconsider their base and expand it to prioritize casual skaters. Rinks that are dependent on a

⁸⁹ Recreation Management | Ideas Solutions for Recreation, Sports, and Fitness Facilities, https://recmanagement.com/feature_print.php?fid=200707fe03

narrow base of elite athletes and hockey clubs consume an inordinate amount of prime ice time, and typically do not generate a lot of revenue. In some cases, a strategic approach to scheduling that enables activities that appeal to the broadest audience during prime time should be considered. Prioritizing the availability of learn-to-skate programs to increase interest, and providing opportunities for casual on-ice activities (e.g. free skate, public sessions, music, and themed events) that build on those basic skills have proven successful for a number of previously struggling US ice arenas.

One of the most difficult programming challenges for traditional ice arenas is the seasonal demand for ice sports. Overcoming participation drops during the warmer months depends on the ability of the facility to adapt to other uses, and to be a true multi-purpose venue that can meet other recreational needs. Considering potential locations for indoor dry floor activities (e.g. lacrosse, ball hockey, roller hockey, indoor tennis, and indoor skate parks) can be part of a needs assessment and future feasibility study that explore the opportunity to enhance year-round use.

3.4.6 ASSET MANAGEMENT

AGING INFRASTRUCTURE MANAGEMENT

How the current facilities are structured and how the overall building integrity is managed are both key elements to all city partners that are part of the ice arena study. How these facilities are managed can be perceived as a representation of the CoC's engagement toward the community, and the value in maintaining a healthy society and a recreational community culture.

With the use of the BCAs, a review of the physical and performance conditions can be completed. The reports for the ice facilities in Calgary aid in identifying any opportunities to expand, replace, or renovate the existing facilities. Lifecycle assessments study the facilities' current conditions and will assist the CoC in identifying whether aging infrastructure requires replacing. It will also help identify factors that can affect the deliverables of the ice facility. Additionally, the assessment can

identify potential opportunities to create energy-efficient facilities.

The building condition and lifecycle assessments received so far have shown that approximately 70% of the facilities were constructed between 1960–1990. With a useful life of approximately 50 years, 50% of the CoC facilities are currently at or will complete their lifecycle within the next five years. While some older facilities have seen upgrades and expansions to extend their service life, the reality is that only 50% of the CoC's inventory is prepared to serve more than one generation of users.

Special care should be taken toward the older facilities. A strategy must be implemented to rehabilitate the older facilities and continue to find ways to address community needs.

Some of the strategies for ice arenas are as follows:

- Retrofit/re-surfacing
- Expansion of current arena if the space allows
- Outdoor rinks to increase arena capacity
- Replacing or renovating structures

Retrofitting would be a reasonable solution for old facilities that have a strong and meaningful connection to the community. Although it requires a significant investment, it will introduce energy-saving features to the ice rinks. While facility budgets must always be considered, retrofitting could potentially aid with facility performance costs in the long run. Additionally, user comfort would be increased with better-quality ice and overall space conditions, while giving communities well-deserved upgrades to their current arenas.

SAFETY AND CODE REGULATIONS

New ice facilities are required to be compliant with all applicable codes, safety standards, and regulations. Additionally, all facilities must follow the Alberta Guidance for Sport, Physical Activity and Recreation. Throughout design and construction, the safety of users and staff should not only be prioritized but carefully considered at each stage of development. Technological advancements continue to challenge and improve the current

safety standards, by allowing for innovative products and ideas to be implemented.

Acrylic shielding is a rising trend in the ice arena industry, as more and more consumers are choosing acrylic shielding over glass safety panels. Acrylic shielding products surpass the industry deflection benchmarks, meet ASTM F103-13 requirements, and weigh approximately 100 lbs less per panel than tempered glass. A lighter product allows for easier handling and installation. This trend is becoming more apparent in multi-purpose facilities that require a quick removal and reinstallation of dasher board systems⁹⁰.

Facilities that use ammonia systems for refrigeration purposes can pose a risk to staff and surrounding areas. These systems must comply with CSA B52; however, engaging a refrigeration consultant is encouraged to ensure that the ammonia system is designed carefully with safety to all humans. In recent years, loss of life has occurred due to malfunctioning systems.

All facilities must follow the Alberta Guidance for Sport, Physical Activity and Recreation. It contains three sections that discuss the following:

- General considerations for sport, physical activity, and recreation (both indoor and outdoor)
- Sport-/activity-specific considerations
- Considerations specific to the operation of indoor sport, physical activity, and recreation facilities

Operating Models and Partners: “Key partnerships include government agencies, not for profit organizations dealing in sport, physical activity, health, urban planning, infrastructure development, rural development, Aboriginal Affairs, natural resources and conservation, arts and culture, social development, tourism, justice, heritage, child development and active aging.”⁹¹

⁹⁰ “Acrylic Shielding”. Becker Arena Products, 2020, <https://Beckerarena.Com/Portfolio/Acrylic-Shielding/>

⁹¹ A Framework for Recreation in Canada 2015, Pathways to Wellbeing, 2015

3.5 BEST MANAGEMENT CASE STUDIES

CALGARY ICE FACILITIES

BROOKFIELD RESIDENTIAL YMCA AT SETON ⁹²

Calgary, Alberta | 2019 | 30,650 m²

PROJECT DESCRIPTION

The YMCA is located in southeast Calgary within a mixed-use centre. Acting as a gateway to the community and anchor to the public areas within the Seton community, the mega recreation centre offers rink, fitness, and swimming pool facilities.

SOCIAL PRACTICES

- Para/sledge hockey able
- Inclusive messaging
- Artwork installation
- Accessible
- Community link

ENVIRONMENTAL INITIATIVES

Sustainable ice practices

ECONOMIC OPPORTUNITY

Revenue generating from large multiplex, full service

APPLICABLE LESSONS

Sustainable ice practice



⁹² "Brookfield Residential YMCA at Seton". *Gibbs Gage Architects*, 2021, <https://www.gibbsgage.com/portfolio/seton-recreation-facility>

GREAT PLAINS RECREATION FACILITY ^{93,94,95}

Calgary, Alberta | 2016 | 7,400 m²

PROJECT DESCRIPTION

The Great Plains Recreation Facility is a competitive tournament facility located in the southeast of Calgary. The facility offers two rinks for ice sports (e.g. hockey, sledge hockey, ringette, and figure skating), dry land training space, and varied spectator viewing areas.

SOCIAL PRACTICES

- Public artwork
- Accessible
- Operated by CFSDA, who are committed to providing women, girls, and underrepresented populations with access to ice sports in Calgary

ENVIRONMENTAL INITIATIVES

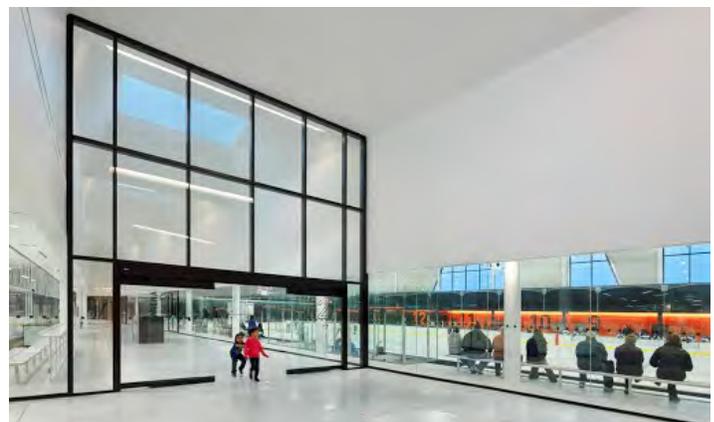
Heat recovery and reuse strategies: water preheating, under slab hydronic heating, ice melting, and air preheating strategies

ECONOMIC OPPORTUNITY

Revenue generation from food and beverage services, pro shop, and multi-purpose rooms (e.g. studios, classrooms, and meeting spaces)

APPLICABLE LESSONS

- Sustainable ice practice
- Natural light throughout the facility, including windows and lightwells



⁹³ "Great Plains Recreation Facility". *Archello*, 2021, <https://archello.com/project/great-plains-recreation-facility>

⁹⁴ "Great Plains Recreation Facility". *MJMA*, 2021, <http://www.mjma.ca/Portfolio/Projects/Great-Plains-Recreation-Facility>

⁹⁵ "Calgary Female Sport Development Association", 2021, <https://www.cfsda.ca/>

ALBERTA ICE FACILITIES

GARY W. HARRIS CANADA GAMES CENTRE ⁹⁶

Red Deer, Alberta | 2018 | 18,000 m²

PROJECT DESCRIPTION

The multi-sport venue has ice sheets for both Olympic- and hybrid-sized rinks, seating for 1,100, and a double gymnasium with seating for 1,200. Upper levels include a fitness centre, wellness studio, running track, squash courts, multi-purpose rooms, and Hockey Alberta offices. The main floor includes the School of Kinesiology, with labs and classrooms, food services, supports spaces, and an ice skating lobby.

SOCIAL PRACTICES

- Para/sledge hockey able
- Accessible
- Community link and social opportunities
- Educational facilities
- Convocation ceremonies

ENVIRONMENTAL INITIATIVES

- LEED Silver
- Captures waste heat from refrigeration ice plant
- Indoor water savings of 48% (e.g. water-efficient plumbing fixtures, rainwater, and snow melt collection)
- 96% of construction and demolition waste diverted from landfill
- 2520 solar photovoltaic panels
- Use of recycled and regional materials

ECONOMIC OPPORTUNITY

- 42% energy cost savings
- Revenue generating through tenant spaces and arena rentals for private or community use

APPLICABLE LESSONS

- Hybrid arena
- Convertible ice sheet sizes
- Wellness studio with natural light
- Revenue-based spaces for rental
- Acoustic strategy



⁹⁶ RDC Gary W Harris, Stantec, 2019

MEADOWS COMMUNITY RECREATION CENTRE AND LIBRARY ^{97,98}*Edmonton, Alberta | 2014 | 21,790 m²***PROJECT DESCRIPTION**

The Meadows Community Recreation Centre is located in a fast-growing area of southeast Edmonton. The multi-use cultural and recreation facility features two ice rinks, an aquatic centre, a fitness centre, a gymnasium, multi-purpose rooms, child minding, a library, and outdoor recreation space.

SOCIAL PRACTICES

- Para/sledge hockey able
- Integrated library
- Accessible
- Community link

ENVIRONMENTAL INITIATIVES

- Locally sourced glulam
- Vegetated roof
- Efficient mechanical systems
- Reuse of waste heat for the spectator seating area and changeroom radiant heating
- Reduced water consumption
- Adjacent recreational trails and transit loop encourage active and more sustainable modes of transportation

ECONOMIC OPPORTUNITY

Revenue generating through child minding, party room rentals, indoor playground, and concessions

APPLICABLE LESSONS

- Sustainable ice practice
- Connection to outdoors
- Natural light from large entries
- Acoustic strategy
- Wood program for structure
- Visual clarity of space



⁹⁷ "The Meadows Community Recreation Centre." *Group 2*, 2021, <https://www.group2.ca/projects/recreation/the-meadows-recreation-centre-and-edmonton-public-library/>

⁹⁸ "Meadows Community Recreation Centre." Canadian Wood Council, Wood Works!, accessed 2021, https://cwc.ca/wp-content/uploads/2019/03/Meadows_Case_Study_no-crops.pdf

CANADIAN ICE FACILITIES

UPPER SKEENA RECREATION CENTRE ^{99,100}

Hazelton, British Columbia | 2019 | 5,050 m²

PROJECT DESCRIPTION

Located in a remote area of northern British Columbia, the facility provides much-needed recreation programming and community spaces. The centre accommodates an ice sheet, gymnasium, fitness space, and areas for cultural programs.

SOCIAL PRACTICES

- Addresses the health and social needs of the village and surrounding First Nations communities
- Artwork installation
- Programming for older groups

ENVIRONMENTAL INITIATIVES

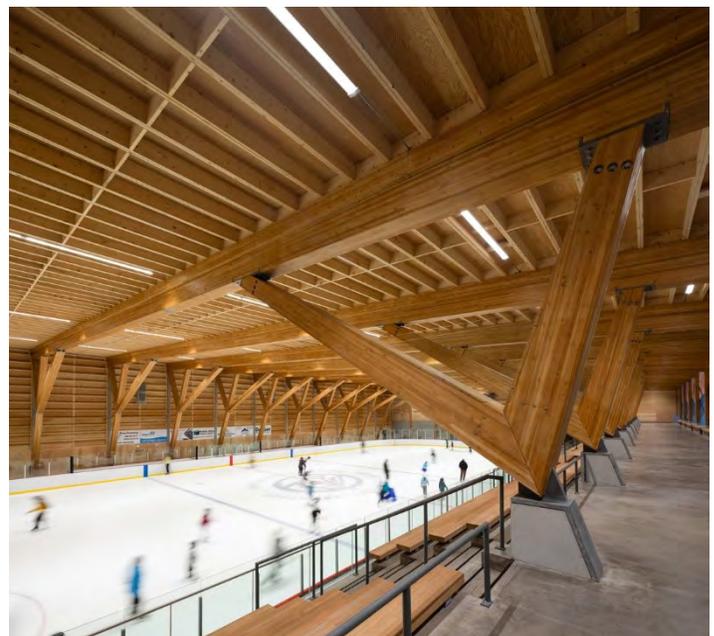
- Locally sourced labour and materials
- Prefabricated glulam timber beams and columns

ECONOMIC OPPORTUNITY

Revenue generation through concession and skate rentals

APPLICABLE LESSONS

- Reflect community values through building design and programming
- Wood structure program
- Public art opportunities



⁹⁹ "Upper Skeena Recreation Center / Hemsworth Architecture." *Archdaily*, 2020, <https://www.archdaily.com/943572/upper-skeena-recreation-center-hemsworth-architecture>

¹⁰⁰ "Upper Skeena Recreation Centre." *Naturally:wood*, 2021, <https://www.naturallywood.com/project/upper-skeena-recreation-centre/>

HARRY HOWELL TWIN PAD ARENA ^{101,102}*Hamilton, Ontario | 2011 | 5,110 m²***PROJECT DESCRIPTION**

The Harry Howell Arena represents the transformation of an aged single-pad arena into a modern sports facility. The twin-ice facility includes fitness space and multi-purpose rooms for meetings, conferences, and events. Renovations included a plan to preserve the existing single-pad arena and relocating the soccer field to allow for a new sports complex to evolve.

SOCIAL PRACTICES

- Additional programming to meet user demands
- Accessible
- Warm spectator viewing areas

ENVIRONMENTAL INITIATIVES

- LEED Silver
- Geothermal heating and cooling
- Daylighting and natural ventilation
- Utilization of recovered heat to warm the changerooms, spectator seating, and ice-melting pit
- Pre-engineered steel framing
- Charging stations for electric vehicles

ECONOMIC OPPORTUNITY

- Revenue generating through retail, pro shop, and learn-to-skate and can-skate programs
- Promotes sports tourism for hockey (ages 7–18), learn-to-skate programs, and figure skating

APPLICABLE LESSONS

- Management of aging infrastructure through renovation of an existing arena
- Sustainable design
- Create warm viewing areas for uninvolved siblings and older adults
- Environmental initiative for repurpose and reuse components of an aging facility
- Revenue generation from sports tourism



¹⁰¹ "Harry Howell Twin Pad Arena". *Architizer*, 2020, <https://architizer.com/projects/harry-howell-twin-pad-arena/>

¹⁰² "Harry Howell Twin Pad Arena". *Dpai*, 2020, <https://dpai.ca/projects/public/>

UNITED STATES ICE + ACCESSIBLE FACILITIES

US OLYMPIC AND PARALYMPIC MUSEUM ¹⁰³

Colorado Springs, CO | 2020 | 5,570 m²

PROJECT DESCRIPTION

The US Olympic and Paralympic Museum is a tribute to the USA Olympic and Paralympic Team athletes at the center of the experience. The 5,570 m² facility features 1,850 m² of galleries, a state-of-the-art theater, event space, and café, and is ranked as one of the most accessible places in the world to visit.

SOCIAL PRACTICES

- Inspirational design energy from grace of the Team USA athletes and the organization's inclusive values; the building's dynamic spiraling form allows visitors to descend the galleries in one continuous path
- Celebration of sports, equity, diversity, and inclusion

ENVIRONMENTAL INITIATIVES

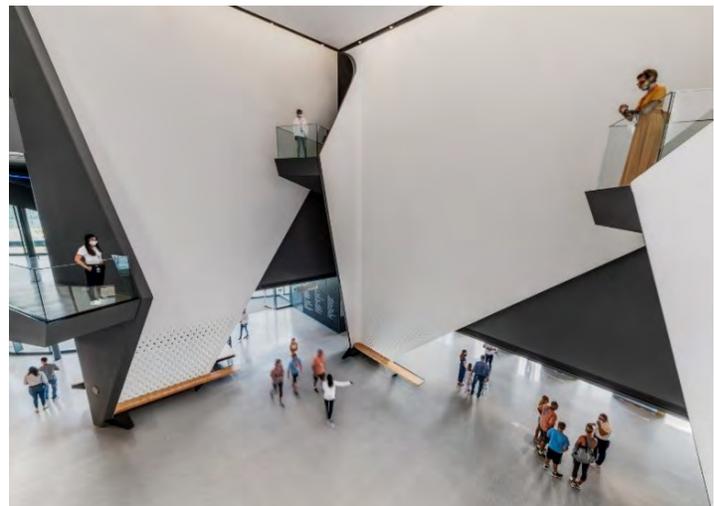
- New pedestrian bridge spanning 250 ft over an active railyard connects the museum complex to America the Beautiful Park, with the bridge extending an existing bike network and connecting downtown to the Midland Trail
- Biophilic design applied to galleries, with overlapping material representing petals
- Views to the Rocky Mountains
- Native plantings on terraces and landscaping

ECONOMIC OPPORTUNITY

As an acting museum, adjacent spaces such as classrooms, galleries, and restaurant services provide revenue stream from special events and teaching

APPLICABLE LESSONS

- Connection to outdoor spaces and terraces
- Use of lighting as wayfinding
- Consult with user groups and passionate advocates for the project
- Extreme measures and design to ensure accessibility was created



¹⁰³ "US Olympic and Paralympic Museum / Diller Scofidio + Renfro." Archdaily, 2021, <https://www.archdaily.com/944617/us-olympic-and-paralympic-museum-diller-scofidio-plus-renfro>

LEFRAK CENTER AT LAKESIDE PROSPECT PARK ^{104,105}

Brooklyn, NY | 2013 | 2,300–9,300 m²

PROJECT DESCRIPTION

A replacement rink that rethinks the idea of connecting community, recreational activities, and four-seasons use. It includes two outdoor rinks with 30,000 ft² of skating surface (i.e. ice rink for the winter months, and roller skating and a water park for the summer). Connected to the over eight acres of parkland, Lakeside will restore and enhance the social gathering aspect of recreation activities and connection to community.

SOCIAL PRACTICES

- Encourage social community interaction
- Spend time outdoors

ENVIRONMENTAL INITIATIVES

- LEED Gold
- Rainwater harvesting
- Green roofs
- Water-efficient plumbing fixtures
- Locally sourced materials

ECONOMIC OPPORTUNITY

Sport tourism

APPLICABLE LESSONS

- Engaging design to restore older facilities
- Reconnecting parks through pathways and outdoors
- Promoting outdoor play
- Successful application to winter cities



¹⁰⁴ "LeFrak Center at Lakeside Prospect Park." *Architizer*, 2021, <https://architizer.com/projects/lakeside-center-at-prospect-park/>

¹⁰⁵ "Sustainable Features of the LeFrak Center at Lakeside," *Prospect Park Alliance*, 2021, <https://www.prospectpark.org/visit-the-park/places-to-go/lefrak-center-lakeside/design-and-sustainability/sustainable-features/>

INTERNATIONAL ICE FACILITIES

ICE SKATING HALL ¹⁰⁶

Stuttgart, Germany | 1970, 2011 Renovation | 5,347 m²

PROJECT DESCRIPTION

The ice skating centre is located in the middle of the sport and recreation district in Stuttgart. The project included an expansion and renovation to an existing skating hall that was built in the 1970s. The old skating hall had many deficiencies, including an outdated ventilation system, structural damages, and limitation of use. Newly renovated twin ice sheets were created for the community and adjacent schools.

SOCIAL PRACTICES

- Use by adjacent kindergarten and private school
- Wheelchair gliders available for wheelchair users
- Viewing from foyer, allowing for ice sports to be viewed throughout the facility

ENVIRONMENTAL INITIATIVES

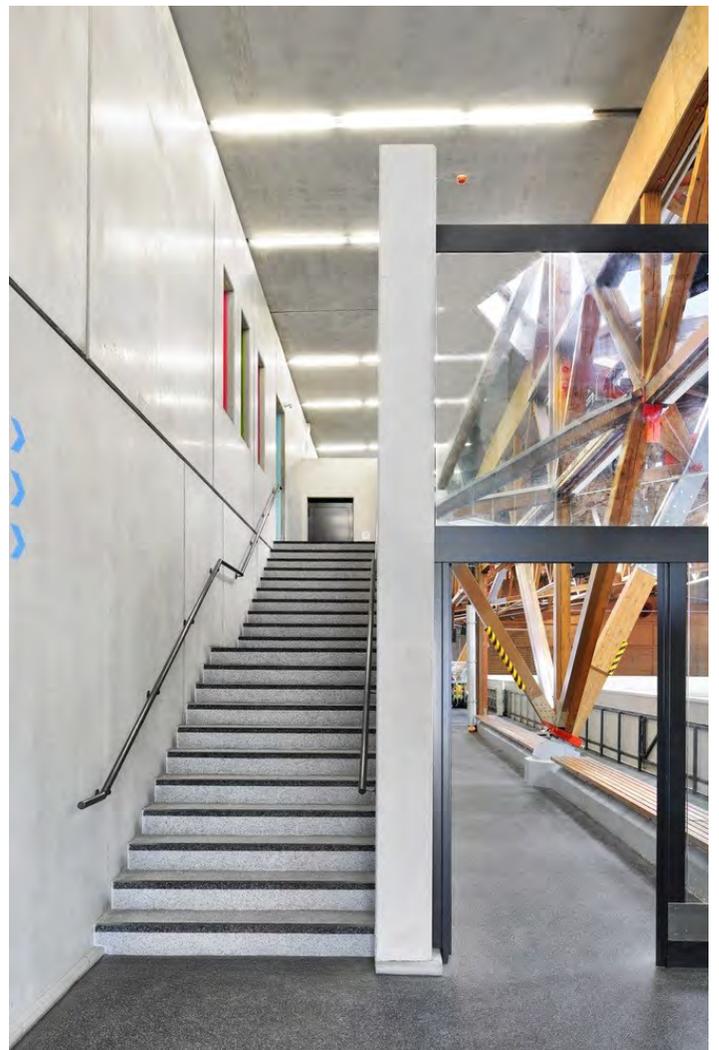
- Extensive retrofit of mechanical and electrical systems
- Energy-saving methods included in the design

ECONOMIC OPPORTUNITY

Sports tourism and event hosting, six junior hockey teams, three figure skating clubs, an ice dance club, and two curling clubs

APPLICABLE LESSONS

- Encourage local schools to promote physical activities
- Connecting the viewing of sports and gathering spaces



¹⁰⁶ "New Ice Skating Hall / Herrmann + Bosch Architekten". *Archdaily*, 2020, <https://www.archdaily.com/781554/new-ice-skating-hall-herrmann-plus-bosch-architekten>

ICE RINK OF LIÈGE ^{107,108}

Liège, Belgium | 2012 | 7,410 m²

PROJECT DESCRIPTION

The Ice Rink of Liège is located on a former industrial site, which has transitioned to an up-and-coming residential neighbourhood. The facility houses an Olympic-sized ice rink and substantial spectator viewing opportunities.

SOCIAL PRACTICES

- Structured and unstructured activities and programing, promoting community use
- Create a meeting place for four-season weather
- Accessible and inclusive design

ENVIRONMENTAL INITIATIVES

- Minimal exterior windows
- High-performance building envelope
- Glulam timber structure
- Heat pump, ventilation system, and hot water tank recover heat produced by the refrigeration units

ECONOMIC OPPORTUNITY

- Sport tourism and event hosting
- Revenue generation through space rentals, an internship program for children, skate lessons, skate rentals, skate sharpening, a bar for events, and a cafeteria

APPLICABLE LESSONS

- Offer programs and activities supporting community wellness
- Use of natural materials and use of light
- Dramatic design of structure as an art form



¹⁰⁷ "Ice Rink of Liège / L'Escaut Architectures + BE Weinand". *Archdaily*, 2020, <https://www.archdaily.com/416177/ice-rink-of-liege-l-escaut-architectures-be-weinand>

¹⁰⁸ "Ice rink of liege by l'escaut". *Designboom*, 2020, <https://www.designboom.com/architecture/ice-rink-of-liege-by-l'escaut/>

LENTPARK ^{109,110}

Cologne, Germany | 2012 | 12,716 m²

PROJECT DESCRIPTION

The multi-purpose recreation facility in Cologne provides a single ice sheet, aquatic centre, and an ice skating loop which wraps around the building.

SOCIAL PRACTICES

- Community use within a covered, all-year ice skating track
- Abundance of natural light
- Views to outside and inside

ENVIRONMENTAL INITIATIVES

- Solar power system
- Waste heat from the ice rink's cooling devices is used for heating water
- On-site well provides water for ice preparation, sanitary facilities, and swimming pools
- Entirely transparent exterior with sun shading to prevent excessive heat gain
- Prefabricated and modular building design

ECONOMIC OPPORTUNITY

- Revenue generation through the restaurant, school, and event bookings
- Minimized operational costs due to sustainable initiatives

APPLICABLE LESSONS

- Exciting design of ice-skating track to surround the facility, engaging all components
- Use of natural light
- Promote winter city activities



¹⁰⁹ "Lentpark / Schulitz Architekten". *Archdaily*, 2020, <https://www.archdaily.com/502781/lentpark-schulitz-architekten>

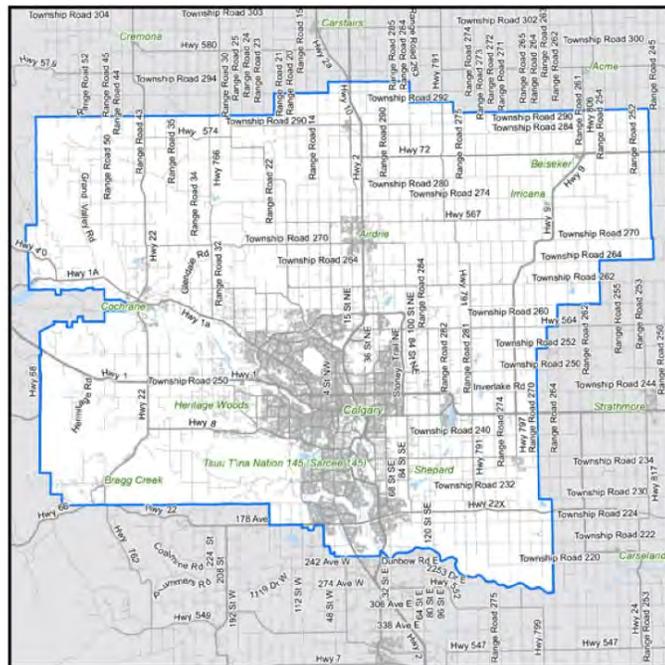
¹¹⁰ "Lentpark, Cologne". *Schulitz Architects*, 2020, <https://www.schulitz.de/en/lentpark-cologne/>

GLOSSARY

Current Replacement Value (CRV): The CRV refers to the construction cost amount to replace the asset at the present time.

Benchmarking: Research that provides comparable data to show how Calgary’s provision (ratio) of ice facilities to population relates to municipalities of similar size and within a region.

Calgary Census Metropolitan Area (CMA): The StatsCan CMA for Calgary (2016 census) includes Airdrie, Cochrane, Beiseker, Chestermere, and Bragg Creek. The population of the Calgary CMA was 1,392,609 (while the population of the actual CoC was 1,239,220).



The StatsCan CMA for Calgary (2016 census) includes Airdrie, Cochrane, Beiseker, Chestermere, and Bragg Creek.

Census Metropolitan Area (CMA): CMAs do not conform to established municipal boundaries. StatsCan defines them as a metropolitan area with a population of at least 100,000, where the urban core of that area has at least 50,000 people. Commuting patterns and other factors are used in determining these CMAs.

Calgary Metropolitan Region (CMR): The area includes the City of Airdrie, Cities of Chestermere, Town of Black Diamond, Town of Cochrane, Town of High River, Town of Okotoks, Town of Strathmore, Foothills County, Rocky View Country, Wheatland County, Tsuut’ina Nation.

Facility assessment: As defined by the ASTM E2018-15: Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process, a Property Condition Report, or facility condition assessment, is the process by which an entity observes a property, interviews sources, and reviews available documentation in order to develop an opinion on the condition of the property. For the purpose of this study, the facility condition assessment was based solely on existing available documentation.

Facility condition ratings:

- **Critical:** The facility shows signs of extreme deterioration. The facility is at high risk of operational interruption, or the operation is intermittent and/or has significantly diminished performance. There is a high degree of likelihood of an imminent failure, and/or the failure mode has increased severity due to the poor physical condition of key components. Significant investment is required to sustain the facility or should be retired.
- **Poor:** The facility shows signs of deterioration beyond what regular maintenance can manage. There is a high degree of likelihood of failure of key components. Facility operation may be intermittent and/or have diminished performance. Major investment is required in key facility components.
- **Fair:** The components in the facility show signs of deterioration due to use; the asset is still functional but there is likely increased risk of failure of major components. Asset operation is still acceptable but may have decreased performance from new. There is substantial deferred maintenance on the facility.

- **Good:** The facility is beginning to show some signs of deterioration due to use but is still fully operational, “worn in” condition. No major deferred maintenance on the building.
- **Excellent:** The facility is fully operational and shows no signs of deterioration, “new” or “like new” condition. Facility is at least 10 years away from significant lifecycle investment.

Fill rate: The total number of hours that the facility is utilized relative to designated operating hours.

Ice Allocation Policy and Procedures: A mandate that is adopted by some municipalities to support allocation and use of ice in a fair, equitable, transparent, and consistent manner and to ensure that ice facilities are used to the greatest benefit for the entire community.

Preferred access agreement: An existing agreement, typically verbal, that a facility operator may have with a frequent facility user/user group. This agreement may allow the user/user group to have an advantage in gaining access to prime ice time over other facility users.

Unique customers: Facility users that do not regularly attend the facility.

Utilization Rate: A measurement of the level of use, demand, or occupancy of the facility relative to designated operating hours, typically expressed as a percentage.

Sublease space: Portion of the facility that is occupied by a commercial lease holder, also known as a tenant, with its own public entrance from the exterior of the building or through a shared lobby.

LIST OF ACRONYMS/ABBREVIATIONS

ASC	Aboriginal Sport Circle
BCA	Building Condition Assessment
BIPOC	Black, Indigenous, and Other People of Colour
CCHS	Canadian Community Health Survey
CFSDA	Calgary Female Sports Development Association
CIHA	Calgary Inclusive Hockey Association
CMA	Census Metropolitan Area
CMRB	Calgary Metropolitan Region Board
CoC	City of Calgary
CoE	City of Edmonton
CRV	Current Replacement Value
CS4L	Canadian Sport for Life
FBO	Facility Booking Office
FDES	Facility Development and Enhancement Study
ICC	Institute for Canadian Citizenship
IIHF	International Ice Hockey Federation
IoT	Internet of Things
ISR	Infrastructure Status Report
LGB	Lesbian, Gay, or Bisexual
MAC	Multi-Activity Court
MDP	Municipal Development Plan
MVPA	Moderate to Vigorous Physical Activity
NAHC	National Aboriginal Hockey Championships
NAIG	North American Indigenous Games
PoE	Power over Ethernet
StatsCan	Statistics Canada
TBL	Triple Bottom Line
TRC	Truth and Reconciliation Commission of Canada

