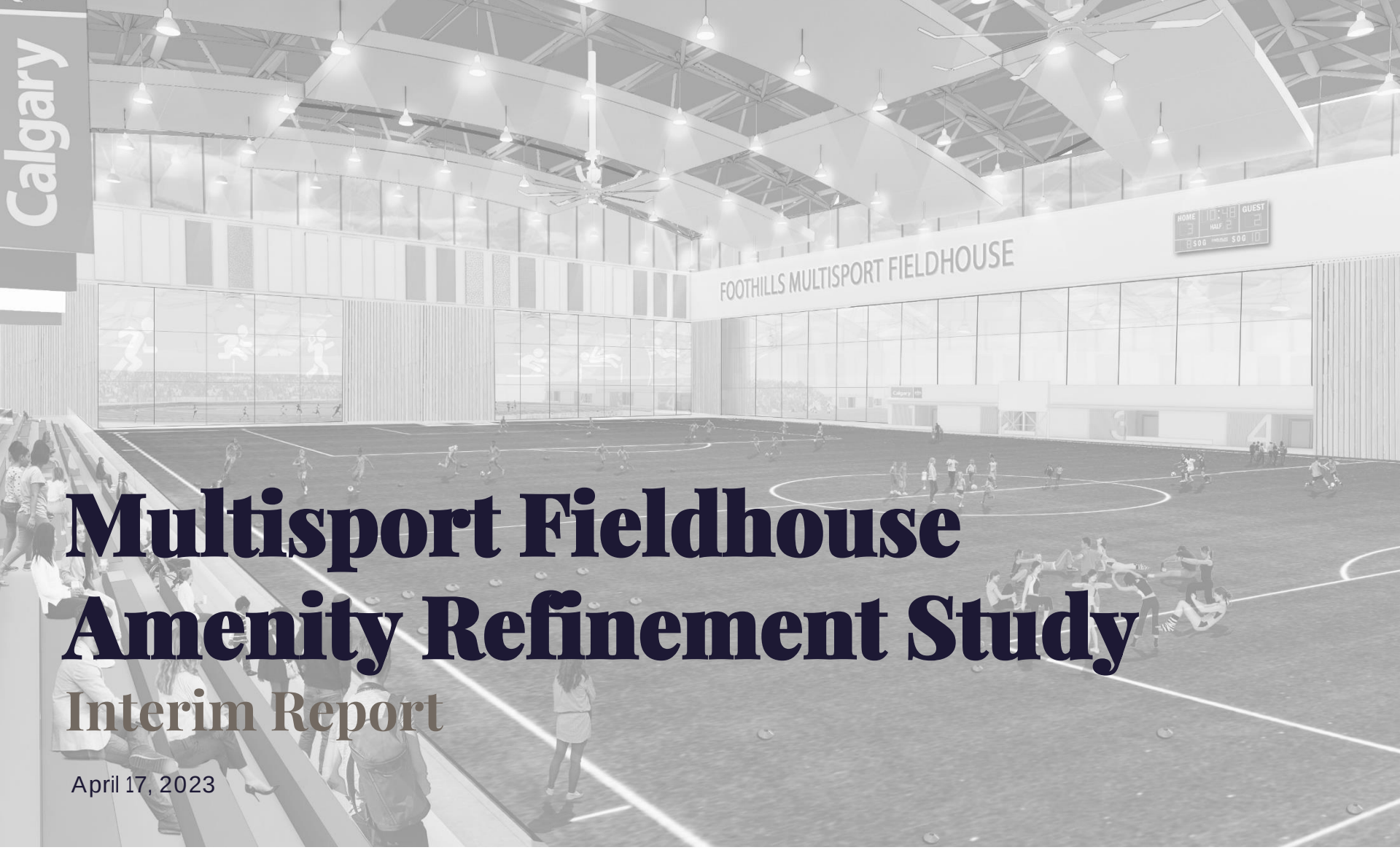

Multisport Fieldhouse Amenity Refinement Study

Interim Report

April 17, 2023

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Multisport Fieldhouse Amenity Refinement Study
Interim Report

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Background

To address an existing gap for indoor practice and play space, the City of Calgary has plans for an indoor multisport fieldhouse to be built at Foothills Athletic Park near McMahon Stadium. The Foothills Multisport Fieldhouse has been identified as a priority capital project that will provide year-round opportunities for Calgarians to play, practice and compete. It could also allow Calgary to host major sporting events that attract tourists and support local business.

Amenity Refinement Study

Since the original concept plan was developed, the sport and recreation landscape in Calgary has changed. Many organizations have undergone organizational or status changes or have expressed that the previously planned amenities no longer meet their needs.

The refinement study will re-engage sport and community groups and partners to validate assumptions around use, operations, and affordability. This will ensure that the concept reflects nuances in recreation and sport, including standards for hosting competitions. The study will consider the needs of Calgary's diverse community to ensure the facility is accessible and inclusive.

The study will include a current state review and revisit the original needs assessment to understand current demand and potential uses. Based on this, a prioritized list of amenities will be prepared to inform an updated concept plan. It will allow Administration to estimate operating costs and revenue potential and evaluate social returns on investment.

The study is expected to be completed in Q2 2023 and will make recommendations to ensure the amenity mix and layout maximizes operating efficiencies and minimizes required tax support.

Methodology

The methodology for the delivery of this interim report includes a progressive approach that aligns extensive research with a design recommendation. This report includes an overview of current and emerging trends, standards from facilities in other jurisdictions, and a working knowledge of the sports and recreation industry to propose a core amenity mix that supports the needs of Calgarians regarding Multisport Fieldhouse Amenities. This interim report and its methodology focuses on the following three core amenities: Track and Field, Gymnasia, and an Artificial Turf Field Amenity.

Core amenity designs were explored with sensitivity to the research, and "Baseline Amenity Options" have been drafted. These preliminary schematics illustrate the current amenity possibilities, while balancing both community needs and the event hosting potential of each individual amenity and the broader facility. Recommended seating capacities have been provided for each amenity, as well as an indication of the types of supporting amenities which may be shared amongst amenities throughout the facility. Analysis was conducted to examine the existing site's capacity to accommodate the space requirements of these amenities. However, further study is required to effectively balance competing needs such as parking and other site requirements.

Following this report, an outreach and engagement process will be undertaken which will contribute to the refinement of the options presented herein.

The compilation of this interim report involved four key research steps:

1. Best Practices Analysis: Research and analysis of similar facilities in comparable jurisdictions, or facilities offering critical "lessons learned".
2. Economic Impact Analysis: An analysis of the potential financial impact of a new facility and its amenities. This includes tournament hosting opportunities and the city-wide revenue generation that could be anticipated by visitor spending.
3. Trends Analysis and Market Scan: A review of sports and recreation trends, both within Calgary and industry-wide.
4. Operational Analysis: An understanding of the impact to day-to-day operations of the proposed core amenities when combined into one facility (ongoing).

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Key Findings

Major findings outlined within this report include:

- The methodology undertaken to date has led to the establishment of a baseline size and core amenity mix for the facility. At this early stage, the facility is recommended to be approximately 458,000 SF (42,550 SM), including allowances for supporting amenities.
- Operational efficiency can be maximized by creating three distinct spaces (one for each core amenity) which are combined into one multisport facility. The goal of this strategy is to ensure that multiple activities can occur simultaneously without compromising overall operations.
- Multiple amenities within one facility can promote the commercialization and development of the overall site and surrounding areas by drawing a critical population mass to the proposed Foothills Athletic Park.
- The Track and Field Amenity should include a 200m indoor track in a dedicated space which is connected to an adjacent Artificial Turf Field amenity. The amenity should include 130m-long straight sprint lanes to accommodate winter 100m sprint and 110m hurdle training.
- The Gymnasia Amenity should include a feature court configuration, complemented by six single court spaces, to support tournament and game hosting at a higher level and/or for national competitions. The feature court would have a spectator capacity of approximately 3,000 retractable seats. It should accommodate a recreation walking/running track at a mezzanine level. The provision of two multi-activity courts would support emerging sports and provide flexible spaces for varied use.
- The Artificial Turf Field Amenity should include an elongated field space of 74m by 160m for optimal operational flexibility. It should target 500 dedicated spectator seats along the length of the field to maximize the tournament hosting potential of this amenity. The provision of netting, curtains, and other equipment will allow for year-round training opportunities across a variety of sports.
- The general test fit of the building appears to be well-suited to the existing site. Further review is necessary to refine the strategy for the entire site regarding parking availability, access, safety, circulation, and accessibility patterns.

Outreach and engagement will refine these key findings in the coming months.

The findings indicate that the facility should support sport and recreation opportunities in the City by providing a community focus while maintaining the ability to operate as a world class tournament hosting venue.

The three core amenities will have the opportunity to operate separately, within a single building, but leveraging their adjacencies can provide significant operational wins and overall flexibility.

Figure 1.1: *Core amenity recommendations*

Core Amenity	Summary
Track and Field	200m Track and Field amenity, meeting World Athletics standards, with a hydraulic banked track. Separated 130m long Sprint Lanes (facilitating 100m sprint and 110m hurdles training, and all associated safety requirements).
Gymnasia	Feature Court with seating (divisible into three individual courts), six separate individual courts, and two "multi-activity courts" to support emerging sport trends.
Artificial Turf Field	74m by 160m turf field with 68m by 105m FIFA playing field and additional turf surface to improve operational flexibility.

1 / Introduction

Glossary

The following terms are used throughout the document. Definitions are listed below, for clarity.

Facility – A building within which both core and supporting amenities exist.

Core Amenity – There are three core amenities within the facility, each with their own supporting infrastructure. These include:

- Track and Field;
- Gymnasia; and
- Artificial Turf Field.

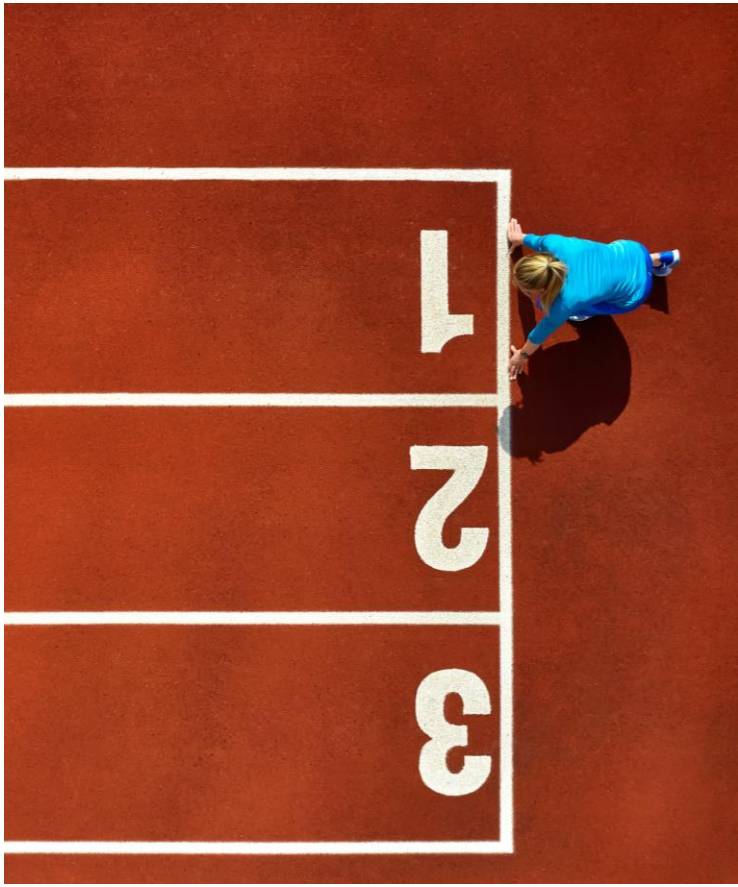
Supporting Infrastructure – Amenities that directly support a core amenity (such as change rooms, washrooms, equipment storage, etc.).

Supporting Amenities – Standalone common areas that support the facility, but which are not considered "core," and which do not necessarily correspond to a core amenity (such as a fitness centre, daycare, food services, physiotherapy, gathering spaces, etc.).

Feature Court – A gymnasium space designed to provide spectator seating capacity in addition to community sporting use.

Single Court – A gymnasium designed for use as a single space, or that can potentially be combined with other single courts on occasion when larger areas are required.

Multi-Activity Court – Similar in size to a single court, a Multi-Activity Court is designed with additional considerations for emerging sports. For instance, it may include different floor and wall treatments to respond to the unique sport requirements.



2 / Best Practice Analysis

Introduction to Best Practice Analysis

A best practice is a standard or set of guidelines that is known to produce positive outcomes. A best practice analysis examines comparable facilities to identify industry standards and opportunities for excellence. This analysis can provide valuable insights for design, programming, and operational approaches. It can also provide information on common supporting amenity and infrastructure requirements, new trends, technological advances, and much more.

The first step in this type of analysis is to identify the defining characteristics of the facility. For the Foothills Multisport Fieldhouse, the core amenity mix is a key component. The core amenities identified for this facility are:

- Track and Field
- Gymnasia
- Artificial Turf Field

Several facilities were selected, within each core amenity class, as benchmarks for best practices. Due to the variability in the amenities, best practices have been established (1) generally for a facility of this caliber by the amenity type, and (2) by each of the three core amenity types.

The analysis, along with sport specific event hosting requirements, has directly influenced the proposed core amenity mix of the facility. For example, this research has informed the track length and banked corner recommendations, gymnasia sizing, and dimensions and standards for the artificial turf field. In addition, many value-added items have been considered and are intended for further study. These items have been selected based on their ability to provide operational flexibility and define this facility as a multisport destination.

The following pages will first provide details on the benchmark facilities followed by some general best practices. Best practices and additional facility details will be provided for each amenity type.

Factors evaluated in this report

- Needs and Feasibility
- Functionality
- Programming
- Economic Impact Analysis
- Cost to Construct
- Seating Capacities
- Adjacency to Other Facilities

Factors requiring further study

- Operations and Maintenance Input
- Utility Infrastructure
- Outreach and Engagement
- Environmental Considerations
- Program and Efficiencies of Co-Location
- Mixed Mode Transit Opportunities (current and future)
- Flexible Seating Solutions
- Construction Phasing Opportunities/Requirements

Factors for consideration in future design process phases

- Safety and Accessibility
- Equipment Storage Design
- Site and Facilities Operational Space
- Sightlines and Program Viewing Analysis
- Mix of Supporting Amenities (concessions, sport-related therapy, childcare etc.)
- Attractive Design Aesthetic
- Line Marking Specifications

2 / Best Practice Analysis

Benchmark Facilities

Municipalities select amenity combinations for facilities based on community needs and existing and planned facilities. When determining guiding principles, comparable facilities were considered and grouped based on each of the core amenities of the Foothills Multisport Fieldhouse. The list below includes facilities that could best serve as benchmarks within each category. The appendix contains an overview of each of these benchmarks by facility.

Figure 2.1: *Benchmark facilities summary*

	Name	Location	Date Built	Facility Size (SF / SM)	Construction Cost at Build ($CAD)	Construction Cost in 2023 ($CAD)	Seating Count (Min)	Seating Count (Expandable)
Track and Field	The Track at New Balance	Boston, MA	2022	450,000 / 41,806	$650.7M	$732M	2,300	5,000
	Irving Oil Field House	St. John, NB	2019	110,000 / 10,219	$27M	$33M	650	700
	Virginia Beach Sports Center	Virginia Beach, VA	2020	285,000 / 26,477	$91.2M	$108.9M	5,000	5,500
	The Podium	Spokane, WA	2021	135,000 / 12,542	$66.4M	$77M	3,000	4,000
		Averages	2020	245,000 / 22,761	$208.8M	$237.7M	2,738	3,800
Gymnasia	Paramount Fine Foods Sportsplex	Mississauga, ON	2007	200,000 / 18,580	$22M	$38.6M	250	250
	Virginia Beach Sports Center	Virginia Beach, VA	2020	265,000 / 24,619	$91.2M	$108.9M	5,000	5,000
	Richmond Olympic Oval	Richmond, BC	2010	362,000 / 33,631	$178M	$321.3M	2,000	2,000
	Saville Community Sports Centre	Edmonton, AB	2003	236,000 / 21,925	$65M	$128.2M	2,800	2,800
	Tournament Capital Center	Kamloops, BC	2007	65,000 / 6,039	$23.8M	$41M	2,200	2,200
		Averages	2009	225,600 / 20,959	$75.8M	$127.6M	2,450	2,450
Artificial Turf Field	Saskatoon Sport Centre	Saskatoon, SK	2005	167,000 / 15,515	$14.5M	$27M	1,500	1,500
	Edmonton Soccer Dome	Edmonton, AB	2018	135,000 / 12,542	$7M	$8.9M	-	-
	Shell Place	Fort McMurray, AB	2015	83,250 / 7,734	$127M	$175.8	-	-
	Commonwealth Fieldhouse and Community Rec Centre	Edmonton, AB	2012	215,000 / 19,974	$112M (Renovation)	$169.3	500	1,000
	Paramount Fine Foods Sportsplex	Mississauga, ON	2007	200,000 / 18,580	$22M	$38.6	75	75
		Averages	2011	160,050 / 14,869	$56.5M	$83.9M	692	858

2 / Best Practice Analysis

Key Findings

The best-practice analysis of comparable amenities in benchmark facilities has provided the general findings below, which should be carefully considered in upcoming conceptualization, refinement and site test-fit exercises. Following this, best practices are examined by amenity type.

- Indoor recreation and sport facilities have become a standard within communities situated in cold weather climates. The development of indoor facilities enhances accessibility for residents, provides improved sport performance and skill development, enhanced quality of life and resident health, and enables year-round sport hosting opportunities that support the visitor economy.
- The clustering of amenities within a large multi-sport venue can increase the total utilization within a facility and can act as a key catalyst for commercial growth due to the high site visitation and activation of the site.
- Multisport facilities must be developed with the purpose of managing spaces as independent and unique amenities.
- Space flexibility and planning will be critical within the independent amenities and within the overall facility footprint. The initial investment in space flexibility and conversion flexibility will ensure that the proposed development will remain competitive over the life of the facility. Maximizing flexibility of the space must be a high priority.
- The track and field facility standard should include a 200m track as the baseline for performance, which must additionally be developed with purposeful design intent to meet the high-performance needs of specific clubs and athletes while concurrently maintaining maximum accessibility for recreational user groups. The ancillary amenities will be important considerations that will require purposeful alignment with the local market needs.
- The gymnasia amenity should consider the alignment of a feature court with flexible seating options and the appropriate mix of ancillary court space to meet the needs of the local user groups and sport tourism hosting up to national and international hosting opportunities.
- With significant growth in user demand for artificial turf field space and an increase in participation anticipated following the 2026 World Cup, participation is anticipated to outpace the results of that experienced following the 2015 Women's World Cup hosted in Canada. The maximization and modularity of the artificial turf field amenity will support local demand while concurrently providing a leading recreational sport hosting opportunity. The development of the artificial turf field amenity is expected to deliver high utilization and support high demand.
- The assembly of supporting amenities within the proposed Multisport Fieldhouse will be an important element of the total facility performance, both financially and from a guest experience perspective. The inclusion of fitness facilities, fitness programming space, sport therapy, child minding and/or daycare space, food and beverage opportunities, community meeting space, team and club offices, officiating spaces, media and production spaces, locker and change facilities, and public space will be essential considerations that will influence the overall success of the facility. The outreach work in alignment with best practices will be important in the development of the final recommendation.

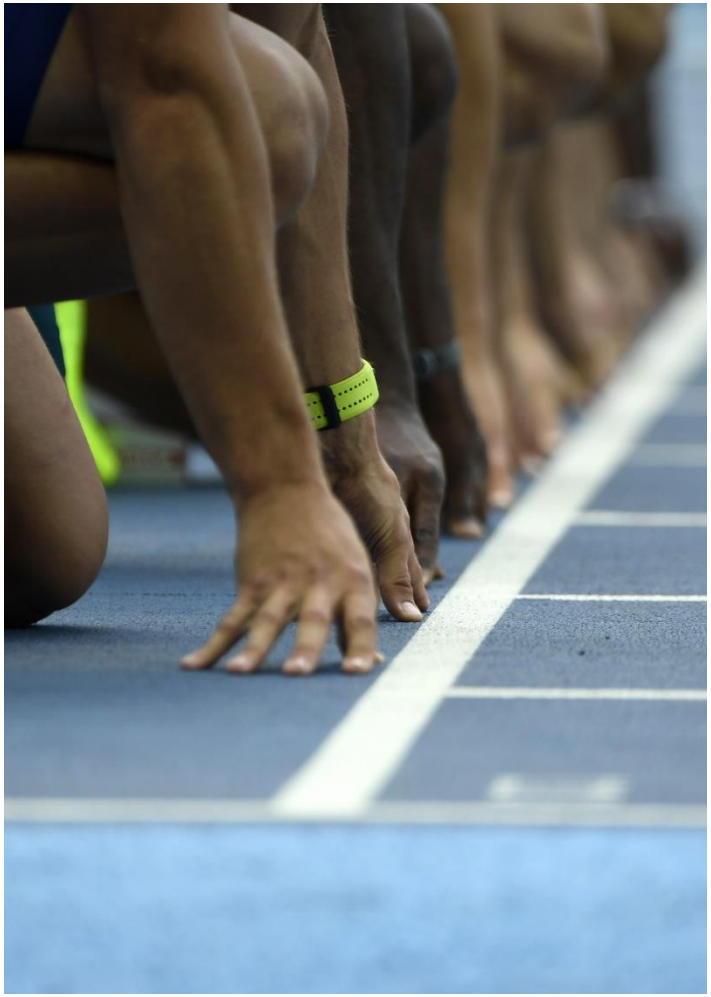
2 / Best Practice Analysis

Track and Field Amenities

Track and Field facilities are making major impacts around the globe, especially in colder climate countries. The value of having a year-round, climate-controlled and weatherproof Track and Field amenity is driving institutions and governing bodies to invest in the future of their programs. Track and Field amenities can also be key recruiting tools for attracting top athletes in addition to providing a new revenue source and economic opportunities for the City by attracting National and International events, allowing for increased sports tourism revenue. Moreover, the addition of this type of facility can benefit the athletic programs for local high schools, colleges, and universities, as well as offer the community more fitness and recreational options.

Figure 2.2: *Best practice notes for Track and Field amenity*

Best Practices for Track and Field Amenities
• Consider requirements and standards of track layouts and ancillary spaces required for tournament hosting.
• Minimize wasted space (i.e., consider alternative uses for running track infield)
• Consider flexibility in applications (i.e., retractable seating, additional sprint lanes for training).
• Indoor sanctioned competitions and records necessitate a 200m track.
• World Athletics tournaments require a minimum 3,000 spectator seats, potentially expanding up to 5,000 spectators. Seating provisions can be a mix of permanent and temporary. The number of fixed spectator seats should be minimized to meet the local recreational demand while the space available for temporary seat expansion should support the seating minimum requirements for tournament hosting.
• Hydraulic banked tracks provide flexible use from the community recreational level to elite and world-class training and competition.



2 / Best Practice Analysis

Track and Field Amenities

Comparable facility research was carried out on facilities in North America. The goal is to study facilities that have seen infrastructure renewal and growth on a scale that is achievable for the City of Calgary. The research provides valuable insight within the context of a broader identification of potential options for future strategic plans. One key takeaway is that every site is unique, as is every model and market.

Figure 2.3: *Detailed Track and Field benchmark analysis*

		The Track at New Balance, Boston MA	Irving Oil Field House, NB	Sports Center, Virginia Beach VA	The Podium, Spokane WA
City Demographics	Population	(2020) 689,326	(2021) 69,895	(2020) 450,882	(2020) 228,989
	Total Labour Force	384,240	34,240	229,239	139,683
	Median Household Income	$76,298 USD	$52,132	$78,136 USD	$56,977 USD
	Median Age	32.4 yrs	44.0 yrs	36.4 yrs	36.3 yrs
Year Open		2022	2019	2020	2021
Cost ($CAD)		$650.7M	$27M	$91.2M	$66.4M
Cost (2023 Dollars)		$732M	$33.2M	$108.9M	$77M
Facility Size		450,000 SF / 41,806 SM	110,000 SF / 10,219 SM	285,000 SF / 26,477 SM	135,000 SF / 12,542 SM
Cost per SF in $CAD (Adjusted to 2023)		$488 (Adjusted for site development)	$302	$382	$570
Indoor Track		Beynon Sports Rise-N-Run 200m indoor 6-lane hydraulic banked oval track	200m flat indoor 6- lane walking/running track	Beynon Sports Rise-N-Run 200m indoor 6-lane hydraulic banked oval track	75,000 SF / 6,968 SM Competition floor. Beynon Sports Rise-N-Run 200m indoor 6-lane hydraulic banked oval track
Seating Capacity		2,300 fixed seats expandable to 5,000	650-700 Seats	Hydraulic track has seating for 5,000. Temporary bleachers in the court space plus 500 SF of skyboxes	3000 permanent, 1000 portable, and 237 VIP
Visitation		In the first season (2023), the facility will see over 80 track meets and 250 practice sessions. Actual attendance and visitation data is unknown at this time.	Unavailable at this time. Awaiting final data.	9,609 athletes and spectators for Track and Field events booked for 2023-2024 calendar year. Previous year saw over 22,000 in visitation amongst similar events.	Projected at 250,000 annual visitors for entire facility in 2021, Seemingly consistent with events scheduled for 2023.
Annual Earnings/Loss		Opened 2022 – no data available.	Unavailable at this time. Awaiting final data.	It is estimated that the VB Sports Center had $2.7M annual losses across 2021 and 2022.	Opened 2021 - Initially projected to lose $350-$400k annually. Losses will be subsidized by hosting concerts.

2 / Best Practice Analysis

Track and Field Amenities

Comparables by Facility – Visual Representation

The following graphics visually represent the comparison between the Track and Field amenities relative to: date built, square feet, original construction cost ("original budget"), the construction cost in 2023 dollars ("2023 adjusted spend"), dollars per square feet, and number of seats.

Legend

1. The Podium
2. Virginia Beach Sports Center
3. The TRACK at New Balance
4. Irving Oil Field House

Figure 2.4: *Graphic representation of benchmark Track and Field facilities*

2 / Best Practice Analysis

Track and Field Amenities

Comparables by Facility (Continued)

Figure 2.5: *Further analysis of benchmark Track and Field facilities*

	The Track at New Balance, Boston US	Irving Oil Field House, NB	Sports Center, Virginia Beach VA	The Podium, Spokane WA
Primary User / Tenant	Located in New Balance Head Quarters at Boston Landing. The TRACK is home to Bruins and Celtic training.	St John Track Club and University of New Brunswick track & field.	Multiple Groups.	Multiple Groups.
Track Infield and Amenities	24,000 SF / 2,230 SM athlete warm-up area, in-field Gymnasia with Track and Field throwing, high jump, sprint and hurdles track, pole vault. There is also a dedicated space for coaches and performance athletes offering a training space and 130m 2-lane oval track, a 60m sprint track and state-of-the-art fitness room. 4 VIP boxes, video production room, event timing, press boxes and hospitality area.	In-field artificial turf, adjacent artificial turf field both 92 x 172 ft. and lined for 1/2 field play. 100m sprint/hurdle track and long jump pit to the side of the main track.	2 sets of 8-lane sprint lanes, 2 x high jump, 2 x long/triple jump, pole vault, throw circle, wrestling mats.	60m 8-lane straight sprint, 60m 4-lane straight warm-up, Long/triple jump, pole vault, high jump, weight throw, shot put . With the banked track lowered, this facility is configurable to 16 volleyball courts, 9 basketball courts, 21 wrestling mats.
Adjacent Amenities	Adjacent facilities include the Warrior Ice Arena, Athletes park, a 25,000 SF / 2,323 SM Fitness centre, and a 3,500-seat concert and event centre. Within the centre is a multi-purpose gymnasium with sports court for basketball, volleyball and weighted throw and shot putt.	High jump, long jump, shotput and pole vault equipment, portable pickleball and badminton courts. Also includes 8 team change rooms, group fitness, community programming, childcare, fitness centre designed as a performance gym for athletes.	12 Hardwood Basketball courts configurable to 24 volleyball and 9 field hockey courts with ceiling mounted goals, stations, scoring and division nets. Programmable outdoor courtyard. Meeting rooms, offices, storage and 400 dining seats at a full-service kitchen and concession area with a view to the track and courts.	Strategically positioned near the Spokane Veterans Memorial Arena and the Spokane Convention Centre. Onsite concessions, spaces for vendors, management, media, and medical training.
Key Attributes	Track is equipped with indoor track, turf and court systems: FieldTurf EasyField Roll retractable turf system used for soccer, lacrosse and baseball; Tarkett Indoor EasyCourt portable floor system for 6 basketball courts, volleyball and pickleball. 19,000 SF high-tech sports research performance lab. Retail outlets.	The YMCA of greater St. John oversee operations and programming of the facility which contributes greatly to the facility being a community gathering place.	Capable of hosting NCAA and World indoor Track and Field meets. Hosts wrestling, gymnastics, field hockey, cheerleading, pickleball, and more.	Access-controlled athlete warm-up area adjacent to competition floor. The facility was built with an intent to also be able to host events such as concerts. Over $1M was invested in floor covering to protect the track to have the ability to host concerts the first of which was hosted in Oct 2022.
Tournament/ Event Hosting	2023 will be the centre's first full year of operations and they have announced that in 2023 the facility has been booked for 80 track meets and 250 practice sessions. This is a high-performance athlete training facility and home of the Boston Bruins and Boston Celtics training. The facility has been selected to be home of the 2024 D1 NCAA Indoor Championships.	Numerous local, provincial, and national tournaments for track, soccer, badminton and pickleball.	Home to Annual Tournaments: Virginia Beach Hoopfest Basketball Tournament, Volley & Vibe Volleyball Tournament, Neptune City Classic Basketball Tournament, VBSC Summer Classic Basketball Tournament, Feast Jam Preseason Jamboree. 2023 Hosting Schedule (Jan-Jun) includes: 2023 NHSCA Senior National Championship, 2023 Blevins Memorial Big Money Tournament, 2023 Big Shots Virginia Beach Live, 2023 Phenom Hoops Basketball Tournament, 2023 Atlantic Coast Grand Prix, 2023 Northeast Power Series, 2023 Neptune City Classic, 2023 Teammate Basketball National Championships.	2023 tournaments booked include: 2023 Washington State Middle School Basketball Championship Presented by STCU : Pacific Northwest Qualifier USA volleyball national event : 2023 USA Wrestling Women's National Championships: Evergreen Regional Volleyball Championships (U12, U14, U16 & U18) : 2023 USA Team Handball US Open and Junior National Championships : Border Smackdown Boys Volleyball Tournament : 2023 USA Judo Senior National Championships : 2023 USA Badminton Junior National Championships.

2 / Best Practice Analysis

Gymnasia Amenities

Multi-functionality is increasingly a fundamental requisite to meet the demands of different sports. Areas and spaces should be organized to allow for multiple configurations while ensuring that each sport can be practiced appropriately. The proposed Foothills Multisport Fieldhouse is required to function as a community facility that is 'tournament capable,' and it should be a flexible facility that can adapt to tournament hosting.

Figure 2.6: *Gymnasia best practice summary*

Best Practices for Gymnasia Amenities
Basketball: • An official International Basketball Federation (FIBA) court is 28m x 15m. • Hardwood (typically maple) is the gold standard for basketball. Permanent wooden flooring is required for levels 1 and 2; permanent synthetic flooring is required for levels 2 and 3; and mobile synthetic flooring is required for levels 2 and 3. • FIBA Equipment and Venue Centre sets standards for high-level competitions. These standards state that general seating capacities for hosting multi-sport court events range from 3,000 to 8,000 seats dependent on level of competition. Flexible and/or temporary seating options can be explored to preserve the multisport community nature of the facility.
Volleyball: • Playing area per International Volleyball Federation (FIVB) match of 34m x 19m and 7m in height free from obstacles. • Senior World Championships and Olympic Tournaments require a main hall with seating capacity for 15,000. For other international events, a capacity of 5,000 seats is acceptable. It is unlikely that the upper end of this range will be achievable in a multisport facility.
Flooring: The ideal characteristics of sport flooring varies according to the type of sport practiced, and the quality of the flooring generally depends on the purpose for which it is to be used. Adequate maintenance is especially important for court areas experiencing peak dynamic stress (high-traffic areas).
Ancillary Space: If possible, access to a fitness room should be provided. An access fee may be charged by the organizer.

2 / Best Practice Analysis

Gymnasia Amenities

Best Practices by Sport

Figure 2.7: *Standards for key sports' governing bodies*

Descriptors	FIBA Standard	FIVB Standard	Pickleball Canada + IFP Standard	Badminton World Federation (BWF)
Description	Basketball Competition Venue	Volleyball Competition Venue	Pickleball Competition Venue	Badminton Competition Venue
Minimum Capacity (Spectator Seating)	U19 Women's: 3,000 (Preliminary)-5,000(Final), U19 Men's: 4,000 (Preliminary)-8,000 (Final), Olympic Qualifying: 6,000 (Preliminary)-10,000(Final)	Senior World Championships and Olympic Tournaments: 15,000. Other FIVB, World, and Official competitions may be authorized to use a hall with less seating capacity in accordance with local conditions. For preliminaries or rounds not to be played in the main venue, a hall with a capacity of 5,000 (five thousand) seats is acceptable.	-	Undetermined at this time.
Lighting	Not less than 1800 lux on field of play	Minimum 500 lux	-	Minimum 1000 lux
Court Surface	Wooden, Built by FIBA approved manufacturer	Wooden or Synthetic Flooring	Often concrete or asphalt with 100% acrylic coating. Background color around the field of play must be contrasting, pickleball appropriate.	Wooden sprung floor, or equivalent subfloor for the Badminton Court Mats, or (for lower-level tournaments) equivalent surface, together with approved non-slip mats
Field of Play	28m long x 15m wide	40 m x 25 m total competition control area per Court, with a playing court area of 18 m x 9 m per match	For hosting Nationals: Minimum of 20 Courts, minimum playing surface of 30 feet (9.14 m) wide and 60 feet (18.29 m) long. Preferred 10-foot (3.05-m) surrounding margin measures 40 feet (12.19 m) by 64 feet (19.51 m) for adaptive wheelchair play.	Minimum 4 courts. Singles court shall be 13.4m by 5.18m. The top of the net from the surface of the court shall be 1.524m at the centre of the court and 1.55m over the side lines.
Minimum Ceiling Height		7 meters	9 meters (30 feet)	Olympic: 12 meters, Other BWF Tournaments: 9 meters
Athlete Seating	Minimum 14 per Team	Two (2) chairs and seating for eight (8) persons placed along the external side of the free zone on either side of the scorer's table	-	Undetermined at this time.
Medical Room	Minimum 30 m²	Minimum 25 m²	-	N/A, although courtside medic is mandatory
Training Ground	Minimum 1	Minimum 2 (Senior World, Olympics), at least 24 m x 15 m x 7 m height	-	Olympic: 4 warm up courts and 8 practice courts Grade 1: 2 warm up courts and 8 practice courts Grade 2: 2 warm up courts and 8 practice courts Grade 2 (lv. 6): 1 warm up court and 4 practice courts
Athlete Dressing Rooms	4 Rooms, Minimum 50 m² each	4 Rooms, Minimum 30 m² each	-	Required lounge area for Grades 1 and 2 (Levels 1-4) and recommended for Grade 2 (Levels 5-6)
Officials Dressing Rooms	2 Rooms, Minimum 20 m² each	2 Rooms, Minimum 20 m² each	-	-
Doping Control Room	Located inside the competition venue, close to the playing hall, athletes' changing rooms and the athletes' medical care room. Minimum 15-24 m²	Minimum 40 m²	-	2 rooms

2 / Best Practice Analysis

Gymnasia Amenities

The following Gymnasia facilities were selected for analysis as having comparable "Best in Class" amenities:

Figure 2.8: *Detailed Gymnasia benchmark analysis*

		Paramount Fine Foods Sportsplex, Mississauga ON	Virginia Beach Sports Center, Virginia Beach	Richmond Olympic Oval, BC	Saville Centre, Edmonton AB	Tournament Capital Centre, Kamloops BC
City Demographics	Population	(2021) 717,961	(2020) 450,882	(2021) 209,937	(2022) 1,100,000	(2021) 97,902
	Total Labour Force	371,290	229,239	105,145	554,040	50,025
	Median Household Income	$83,018	$78,136 USD	$65,241	$87,225	$79,770
	Median Age	40.8 yrs	36.4 yrs	43.6 yrs	36.8 yrs	41.6 yrs
Year Open		2007	2020	2006	2011	2007
Cost ($CAD)		$22M	$91.2M	$178M + $24M for conversion post-Olympics	$65M	$23.8M
Cost (2023 Dollars)		$38.6M	$108.9M	$321.3M	$128.2M	$41M
Facility Size		200,000 SF / 18,581 SM	285,000 SF / 26,477 SM	362,000 SF / 33,631 SM	236,000 SF / 21,925 SM	65,000 SF / 6,039 SM
Cost per SF		$193	$382	$888	$543	$630
Visitation		The sportsplex welcomes almost 100,000 visitors each month.	63 events with 85,150 athletes and 116,279 spectators can be accounted for from July 2022 through June 2023.	In 2021, the Oval saw 2,351 summer camp registrations, 9,001 private learn to skate lessons, and 5,223 high-performance training sessions.	2018-2019: over 60 large-scale events resulting in over 1.5M visitors. 22,209 day passes were sold as well as 4,600 monthly passes.	2019: 134 total events, including 33,472 out of town participants and 107,309 total participant days.
Annual Earnings/Loss		Unavailable at this time. Awaiting final data.	It is estimated that the VB Sports Center had $2.7M annual losses across 2021 and 2022.	2021 Revenue of $14,203,433. 2021 Expenses of $(14,091,835). Total surplus for 2021 was shy of $115,000.	Unavailable at this time. Awaiting final data.	User fees cover approximately 50% of operating costs.
Court Details		Full sized competition hardwood basketball court and volleyball court with a practice/warm up court.	12 hardwood basketball courts convertible to 24 volleyball courts or 9 field hockey courts.	18 badminton courts, 13 FIVB volleyball courts, 10 FIBA basketball courts, 3 FIFA indoor regulation size soccer fields, 16 international size table tennis tables.	12 FIBA basketball courts, 25 volleyball courts, gymnastics facility, competition gym with seating for 2800 spectators, 30 badminton courts, 8 championship-level indoor tennis courts.	3 NBA sized hardwood courts (2 fixed, 1 portable).
Number of Seats		250 Expandable Beecher Seating – Mechanical Seating.	Hydraulic track has seating for 5,000. Temporary bleachers in the court space plus 500 SF / 46 SM of skyboxes.	2,000 Seats.	2,800 Seats.	2,200 Seats.

2 / Best Practice Analysis

Gymnasia Amenities

Comparables by Facility – Visual Representation

The following graphics visually represent the comparison between the Gymnasia amenities relative to: date built, square feet, original construction cost ("original budget"), the construction cost in 2023 dollars ("2023 adjusted spend"), dollars per square feet, and number of seats.

Legend

1. Richmond Olympic Oval
2. Saville Community Sports Centre
3. Paramount Fine Foods Sportsplex
4. Virginia Beach Sports Center
5. Tournament Capital Centre

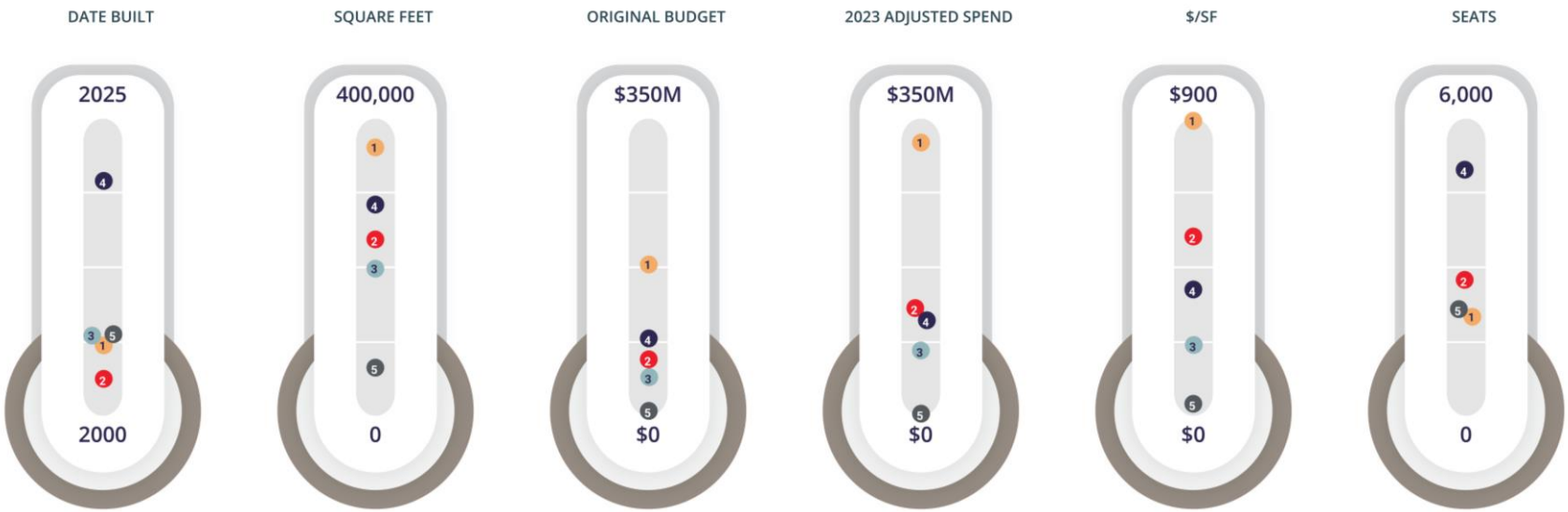


Figure 2.9: *Graphic representation of benchmark Gymnasia facilities*

2 / Best Practice Analysis

Gymnasia Amenities

Further analysis of comparable Gymnasia amenities.

Figure 2.10: *Further analysis of benchmark Gymnasia facilities*

	Paramount Fine Foods Sportsplex, Mississauga ON	Virginia Beach Sports Center, Virginia Beach	Richmond Olympic Oval, BC	Saville Centre, Edmonton AB	Tournament Capital Centre, Kamloops BC
Adjacent Amenities	This facility also houses a gymnastics centre, triple gymnasium, fitness centre, meeting spaces and a licensed lounge.	Also features a 200-meter indoor hydraulically banked track and warm-up lanes and fitness centre. Hotels and restaurants are also nearby, which are also an attraction to the site.	Canadian Sport Institute laboratory and administration, LifeMark Sport Medicine, Pharmacy, Doctor's office, museum, and two ice sheets.	10 Championship-level curling ice sheets, Fitness Centre, Upper-level indoor track, High Performance Training & Research Centre, Foote Field, the Premier Field, Tennis Facility.	Adjacent amenities include an 8,000 SF Wellness Centre, Sage medical centre, outdoor 400m 8-lane running track, a Canada Games aquatics centre, outdoor 2,500-seater outdoor turf stadium, and 15,000 SF / 1.394 SM gymnastics facility.
Primary User	Mississauga Monarchs Basketball. The official practice gym for the Raptors 905 from the NBA Gatorade league.	Day to Day use includes adult basketball, open gym. and youth sports year-round (volleyball and basketball). Intermittent use includes Youth soccer November – February and Sports Camps from April – August.	Canadian National team athletes from Volleyball Canada, Speed Skating Canada, Wheelchair Rugby Canada and Climbing Escalade Canada.	UofA Golden Bears and Pandas teams.	Thompson Rivers University.
Key Attributes	The full-sized basketball court, when divided, accommodates 2 practice courts. Each of the three total practice courts can accommodate 3 badminton courts or one volleyball court.	Open gym times and in-house programming vary on a weekly basis. Designed to NCAA standards to attract indoor Division 1 and 2 Track and Field tournaments.	The upper-level flexible space consists of a 20,000 SF / 1,858 SM fitness centre with over 200 pieces of equipment.	The centre hosts a wide variety of sporting and recreational events recognized at the local, provincial, national, and international level.	The 2 fixed hardwood competition courts are in-field of a 200m 6-lane competitive Olympic standard track. Sports courts are the primary function of the facility and the track is secondary, but an important function of the facility. The facility also boasts a custom designed indoor throw room.
Tournaments	Local, provincial, national, international and community sports leagues and tournaments. The facility has hosted international soccer leagues.	Home to Annual Tournaments: Virginia Beach Hoopfest Basketball Tournament, Volley & Vibe Volleyball Tournament, Neptune City Classic Basketball Tournament, VBSC Summer Classic Basketball Tournament, Feast Jam Preseason Jamboree. 2023 Hosting Schedule (Jan-Jun) includes: 2023 NHSCA Senior National Championship, 2023 Blevins Memorial Big Money Tournament, 2023 Big Shots Virginia Beach Live, 2023 Phenom Hoops Basketball Tournament, 2023 Atlantic Coast Grand Prix, 2023 Northeast Power Series, 2023 Neptune City Classic, 2023 Teammate Basketball National Championships.	The Oval has been host to elite level competition in: Table tennis, Speed skating, Volleyball, Basketball and Wheelchair Basketball, Athletics, Taekwondo and Karate, Ice Hockey, 2010 Olympic Winter Games, Long Track Speed Skating, 2010 World Wheelchair Rugby, 2011-2013 Yonex Badminton Open, 2012 ISKF National Karate Championship, 2013 Judo Canada National Championship, 2014 Pacific Rim Gymnastics, 2014, 2016, 2018, 2020 Canada Cup International Wheelchair Rugby Tournament, 2013-2019 PGA of BC Trade Show	2018-19 hosted over 60 large scale events which resulted in 1.5M visitors to the facility.	Host to numerous local, provincial, national and international sporting events annually.

2 / Best Practice Analysis

Artificial Turf Field Amenities

Guiding Principles

The following table summarizes some of the key findings from the analysis on Artificial Turf Field comparable amenities:

Figure 2.11: *Best practice notes for artificial turf amenity*

Best Practices for Artificial Turf Amenities
• General seating capacities for turf amenities can range from 500 to 5,000 seats dependent upon the level of competition.
• Pitch dimensions found optimal by FIFA are international regulation size (68m x 105m), FIFA Grade A Turf.
• Artificial (synthetic) turf is the gold standard for FIFA-regulation requirements and accommodate the maximum recommended hours per week of usage compared to other pitch types.
• Accommodate a variety of user groups from community to collegiate, with the opportunity for national hosting.
• The sizing of the field must be divisible from one large pitch to standards of indoor play using four pitches at any one time, allowing for multi-use and multi-level game play.

2 / Best Practice Analysis

Artificial Turf Field Amenities

Best Practices by Sport

Figure 2.12: *Standards for soccer governing body (FIFA)*

Descriptors	FIFA Category 5 (Community)
Description	Minimum FIFA standard for any soccer stadium, including development group and community use
Minimum Capacity (Seats)	250
Standing Areas	Does not count toward minimum net capacity unless convertible to seating
Floodlights	Min. 500 lux. All LED
Pitch Surface	Grass (outdoor only) or FIFA-certified turf
Field of Play	68m x 105m
Pitchside Boards	-
Team Benches	Capacity to expand to: 2 x 14 persons
Players' Tunnel	Not Required
Players' Dressing Rooms	2 x 25 SM
Match Officials' Dressing Room	10SM
Doping Control Room	Not Required
Competition Parking	Space for at least 2 full-size team buses
Wheelchair Spaces	0.5% of total GA capacity plus 1 companion seat for each wheelchair space
Accessible Parking	30% of accessible seating provision

Research Findings

Providing Multipurpose Recreational Sport and Regional Hosting Opportunities:

A review of sport requirements for the Artificial Turf Field event hosting opportunities suggests that the primary market for hosting will occur in the traditional outdoor 'field of play' environment.

The indoor nature of FIFA Category 5 (community-based) specifications listed here will provide considerable flexibility in the multipurpose nature of the facility. It will also concurrently support event hosting opportunities in a variety of sports during the cold weather climate months and at a Provincial or Regional Level.

The Artificial Turf Field will not meet the needs of high level National or International hosting opportunities. It is recommended that the focus should be on the ability to maximize the variety of local, Provincial, and Regional sport tourism opportunities that may exist.

This flexibility will support the needs of the local user, as well as sport tourism potential for local tournaments, and can maximize participation and multisport inclusivity.

The Artificial Turf Field Amenity should consider hosting potential within the final design for the following sports:

- Soccer
- Football (Flag and Contact)
- Field Lacrosse
- Baseball Training and Softball (Not Games)
- Track and Field
- Rugby Full Size and Sevens
- Cricket Training (Not Game)
- Ultimate (often referred to as Ultimate Frisbee)
- Field Hockey

2 / Best Practice Analysis

Artificial Turf Field Amenities

The following Artificial Turf Field facilities were selected for analysis as having comparable amenities:

Figure 2.13: *Detailed artificial turf benchmark analysis*

		Saskatoon Sport Centre, Saskatoon SK	Edmonton Soccer Dome, Edmonton AB	Shell Place, Fort McMurray AB	Commonwealth Fieldhouse & Community Recreation Centre, Edmonton AB	Paramount Fine Foods Sportsplex, Mississauga, ON
City Demographics	Population	(2021) 266,141	(2022) 1,100,000	(2021) 68,002	(2022) 1,100,000	(2021) 717,961
	Total Labour Force	140,625	554,040	(No Data)	554,040	371,290
	Median Household Income	$79,001	$87,225	$74,000	$87,225	$83,018
	Median Age	36.8 yrs	36.8 yrs	34.2 yrs	36.8 yrs	40.8 yrs
Year Opening		2005	2018	2015	1978 (Renovation in 2012)	2007
Cost ($CAD)		$14.5M	$7M	$127M addition to MacDonald Island Park	$112M (renovation cost)	$22M
Cost (2023 Dollars)		$27M	$8.9M	$175.7M	$169.3M	$38.6M
Square Feet (SF)/Size		167,000 SF / 15,515 SM	135,000 SF / 12,635 SM	83,250 SF / 7,734 SM	215,000 SF / 19,974 SM	20,000 SF / 1,858 SM
Cost Per SF		$161	$66	$450 (Adjusted for site)	$788	$193
Field Type		Artificial Turf	CORE FIFA Artificial Turf. 1 x FIFA or 4 x 7v7 or 3 x 9v9	80 x 180 FT Artificial turf	Artificial Turf - half regulation size marked for soccer and football.	FIFA-size Artificial turf that can be played as a full field, half field or quarter field - indoor or outdoor (domed in winter).
Number of Seats		1,500	Unavailable at this time. Awaiting final data.	Modular seating for 30 people	Unavailable at this time. Awaiting final data.	75
Visitation		25 Events Annually.	Over 400 teams use the facility on a weekly basis. It is running close to 93% capacity.	Unavailable at this time. Awaiting final data.	95% Utilization in 2016-2017. 477,600 in annual visitation.	100,000 visitors each month.
Annual Earnings/Loss		Annual Operating Income of $3M.	Unavailable at this time. Awaiting final data.	Annual Revenue at Turf facility confirmed by operator at $212,000	Target an 18% cost recovery for staffed sports fields and an 83% recovery for multipurpose recreation facilities.	Unavailable at this time. Awaiting final data.

2 / Best Practice Analysis

Artificial Turf Field Amenities

Comparables by Facility – Visual Representation

The following graphics visually represent the comparison between the artificial turf amenities relative to: date built, square feet, original construction cost ("original budget"), the construction cost in 2023 dollars ("2023 adjusted spend"), and dollars per square feet.

Legend

1. Saskatoon Sport Centre
2. Commonwealth Fieldhouse & Community Recreation Centre
3. Edmonton Soccer Dome
4. Paramount Fine Foods Sportsplex
5. Shell Place

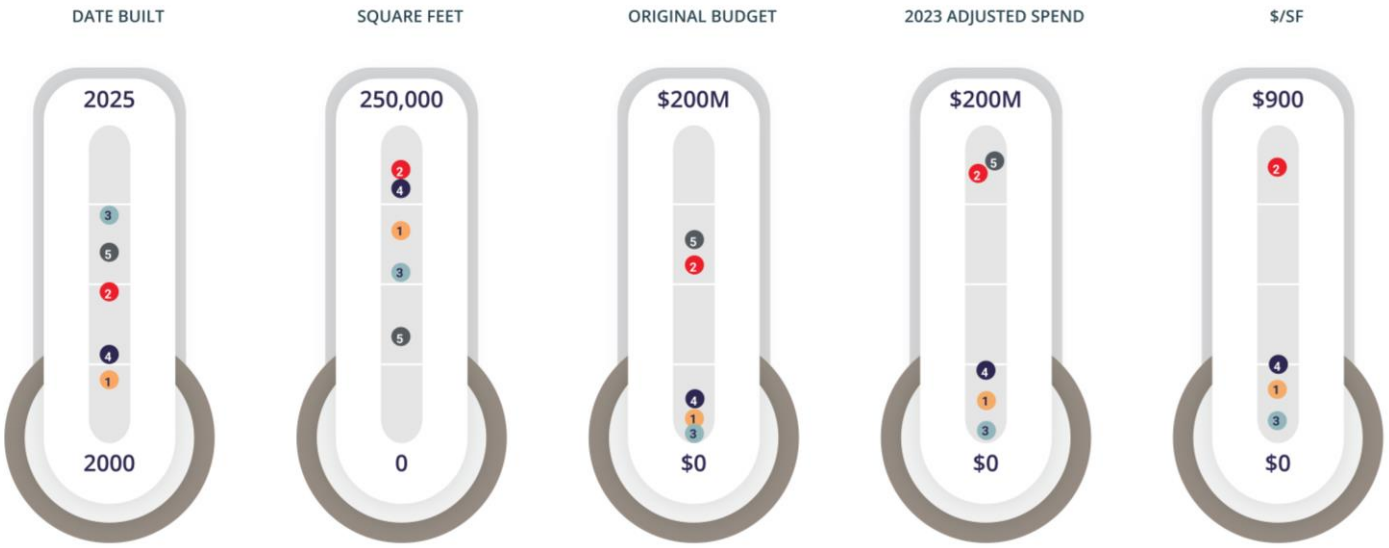


Figure 2.14: *Graphic representation of benchmark Artificial Turf Field facilities*

2 / Best Practice Analysis

Artificial Turf Field Amenities

Comparables by Facility (Continued)

Figure 2.15: *Further analysis of benchmark artificial turf facilities*

	Saskatoon Sport Centre, Saskatoon SK	Edmonton Soccer Dome, Edmonton AB	Shell Place, Fort McMurray AB	Commonwealth Fieldhouse & Community Recreation Centre, Edmonton AB	Paramount Fine Foods Sportsplex, Mississauga, ON
Adjacent Amenities	One sport smooth-floor court surface, 4 beach volleyball courts, 2 outdoor artificial grass fields, 3 indoor volleyball courts, meeting rooms, walking track, fitness centre, concessions.	3 Outdoor Field configurations.	4 Badminton courts (recently renovated into a multipurpose gymnasium). Space is also used for pickleball, table tennis, basketball, volleyball and non-sporting events. 4 dressing rooms and 2 additional locker rooms	Drop down batting cages at field level. Upper-level 250m walking/jogging 2-lane track, dressing rooms.	Parmount Fine Foods Centre (5000 seat Arena hosting Ice Hockey/Basketball/Concerts). Four full-sized outdoor Artificial Turf Fields one of which is domed in wintertime for soccer, field hockey, field lacrosse and ultimate Frisbee. 3 Ice rinks with 275 spectator seats each.
Primary User	Saskatoon Soccer Club.	Edmonton Scottish Society.	15 local user groups/leagues that use facility for practice (not a competition venue). Also 17 youth and 4 adult user groups that rent regularly	The facility was designed to allow three partnering but diverse groups to share their program specific amenities for mutual benefit and revenue. The Elks Football, the Community, and Stadium Operations each utilize the stadium's different amenities.	Adult soccer league and Youth Soccer league.
Key Attributes	One full-sized and one mid-sized artificial grass field divisible by curtains to allow for more games. Mezzanine of the two-story allows for excellent viewing of every field.	FIFA Quality Pro-approved artificial turf surface under an air-supported structure. Suitable for soccer, rugby, lacrosse, softball, frisbee, and drone racing posts, with air dynamics that are superior to outdoors.	The field house is within McDonald Island Park in Shell Place and is connected by a pedway to Suncor Community Leisure Centre. Shell Place includes a conference/banquet facility, community support areas, and an outdoor Artificial Turf Field arena with 3,650 seats expandable to 20,000.	30,000 SF / 2,787 SM fitness centre, hardwood gymnasium, 60,000 SF / 5,574 SM Aquatic centre and 30,000 SF / 2,787 SM of community spaces.	This facility also houses a gymnastics centre, triple gymnasium, fitness centre, meeting spaces and a licensed lounge.
Tournaments and Event Hosting	Hosts a variety of tournaments, leagues, and special events welcoming 1.4M visitors annually.	Local and provincial community sports leagues and tournaments.	Local and provincial community sports leagues. Not a competitive venue.	Joint-use partnership between the City of Edmonton and the Edmonton Elks Football Club combining football operations, stadium programming, and a recreation centre. Designed as practice and recreation spaces, the facility is not focused on high-level competition.	Local, provincial, national, international and community sports leagues and tournaments. The facility has hosted international soccer leagues.

3 / Economic Impact Analysis

Economic Impact

Economic Impact (EI) studies measure the positive change in economic activity resulting from hosting an event. There are three main factors associated with EI:

1. The spending of out-of-town visitors while attending the event;
2. The expenditures of the event organizers in producing the event;
3. Capital construction costs that are directly attributed to hosting the event.

An EI study calculates the amount of new money being spent in the host community as a direct result of hosting the event and the impact these new monies have on the regional, provincial and national economy.

To quantify Economic Activity, the spending estimate is combined with capital and operational expenditures to produce an overall estimate of the expenditures associated with an event.

Sports and Event Tourism Impacts

Within the context of revenue generation, sports infrastructure is critically important as it directly relates to a city's ability to bid for and attract sport tourism opportunities.

Sport tourism contributes over $6.5 billion annually to the Canadian economy. Locally, sport tourism produces almost 50,000 hotel room stays annually. With the proper sport infrastructure, Calgary's economy can see significant increases in the ability to attract and host sport tourism and event-related visitors. Currently, Calgary has a deficit of hosting infrastructure, however, the proposed Foothills Multisport Fieldhouse, when designed as a tournament-capable venue, would significantly contribute to Calgary's collective hosting infrastructure. With this new facility, Calgary will be able to compete with other cities—nationally and internationally—to effectively accommodate and host large national and international track and field events that drive repeat visitation and activate events year-round at Foothills Multisport Fieldhouse.

Figure 3.1: *Amateur athletic union national volleyball tournament – orange county convention centre, FL*

Figure 3.2: *2022 World athletics indoor championships – Belgrade, Serbia*

3 / Economic Impact Analysis

Sport and Event Tourism - Track and Field

Bid to Host Requirements for 200m indoor Track and Field Events

To satisfy bid-to-host facility requirements, the World Athletics standard competition arena for indoor events is a 200m track for sanctioned competitions and records. Spectator seating requirements are a minimum of 3,000 seats, with some venues offering up to a 5,000-spectator capacity. For indoor sanctioned events, a 200m track is not only the requirement but the preferred standard distance for indoor practice and training as stated by coaches, athletes and recreational user groups.

Requirements to Host Track and Field Events

The infrastructure proposed for Foothills Multisport Fieldhouse has been considered with Sport Tourism hosting requirements as critical design elements. The track and field amenity space will be designed according to the facility standards of World Athletics. Designing the competition track and field amenity to the World Athletics standards will allow the building to be designated as a 'Competition Category 1 for Indoor Athletics' space for competitions and achieve **'World-Class' status.**

This designation will not only attract high performance training groups, but also provincial, national and international competitions. It is important to note that this potential world-class facility will also meet the needs of Athletics Canada and US sports events as the World Athletics 'Rules of Competition' govern both associations indoor track standards for 200m competitions.

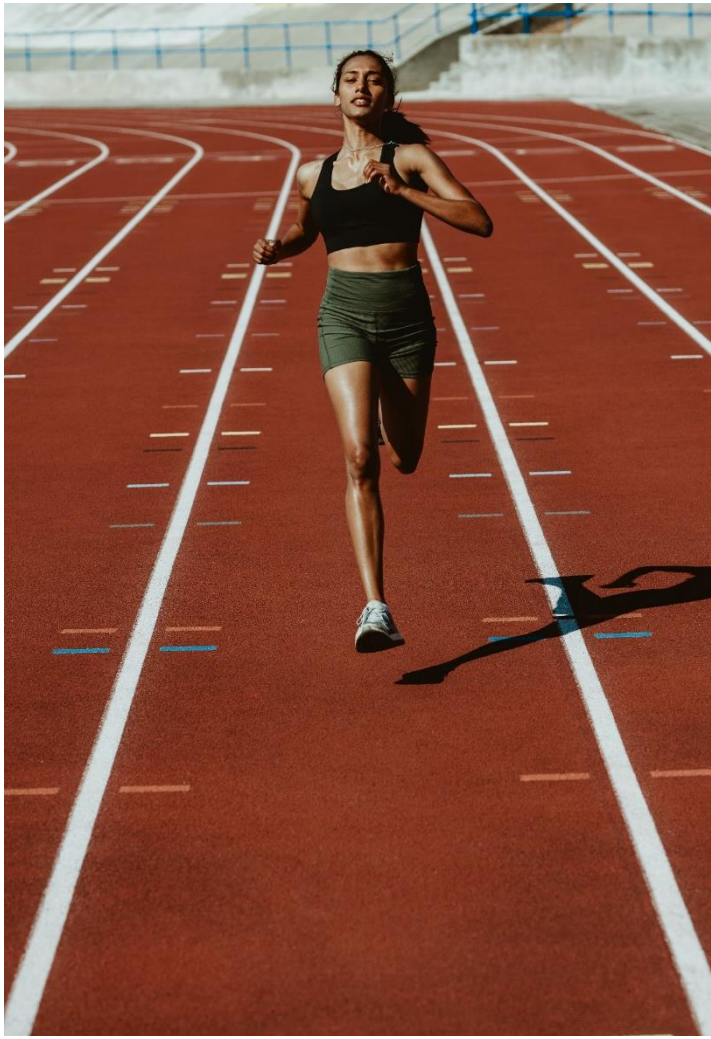
3 / Economic Impact Analysis

Hosting Opportunities – Indoor 200m Track and Field Amenity

The economic activity generated from indoor Track and Field events is substantial. Based on the hosting potential of indoor events on a 200m track, it is expected between $8.26M and $20.65M of economic impact can be generated annually.

Figure 3.1: *Potential hosting opportunities for Track and Field amenity*

National & International Events	Provincial & Local Events
National Indoor Track and Field Championships	U Sport Indoor Track & Field Meets (Invitational, Provincial, Western)
Masters Indoor Track and Field Championships	High School Athletic Indoor Track and Field Meets
U Sports Track & Field Championships	Athletics Alberta Indoor Track and Field Meets
World University Games	Track Clubs
Special Olympics	Athletics Alberta Provincial Championships
Commonwealth Games (Training/Warm-up)	Alberta Indoor Games
Canada Games, Western Canada Games	Indoor Open
Indigenous Games	Indoor Invitational
World Athletics Championships (Tours, Combined Events, Senior, U18, etc.)	Last Chance Indoor Meet
World Pride Games	Mini Legends Relays
World Police & Fire Games	
World Masters Indoor Track and Field Championships	
Invictus Games	
Pan American Games	



3 / Economic Impact Analysis

Economic Impact Hosting Highlights – Indoor 200m Track and Field Amenity

Figure 3.2: *Economic impact summary of Track and Field amenity*

National & International Events	Participants	Hosting Opportunity	Estimated Economic Impact
World Athletics Indoor Championships	600	Once every 10-15 Years	$9,126,134
World Masters Athletics Indoor Championships	4,000	Once every 10-15 Years	$20,042,360
Canadian Indoor Track & Field Championships	450+	Once every 3-6 Years	$2,000,000
Canadian U Sports Track & Field Championships	100	Once every 3-6 Years	$1,119,091
Athletics Alberta Provincial Championships	1,200	Annual	$523,244
Alberta Indoor Games	1,100	Annual	$337,371
Indoor Open	500	Annual	$66,947
Indoor Invitational	500	Annual	$50,940
Last Chance Indoor Meet	800	Annual	$220,673
Mini Legends Relays	400	Annual	$2,620
Totals	9,650		$33,489,380

3 / Economic Impact Analysis

Case Study - Track and Field

2018 World Athletics Indoor Championships – Birmingham, UK

The World Athletics Indoor Championships take place solely on a 200m indoor arena with over 160 nations represented and thousands of competitors, officials, spectators, and media offering significant spending power. While sport infrastructure is put to good use, the event also provides a significant boost to the local economy, promotes active lifestyles, drives sport tourism, celebrates local culture, creates a legacy of sport volunteering, and brings the community together.

Total Direct Economic Impact

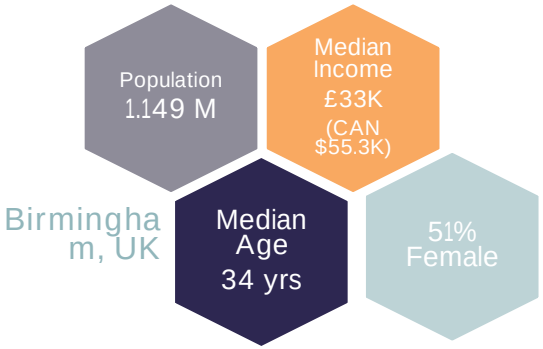
Figure 3.3: *Economic impact summary of 2018 World Athletics Indoor Championships*

Spend	Impact
Spectator Spend	$1,744,418
Official Event Attendee Spend	$4,183,721
Total Direct Economic Impact	$5,928,139
Total Economic Impact (2018)	$7,126,134

Highlights

- Total of 19,613 spectator admissions, with 79% recognized as out-of-town spectators
- 58% of all out-of-town spectators stayed in commercial accommodation, for an average of three nights
- Accommodation spend generated from out-of-town spectators was $801,446
- Non-accommodation spend generated from spectators was $945,346
- Average daily spend of out-of-town spectators was $149
- 73% of spectators said that due to attending the World Championships, they were more likely to return to visit the City of Birmingham in the next two years
- 90% of locals agreed that hosting the World Championships had a positive impact on the host city's community
- Broadcast coverage of the World Athletics Indoor Championships now reaches almost 200 countries with a cumulative average audience of over 133 million recorded for Birmingham viewership statistics.

Figure 3.4: *City of Birmingham Demographics*



3 / Economic Impact Analysis

Sport and Event Tourism – Gymnasia

Bid to Host Requirements – Gymnasia-Based Events

It is recommended that the Gymnasia space be designed according to the facility standards of the International Basketball Federation (FIBA), International Volleyball Federation (FIVB) and Badminton World Federation (BWF). Designing courts to such standards of play will allow the building to be designated as a Level 1 Competition Space and meet certification standards. To host international, national, and provincial tournaments and events at the Foothills Multisport Fieldhouse, at least eight basketball courts with the ability to convert to 12 volleyball courts and 16 badminton courts is recommended. In addition to basketball, volleyball, and badminton events, the courts could host a range of multi-sports opportunities including wheelchair sports, ball hockey, pickleball, padel, futsal, handball, judo, karate, taekwondo, fencing, dodgeball, baton, powerlifting, wrestling, fencing, rhythmic gymnastics, and cheerleading, among many others.

Optimized Direction

FIBA

The FIBA Equipment and Venue Centre sets standards for basketball equipment and facilities to ensure that they fulfill the strict requirements of high-level basketball competitions. The objective is to attain a high standard of quality, safety, and technology to fulfill the ever-growing needs of athletes and public as well as the media. Manufacturers of approved equipment must meet certain requirements in the following categories: basketballs, backstop units, wooden flooring, synthetic flooring, flooring coatings and maintenance products, scoreboards and videoboard software, electric and electronic systems, and seating systems, as well as training and miscellaneous products. The use of Approved Equipment is recommended at all levels of basketball and is mandatory at elite level FIBA national team and club competitions. General seating capacities for hosting multi-sport court events range from 3,000 to 8,000 seats dependent on level of competition.

FIVB

For Senior World Championships and Olympic Tournaments, a main hall with seating capacity for 15,000 is required, unless otherwise decided by the FIVB. Other FIVB, World and Official competitions may be authorized to use a hall with less seating capacity in accordance with local conditions. For other international events, a capacity of 5,000 seats is acceptable. For FIVB, World and Official Competitions, only a wooden or synthetic surface is allowed, and any surface must be previously approved by the FIVB. The use of approved equipment is recommended at all levels of volleyball and is also mandatory at elite level FIVB and Volleyball Canada national team and club competitions.

BWF

For BWF Sanctioned Tournaments at a Grade 1 (Major Tournaments/Events), it is a requirement to have a wooden sprung floor, or equivalent subfloor for the badminton court mats. At the highest level of competition, eight badminton courts are required for game play, with a minimum eight practice courts and four warm-up courts.

3 / Economic Impact Analysis

Hosting Opportunities – Major Court Events

Figure 3.5: *Potential major hosting opportunities for Gymnasia amenities*

International Events	National & Provincial Events
FIBA Intercontinental Cup	Basketball Canada National Championships
FIBA World Cup	Basketball Canada Senior Championships
FIBA Americas Qualifiers	Basketball Canada 3x3 Championships
FIBA U19, U17, U15 Skills Challenges	Basketball Canada U23, U19, U18, U17, U16 Championships
FIBA Olympic Qualifier Tournament	Volleyball Canada National Championships
FIBA 3x3	Volleyball Canada Senior (Open/Masters)
FIVB World Championship, Club Championships	Volleyball Canada 18U, 17U, 16U, 15U, 14U Championships, West, East
FIVB Challenger Cup	Canadian Collegiate Athletic Association Championships
FIVB World Grand Prix	U Sports Championships
FIVB U23, U21, U20, U19, U18 Championship Open	Athletics Alberta Provincial Championships
BMF World Championships	Badminton National Championships
BMF International Series	Canada Winter Games
BMW World Junior, Senior Series, Challenges	Wheelchair and Parasports
BMF World Tours	

3 / Economic Impact Analysis

Economic Impact Hosting Highlights – Major Gymnasia Events

Figure 3.6: *Economic impact summary of Gymnasia amenities*

National & International Events	Participants	Hosting Opportunity	Estimated Economic Impact
Canada Basketball National Championships (U15/17)	400	Annual (Age Groups)	$2,384,136
FIBA Basketball Champions League Americas	250	Once every 8-10 Years	$2,492,338
Volleyball Canada National Championship	5,000+	Once every 5-8 Years	$13,213,627
FIVB Nations League Cup	250	Once every 8-10 Years	$2,110,361
Volleyball Pan Am Cup	250	Once every 8-10 Years	$1,500,000
YONEX Badminton Canada Open Super 100	260	Once every 1-3 Years	$1,100,000
Canadian Masters Badminton Championships	250	Once every 5-8 Years	$765,000
Canadian Powerlifting & Bench Press Championships	100+	Once every 5-8 Years	$500,000
Canada Cup of Wrestling	115	Once every 5-8 Years	$200,000
Canadian Baton Twirling Championship	250+	Once every 5-8 Years	$650,000
Totals	6,875		$24,915,462

3 / Economic Impact Analysis

Case Study - Gymnasia

14U Volleyball Canada National Championships - West

The Volleyball Canada National Championships operate with an Open Format, meaning that there is an opportunity for any team from across the country to participate.

The 14U West Championships welcome approximately **110 girls' and boys' teams** and require 10 to 15 Volleyball courts.

The total Direct Economic Impact for this event includes:

Figure 3.7: *Economic impact of 14U Volleyball Canada National Championships - West*

Spend	Impact
Visitor Spend – Direct Impact	$1,000,000
Indirect Impact (Provincial)	$500,000
Total Economic Impact	$1,500,000

Highlights

- Total of 1,000 athletes and coaches and an additional 1,500 spectators from across the country are expected to attend each event (based on minimum of 80 teams participating).
- 70% recognized as out-of-town spectators.
- 63% of all out-of-town spectators stayed in commercial accommodation, for an average of three nights.
- An estimated 1,700 room nights booked at local hotels.
- Average daily spend of out-of-town spectators is $152.
- Opportunity to host event for two consecutive years.
- Single venue to accommodate 80 teams, with use of 10-15 courts is required.

Figure 3.8: *Volleyball National Championships Host Communities*

2022 Events	Host Community
14U Nationals	Ottawa, ON – Carlton University
14UG Nationals	Richmond, BC – Richmond Oval
14UB Nationals	Burnaby, BC – Harry Jerome Sports Centre

3 / Economic Impact Analysis

Sport and Event Tourism –Artificial Turf Field

Bid to Host Requirements for Artificial Turf Field based events

It is recommended that the Artificial Turf Field amenity be designed according to the facility standards of Soccer Canada, with generic field guidance from the International Federation of Association Football (FIFA). The sizing of the field must be divisible from one large pitch to standards of indoor play using four pitches at any one time, allowing for multi-use and multi-level gameplay. According to FIFA, the optimal pitch dimensions are international regulation size (FIFA Grade A Turf). Fields that meet the Quality Standards are certified by FIFA Quality or FIFA Quality Pro.

It is important to note one main full-sized pitch is inadequate to host a major national or international championship event. Therefore, recreational field sports tournaments and league play will form the bulk of sport tourism opportunities in this type of space. Indoor soccer leagues, rugby sevens, field hockey, field lacrosse, cricket, quidditch, and other indoor field sports can yield a high prime-time utilization rate. Recreational game-play taking place daily and tournaments taking place weekly would round out a robust, annual utilization calendar. It is expected the economic impact generated annually can range between $2M at hosting 10 tournaments per year to $5.1M, hosting 25 tournaments per year.

General seating capacities ranging from 500 seats with flexibility to be expandable dependent on the level of competition, are ideal.

Artificial Turf Field-based Events

FIFA

Unlike other sports, turf is especially important for soccer, and the leader in soccer regulations has specific sports turf regulations as well. To ensure that artificial turf provides the playing qualities of good quality natural grass, FIFA developed the FIFA Quality Program for Football Turf. Fields that meet the Quality Standards are certified by FIFA Quality or FIFA Quality Pro.

Pitch dimensions found optimal by FIFA are international regulation size, FIFA Grade A Turf. With a high-grade turf, potential indoor hosting opportunities include Rugby Sevens, Major League Soccer Tier II friendlies, and Canadian Premier League Soccer friendlies. Recreational field sports tournaments will be the bulk of sport tourism opportunities in this type of space.

Case Study – Artificial Turf Field

U12 Soccer Tournament

- National level tournament (multi-regional)
- Tournament takes place over 2.5 days
- 20 teams per tournament with 20 players/coaches per team (50% are out of town teams)
- Total Athletes 400
- Average of 1.5 Spectators per athlete (50% are out of town spectators)
- Total Spectators 600
- Average 2-night stay in hotels

Figure 3.9: *Economic impact summary of U12 national-level soccer tournament*

Spend	Impact
Direct Impact	$182,949
Total Economic Impact	$203,242

3 / Economic Impact Analysis

Key Findings

The economic impact analysis throughout this section has culminated in the findings identified below, which should be carefully considered in upcoming conceptualization, refinement, and site test-fit exercises.

- The anticipated economic impact for the proposed Foothills Multisport Fieldhouse should be considered as new investment within the local economy given the current state of existing infrastructure. The development of the Foothills Multisport Fieldhouse will offer the community international competitiveness within the track and field amenity, national competitiveness within the gymnasia and court amenity, and provincial and regional competitiveness within the artificial turf field amenity. As a sport tourism asset, the Foothills Multisport Fieldhouse will have a material impact on the local visitor economy while concurrently enhancing the recreational and sport experience within the community. The annual economic impact for the Foothills Multisport Fieldhouse will be directly subject to the operational program model that is currently in development.
- The economic activity generated from 200m indoor track and field events is substantial. Based on the hosting potential of indoor events on a 200m track, it is expected that between $8M and $20M of economic impact could be generated annually.
- Building the gymnasia or court space according to the facility standards of major sports including International Basketball Federation, International Volleyball Federation, and Badminton World Federation standards can bring extensive national and international hosting opportunities with anywhere from a $10M to $25M economic impact generated annually.
- Indoor court space within Canada is in high demand and the development of this space to meet or exceed the sport tourism requirements will benefit the local users while maximizing the potential for hosting and economic impact. Indoor and clustered court facility space in Canada is highly limited, which provides a valuable opportunity for Calgary to act as a highly desired and leading host destination.
- Optimizing an artificial turf field amenity to be designed according to the facility standards of Soccer Canada and FIFA, divisible for multi-use and multi-level game play, will maximize utilization for recreational and tournament play.
- It should be noted that primary sport hosting for field sports typically occurs in an outdoor environment for high performance sport. However, the opportunity for Provincial and Regional sport hosting within this space can be expected to be high. It is expected the economic impact generated annually can range between $2M at hosting 10 tournaments per year to $5.1M, hosting 25 tournaments per year.
- Multisport facilities must be developed with the purpose of managing the space as independent and unique amenities that support the ability to host the multiple sport and recreation opportunities being concurrently delivered, while considering the control and access restrictions within a large singular event concept that will utilize all the space as one large sport hosting possibility.
- The proposed facility should augment Calgary's current sporting infrastructure by ensuring that tournament hosting opportunities are maximized. The facility should adhere to specific competition standards, parking requirements, spectator seating, public washrooms, concessions, and ancillary space.
- To maximize utilization of the proposed (and highly-specialized) venue, ensuring multisport use is critical to serve the broader community and satisfy growth trends in recreational sports.

4 / Facility Design Considerations

A key focus of the proposed facility is to provide a multisport destination, utilizing the core amenities as efficiently as possible in order to offer a sporting base for all Calgarians. The facility shall be community-focused while providing tournament hosting opportunities. This section introduces a number of considerations and their potential opportunities to influence facility design, with the goal of providing the appropriate environment to support emerging trends:

Social and/or Economic Considerations

The final design of the facility must be specific to the needs of Calgarians. The research indicates a shift in sports participation that must be reflected in the design while also respecting the unique characteristics of the city and its residents.

Key considerations should include:

- Calgary's unique demographic mix
- Growth of women's sport
- Federal Government support for sporting initiatives
- Post-COVID-19 sporting participation
- Evolving nature of sports participation

Physical Space Considerations

There are many technological and spatial requirements that are emerging within the world of sports and recreation. These are focused on providing opportunities for multiple sports to be performed concurrently in a common facility including:

- Flexibility of amenity use (play, train, compete)
- Use of 3 core amenities for Multiple Sports (markings, size, finishes to be compatible with many sporting programs)
- Overlay non-traditional sports to explore viability in core amenity spaces
- Feature court to be utilized in a flexible manner for day-to-day operations
- Explore technological solutions to assist with flexibility

Spectator Considerations

Seating capacity recommendations focus on providing a functional amount of permanent (either fixed or retractable) for general regular use and to support minor tournament hosting.

For tournaments above a regional level, it is expected that some form of temporary seating solution will be required. It will be incumbent on the facility design to accommodate space for this strategy, along with understanding storage space requirements.

- Ability to support day-to-day spectating and minor tournaments
- Space to provide temporary seating solutions for larger tournaments

4 / Facility Design Considerations

Trends Analysis

Calgary's Unique Demographic Mix

Calgary's sports and recreation landscape is evolving. In recent years, for example, the sport of pickleball has become extremely popular as it allows people to be active while responding to reduced mobility requirements. Sports such as cricket and field hockey are also becoming more popular as Calgary experiences an increase in immigration from all over the world. A flexible facility is important to accommodate a variety of sports that support the needs of a broad range of Calgarians. A successful facility also requires the awareness and consideration of important trends such as women in sport and the impact of Covid-19 on participation.

Figure 4.1: *Shouldice air-supported structure supports the evolution of soccer and the non-boarded program*

Figure 4.2: *Brentwood athletic association in Calgary supporting an aging demographic staying active*

Figure 4.3: *Growth in sports such as cricket and field hockey from an immigrant population of new Canadians*

4 / Facility Design Considerations

Trends Analysis

REPORT: 2023 Deloitte Sports Industry Outlook: Women's Sporting Participation

In a challenging economic environment, investment in sports is still regarded as attractive with interested parties taking a responsible and sustainable approach. Technology continues to infuse every aspect of sports and how they are played, including the venues and facilities in which they are played. Empowering athletes and creating a more immersive experience for fans spectating at live events is critical as the blending of physical and digital infrastructure will create new functionality leading to enhanced guest experience.

Most notable and after a breakthrough year, women's sports are in a strong position to further advance in 2023, but additional work is necessary to improve awareness, and grow investment. In 2022, attendance records were broken around the world.

- More than 90,000 attended a match between Barcelona and Real Madrid in the UEFA Women's Champions League.
- The Women's Rugby World Cup set a record in New Zealand, selling out Eden Park for its opener.
- The 2022 Women's European Championship reported more than 360 million total viewers for its tournament.
- In the United States, the National Women's Soccer League (NWSL) had almost 1 million viewers for its first championship game in prime time, and the Women's National Basketball Association (WNBA) saw its regular-season viewership hit its highest point in 14 years.

Over the next few years, these trends will help catalyze further growth in women's sports with facilities and leagues needing to respond and accommodate rising participation numbers.

The growth and transformation of the sports industry is encouraging city planners, facility operators, and sports organizations to take a more sophisticated approach—one that makes the industry more attractive for investors, more immersive for fans, and more supportive of athletes. To make sure this happens, it is important for decision makers to look ahead for trends—possible events and actions that can change how the future unfolds. Trends can confirm what could transpire or create an entirely new path with its own opportunities and challenges.

4 / Facility Design Considerations

Trends Analysis

Federal Government Support

In 2021, the Government of Canada committed to supporting communities across the country in building stronger and healthier populations and helping citizens recover from the impacts of COVID-19.

With a focus on the transformative power of sport and the important role it can play in goal achievement, self-esteem development, leadership skills, and allowing children and youth to grow and thrive – physically, emotionally and mentally, sport was identified as a potentially effective tool in this recovery process.

The primary goals from enhanced federal government investment in sport is to recognize that barriers to sport exist in many segments of the population and to support initiatives that remove barriers and increase sport participation rates with a focus on underrepresented populations.

The primary elements of focus will be projects that align with the following principles:

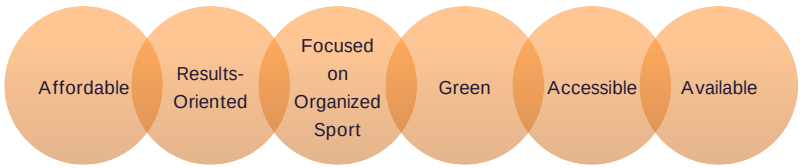


Figure 4.4: *Principles of government support*

4 / Facility Design Considerations

Trends Analysis

The Impact of COVID-19 on Sport and Recreation

With the public health restrictions impacting the opportunities in sport and recreation, several common themes have collectively influenced the sport and recreation marketplace. Some of these themes are highlighted below:

- Cancelations or postponements of regular sport and recreation opportunities for a prolonged period of time.
- Financial losses for organizations and those employed within the sport and recreational field.
- Reduction in participation due to public health concerns.
- Reduction in participation and development opportunities due to public health restrictions.
- Reduction in sport tourism due to the closure of sporting venues, postponements, or the cancellation of events. The reduction in confidence to travel or the availability and cost of travel has also impacted the sport tourism industry.
- Increased popularity in E-Sport as an alternative form of competition or entertainment and viewing. Online E-Sport competition was not negatively affected by the impacts of COVID-19 but instead showed material participation growth.
- Importance of Adaptability and Resilience was a common theme in the management of sport, recreation, and venue management to adapt to the rapidly-changing and jurisdictionally-diverse public health and safety requirements.
- Enhanced venue requirements were provided for space segregation, athlete and fan-controlled space, and medical testing facilities.
- Enhanced venue requirements were provided for cleaning standards and sanitization expectations, including monitoring and controls.
- Enhanced need for viewing and broadcasting based on streaming systems, digital viewer consumption, and the ability to connect with sport in a virtual space.
- Enhanced process and procedure for ingress and egress management and separation, and facility control points and secured spaces.

Planning and awareness for future risks suggest than many of the necessary controls and effects, as a direct result of the public health crisis, will become standards throughout the recovery and growth phases of sport and recreation.

4 / Facility Design Considerations

Trends Analysis

Post Covid-19 Sports Participation

According the Canadian Fitness and Lifestyle Research Institute (CFLRI)'s, most recently-published Physical Activity Monitor (2019-2021), 27% of Canadian adults report participating in sport and approximately 75% of 5- to 17-year-olds report participating in sport.

This study also found that women and men differed in their views on accessibility; women were less likely than men to express a high level of agreement that physical activity and sport was accessible (59% of women and 65% of men). Compared to men in the study, women were also less likely to highly agree that physical activity and sport opportunities were available for people of different abilities/disabilities, genders or cultures to participate safely.

In 2016, Statistics Canada reported that most Canadians that participated in sports did so recreationally. The five most popular sports were reported as:

1. Ice Hockey
2. Golf
3. Soccer
4. Running
5. Basketball

Top reasons for participating in sports were listed as:

71% - Fun, recreation, relaxation
69% - Physical health and fitness
51% - Sense of achievement and skill development
45% - Family activity
35% - New friends and acquaintances

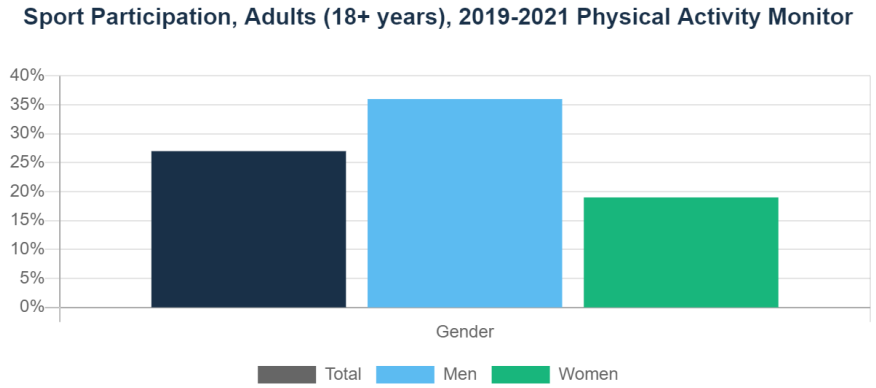


Figure 4.1: *Sport participation 2019-2021*

4 / Facility Design Considerations

Trends Analysis

Potential Risks to Sport and Recreation Participation and Growth

The recovery of sport and recreation is seeing elevated risk with the impacts of affordability and the rising cost of living. With ongoing inflation, the cost of borrowing, and the cost of construction, the sport and recreation industry is experiencing elevated costs that are directly impacting the affordability and the accessibility of sport.

Across recreation services, most delivery is at a cost recovery of a breakeven financial performance model; as such, elevated costs of service delivery are passed to the end user, resulting in higher prices for participants.

Higher costs of participation is a barrier that is a traditional risk to sport and recreation participation. Moreover, given the rapid rate of cost escalation, the ability for sport organizations to rapidly respond with solutions is a risk at this time.

This impact (compounded with the cost-of-living escalation) is creating an individual or household participation risk whereby disposable income traditionally used for sport and recreation investment are facing competing priorities within individual or household budgets and decision-making priorities.

The cost of participation compounded with the elevated costs of living are creating a headwind for sport participation that is not, at this time, fully understood, but which has been clearly identified as a potential risk.

This impact is currently being monitored by sport organizations, and the full impact over time has yet to be fully understood. It is noted as a potential risk to growth in sport and recreation opportunities.

4 / Facility Design Considerations

Design Considerations – Track and Field Amenity

While investigating the 200m Track and Field amenity optimized solution, it was determined that an independent sprint lane component, in addition to a 200m banked track, would be advantageous. These lanes are 130m long to support 100m sprint, 110m hurdles and associated safety and runoff zones. Major advantages of providing this arrangement are listed below.

1. Programmatic flexibility as both can operate independently
2. Seating flexibility as the individual sprint events can use less required seating
3. Designated warm-up/cool-down area for elite-level competitions

A benefit of separating the track and sprint lanes is that the sprint lane can be located on-site to utilize the program more efficiently. This means that the program can be spatially and operationally more efficient. Additionally, having two separate programs means that the two can operate independently and can be used by two different user groups. It also means that the facility can be utilized for warm-up and cool-down areas for high-level competitions, which will allow the facility to competitively bid for world-class and elite-level competitions.

Given the growing trend of cross-training for other sports, separating the track from the Track and Field amenity will allow the facility to maximize the usage of the sprint lanes for a variety of athletes for their dryland training, cross training, and personal training, among other uses. Moreover, depending on design arrangement, the space occupied by the sprint lanes could provide a footprint for temporary seating in support of a major event on the 200m track and field area. Sprint lanes would not be required to host a World Athletics event.

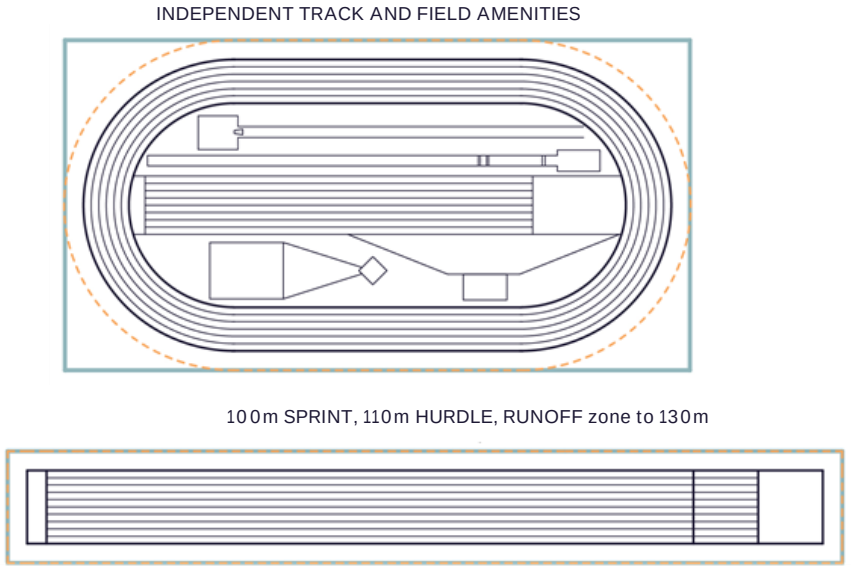


Figure 4.5: *Proposal with a separated 130m sprint track to accommodate 100m sprint and 110m hurdle*

4 / Facility Design Considerations

Design Considerations – Gymnasia

The feature gym can be used to host elite-level competitions, tournaments, and other high-level sports. This gym requires temporary seating to allow for adaptability and court optimization. Bleacher seating that can be retracted to provide event-specific seating has been investigated as a flexible seating option.

Having the ability to use up to four bleachers to supply spectator seating may be ideal based on the spatial requirements of court sports and the level of viewership. Bleacher options will be further investigated to determine the required dimensions and adequate spatial room around the court.

Spectator seating can be optimized in support of bids to host world-class events. The diagrams featured on this page focus on basketball and volleyball, but badminton and many other sports are feasible within the space provided by a traditional court dimension. Throughout the upcoming outreach and engagement program, the project may be required to analyze the feasibility of several court sports that have a spectator requirement.

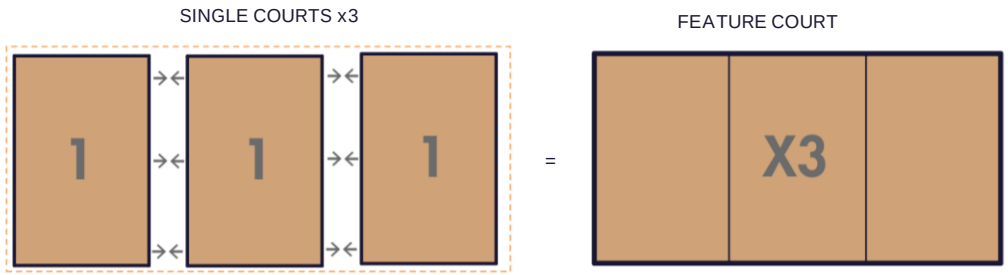


Figure 4.6: F*eature court space requirement concept, including retractable spectator seating*

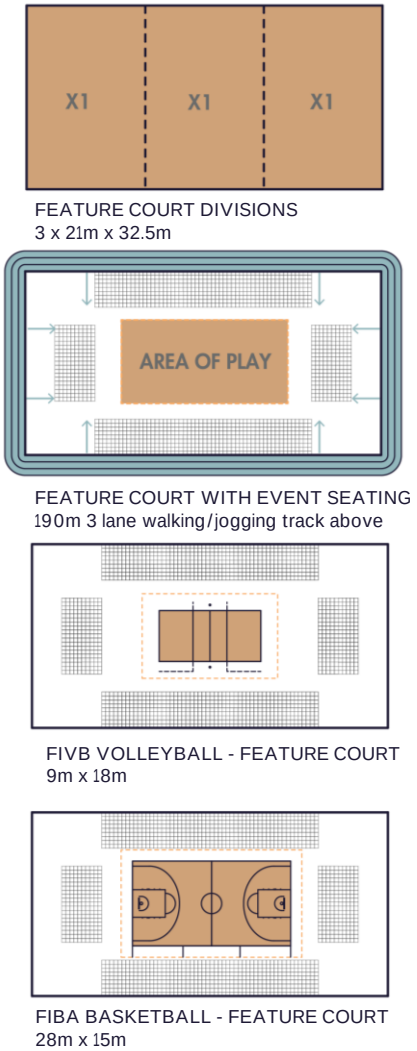


Figure 4.7: *Feature Court in use with spectator seats extended*

4 / Facility Design Considerations

Design Considerations – Gymnasia Amenity

The Gymnasia amenity will have the operational flexibility to host a variety of sports.

As the Multisport Fieldhouse amenity mix and design progress, intentional sports selection will become part of the focus to maximize usage by the facility and community.

The accompanying diagrams show how sports can be played within the amenity. The next step in this process will also consider and evaluate spectator needs. Review of benchmark facilities has identified challenges with users requiring space beyond the typical 'safety zone' (shown dashed orange in the adjacent diagrams), and this will also be taken into consideration.

Lastly, an analysis will consider painted sports program(s) on the court. This includes balancing flexibility with a clearly showing the sport options within the sports courts. This potential challenge poses an opportunity to include technology in sports line marking to maximize flexibility.

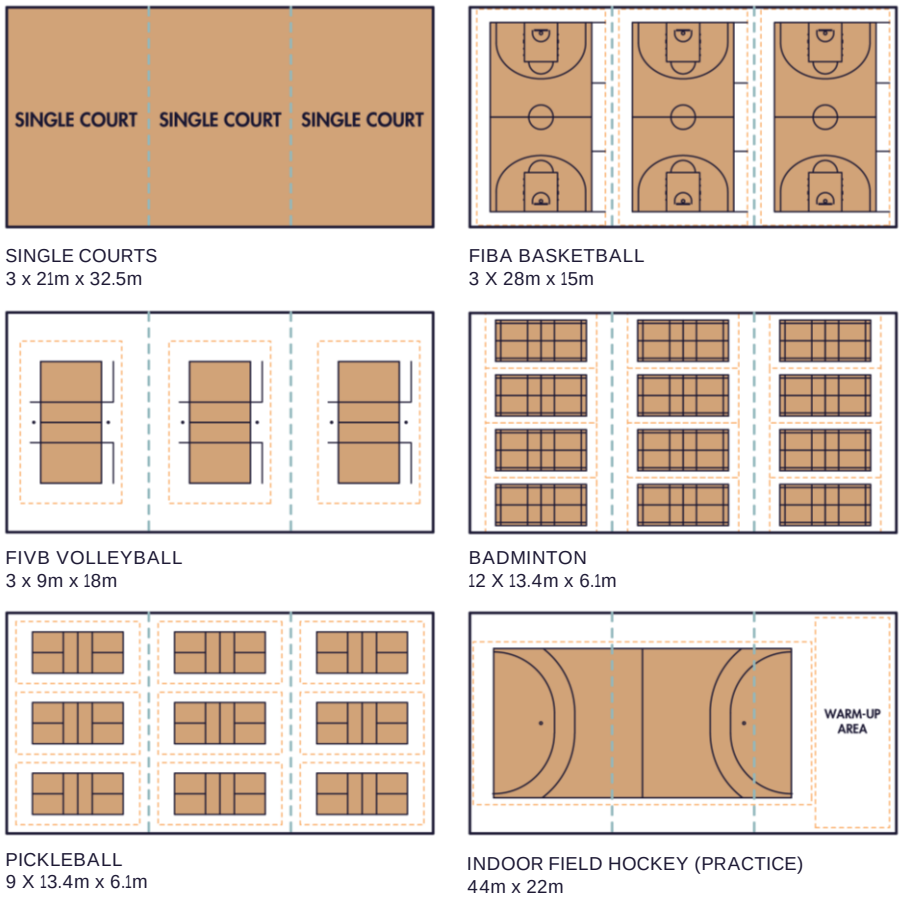


Figure 4.8: *Feature court with variety of sports court layouts*

4 / Facility Design Considerations

Design Considerations – Gymnasia Amenity (Including Multi-Activity Courts)

The gymnasia is most likely to host basketball, volleyball, badminton, and pickleball, as they will be the critical drivers of facility use and revenue generation.

The common sports will be marked throughout the feature court, and single courts. Further engagement will identify the additional court markings desired in the Multi-Activity courts (MAC). By having the capacity to host many different games, the facility will be well positioned to attract tournaments ranging from local tournaments up to world-class and elite level events.

The ability to host tournaments will be further supported by the facility's supporting infrastructure (such as change rooms, storage, flex rooms, etc.) and supporting amenities (such as physiotherapy and food services/concession support).

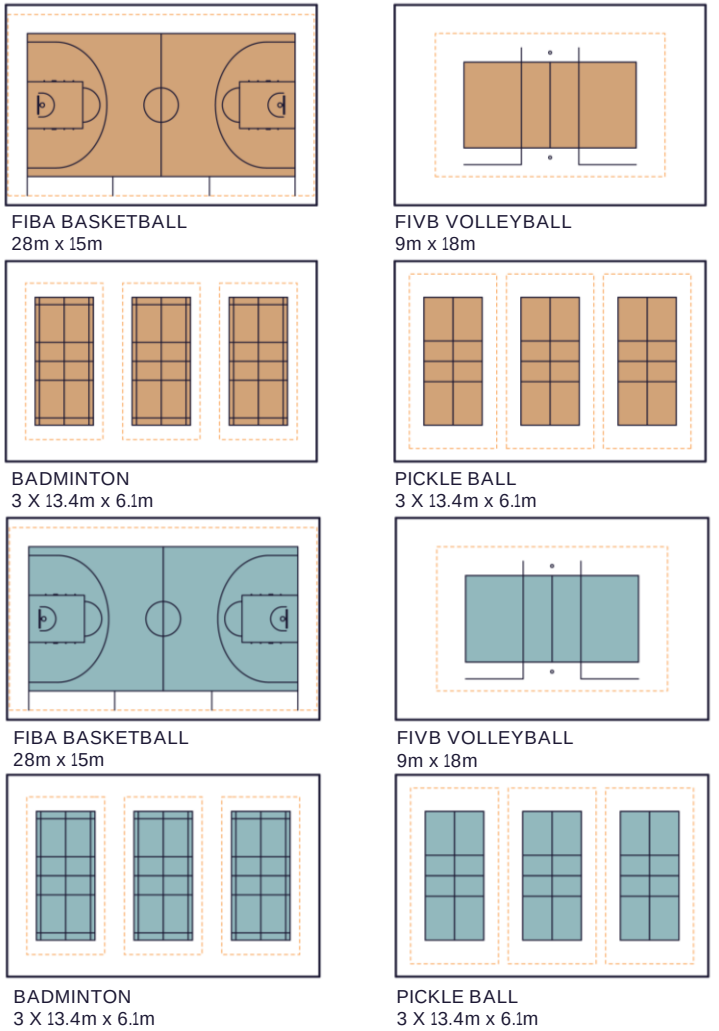


Figure 4.9: *Single court layout focusing on the primary sports in both the six individual courts and the multi-activity court amenities*

4 / Facility Design Considerations

Design Considerations – Gymnasia Amenity (Multi Activity Courts)

Supplementary to the gymnasia amenity will be the two multi activity courts (MACs). These courts are intended to accommodate different sports that may not be played in the feature court or array of single courts (x6). They will help to maximize utilization of the gymnasiums while providing a broader spectrum of sports to Calgarians.

An additional consideration is the floor material. There is an opportunity to utilize a flooring that may be better suited to host additional programs. This would be a factor in hosting sports such as futsal and field hockey, as they both require a more durable floor and wall surface. If a durable floor solution is selected, it would also offer the opportunity to use demountable walls for sports such as padel, squash, and racquetball.

Many outstanding variables require significant further study in this regard, but an optimized solution can be found in support of providing a multipurpose facility considering that MAC spaces offer a fantastic opportunity to play host to emerging sports.

SINGLE MULTI-ACTIVITY COURT CONFIGURATIONS:

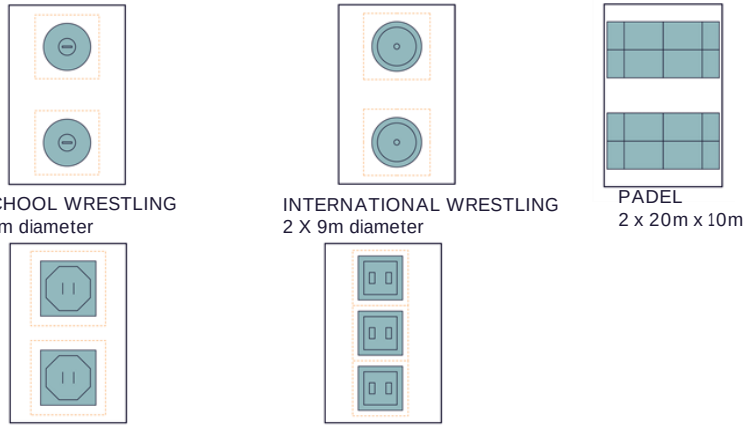


Figure 4.10: *Single multi-activity court (MAC) with variety of sports court layouts*

DOUBLE COURT MULTI-ACTIVITY COURT CONFIGURATIONS:

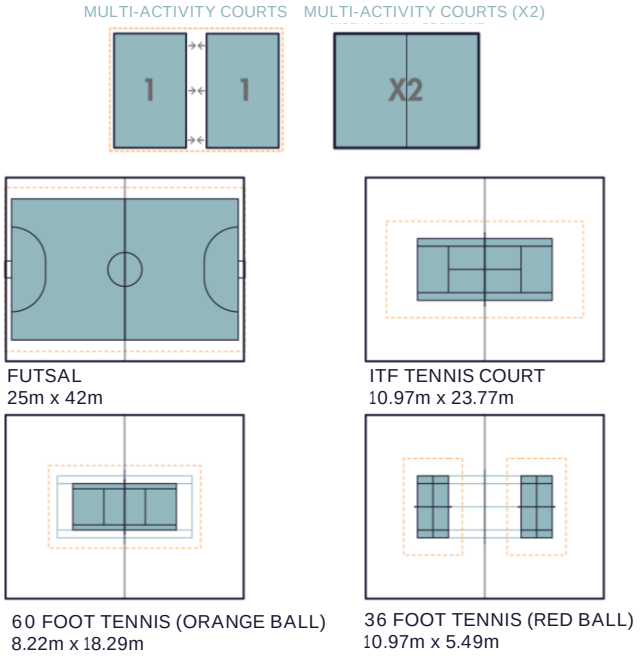


Figure 4.11: *Paired multi-activity court (MAC) with variety of sports court layouts*

4 / Facility Design Considerations

Baseline Program Opportunity - Gymnasia

The amenity will be anchored by a few core sports: basketball, volleyball, badminton, and pickleball. The following table includes the proposed breakdown of the program and amenity which could host each sport. Alternative sports program and layouts to be refined in the future.

Based on current programming, and the flexibility diagrams on previous pages, the table below calculates the maximum capacities for each sport, if the entire gymnasia amenity were utilized exclusively for that sport. Practically, the facility is expected to function as a multisport facility, but the information below provides context on the opportunities available for individual sports.

Figure 4.12: *Baseline program opportunity for Gymnasia amenity*

Facility	Sport	Courts	Markings/Court	Total
Feature Court	Basketball	1	3	3
Single Court (x6)	Basketball	6	1	6
Multi-Activity Court (x2)	Basketball	2	1	2
	Total Basketball			**11**
Feature Court	Volleyball	1	6	6
Single Court (x6)	Volleyball	6	2	12
Multi-Activity Court (x2)	Volleyball	2	1	2
	Total Volleyball			**20**
Feature Court	Badminton	1	12	12
Single Court (x6)	Badminton	6	3	18
Multi-Activity Court (x2)	Badminton	2	3	6
	Total Badminton			**36**
Feature Court	Pickleball	1	12	12
Single Court (x6)	Pickleball	6	3	18
Multi-Activity Court (x2)	Pickleball	2	3	6
	Total Pickleball			**36**

4 / Facility Design Considerations

Tournament Program Opportunity - Gymnasia

Tournaments will focus on several primary sports including basketball, volleyball, badminton, and pickleball. The following table identifies the proposed breakdown of the program and amenity which could host each sport with adequate safety zones, and with a feature court which would allow for additional seating capacity. Alternative sports programs and layouts are to be refined in the future.

Based on current programming, and the flexibility diagrams on previous pages, the table below calculates the maximum capacities for each sport, in a tournament hosting arrangement. There are further opportunities to increase court numbers by utilizing the feature court as 3 court spaces, for example in earlier tournament stages, and transitioning to a single feature court for the final game.

Figure 4.13: *Tournament program opportunity for Gymnasia amenity*

Facility	Sport	Courts	Markings/Court	Total
Feature Court	Basketball – Feature Game	1	1	1
Single Court (x6)	Basketball	6	1	6
Multi-Activity Court (x2)	Basketball	2	1	2
	Total Basketball			**9**
Feature Court	Volleyball – Feature Game	1	1	1
Single Court (x6)	Volleyball	6	1	6
Multi-Activity Court (x2)	Volleyball	2	1	2
	Total Volleyball			**9**
Feature Court	Badminton - Feature Game	1	3	3
Single Court (x6)	Badminton	6	2	12
Multi-Activity Court (x2)	Badminton	2	2	4
	Total Badminton			**19**
Feature Court	Pickleball – Feature Games	1	3	3
Single Court (x6)	Pickleball	6	2	12
Multi-Activity Court (x2)	Pickleball	2	2	4
	Total Pickleball			**19**

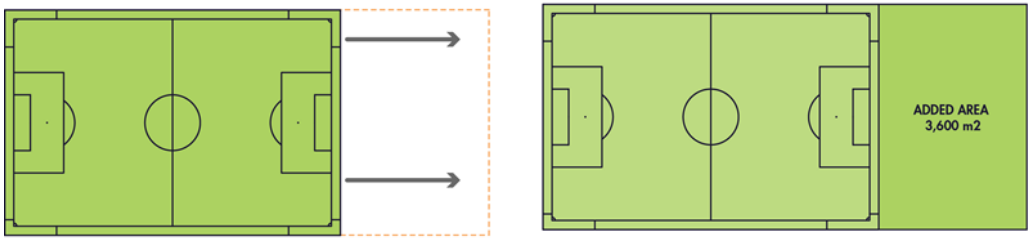
4 / Facility Design Considerations

Baseline Program Analysis– Artificial Turf Field Amenity

The Artificial Turf Field Amenity was studied to maximize the number of sports it could facilitate, and to support Calgary soccer associations' move toward non-boarded soccer fields. The larger turf field size supports an abundance of sports, as well as provides the range of soccer fields utilized by the soccer community.

One critical trend that the artificial turf field amenity is supporting is the move away from boarded soccer to open-field play. This evolution away from boarded facilities means that the field must be flexible to support the variations of soccer field sizes as shown in Figure 4.15.

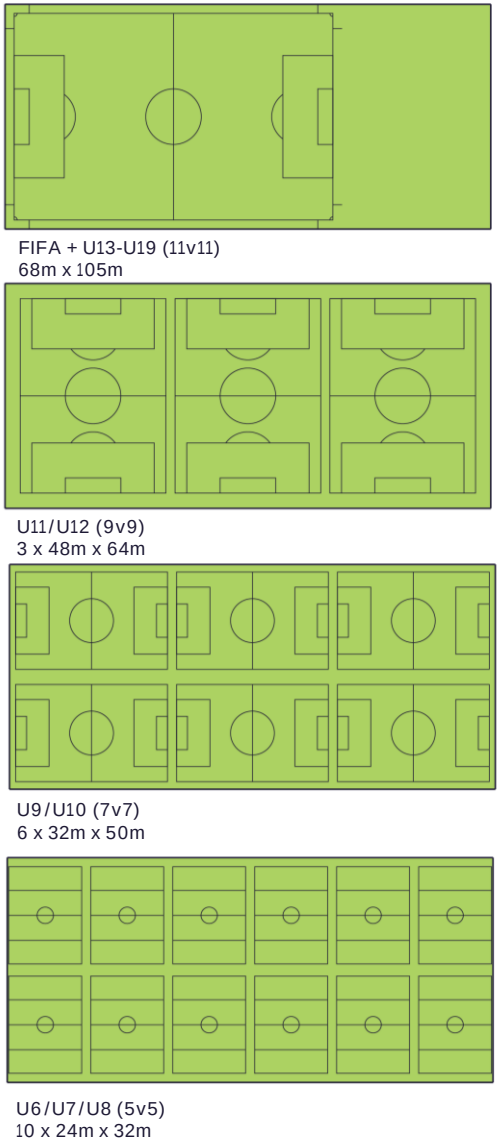
In addition, the larger field size accommodates a warm-up/cool-down area for elite-level competitions/games.



SOCCER FIELD 68m X 105m
TURF SURFACE 68m X 105m

SOCCER FIELD 68m X 105m
TURF SURFACE 74m X 160m

Figure 4.14: *Diagram of added turf area to support flexible uses*



FIFA + U13-U19 (11v11)
68m x 105m

U11/U12 (9v9)
3 x 48m x 64m

U9/U10 (7v7)
6 x 32m x 50m

U6/U7/U8 (5v5)
10 x 24m x 32m

Figure 4.15: *Alternate field layouts on enlarged space to support evolution of indoor soccer in Calgary*

4 / Facility Design Considerations

Supplementary Program Analysis – Competition, Artificial Turf Field

The larger field size supports a variety of competition capable sports which include football, ultimate (Frisbee), and field lacrosse. By meeting the needs of a wide spectrum of sports, field usage and revenue generation potential will be maximized.

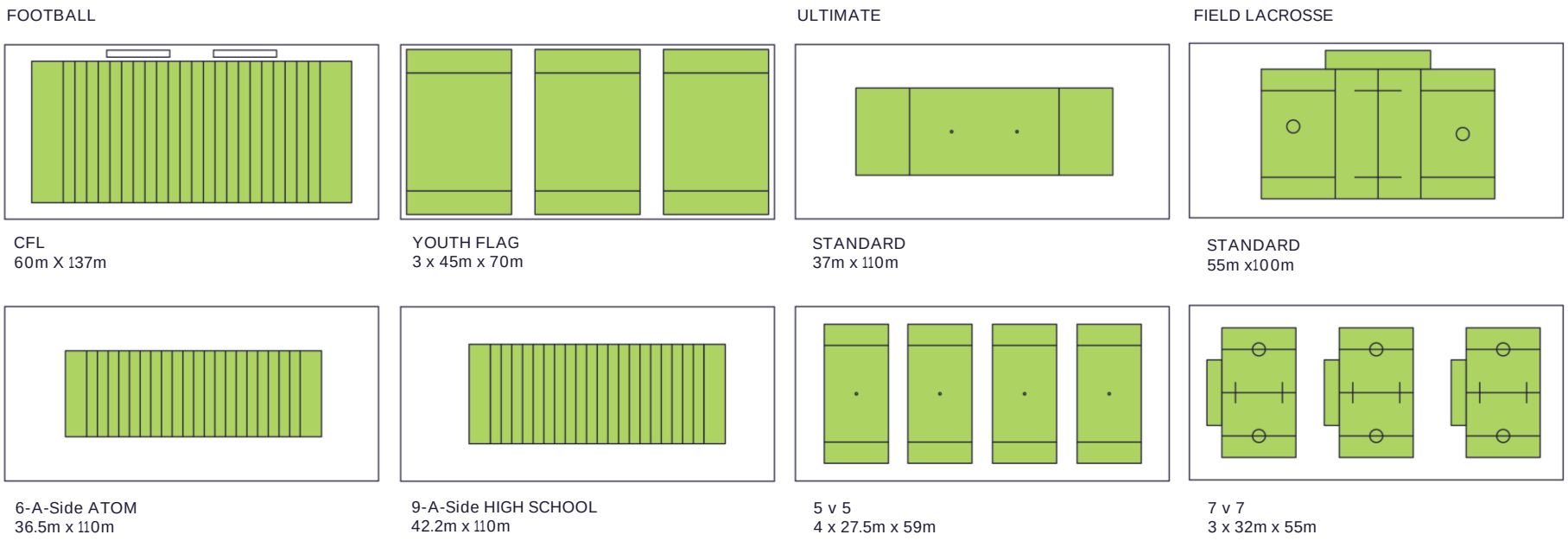


FIGURE 4.16: *Alternate field layouts on enlarged space to support competition capable hosting opportunities*

4 / Facility Design Considerations

Supplementary Program Analysis – Training, Artificial Turf Field

The field configuration may not meet the needs of some sports, particularly with respect to runoff space and safety zones. However, the field could be a valuable training venue. Outreach and engagement input will be used to better understand user needs and continue to refine the field configuration over the coming months.

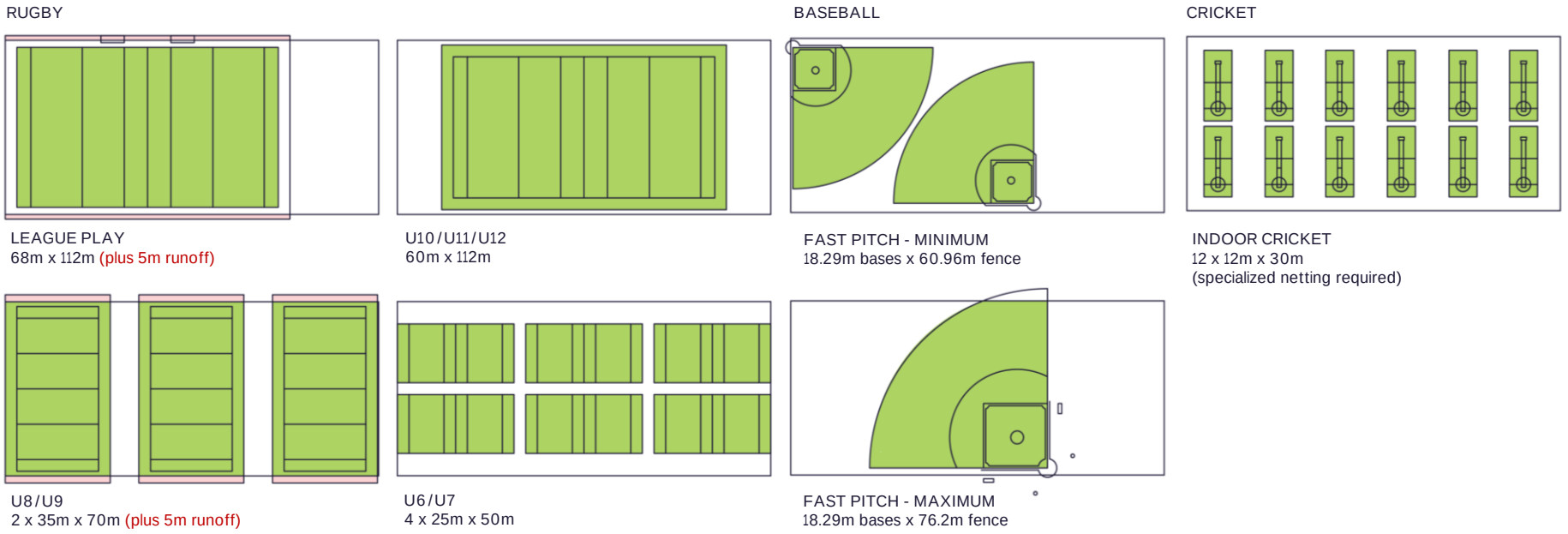


Figure 4.17: *Alternate field layouts on enlarged space to support training capability for additional sports*

4 / Facility Design Considerations

Programmatic Flexibility

Track and Field

The investigation of the Track and Field program flexibility will focus on two key considerations. The first is a hydraulic banked track versus a flat track. This flexibility investigation will require input from local Track and Field organizations, as well as Calgary Tourism, as having a banked track may lead to more opportunities to host world-class and elite-level competitions.

The second consideration is the running track infield, as there is an opportunity to add a court or other sports programs to the infield. However, there are considerations that need to be explored which could impact or require additional space for the infield Track and Field sports program (for instance, the TRACK at New Balance uses an adjacent gym for the shot putt event). This investigation will also require an examination of what temporary courts could be used and what the set-up and take-down effects would be as well as on storage requirements, facility operations, and maintenance more generally.

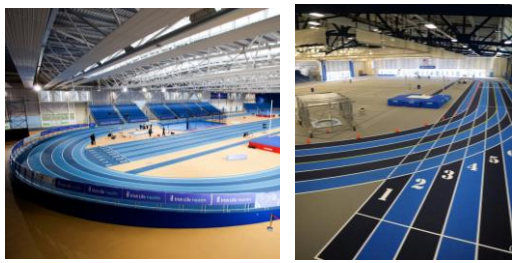


Figure 4.18: *Track and Field comparison of a banked track versus flat track.*

Gymnasia

The Gymnasia will require research and feedback from the user groups regarding the required sports markings and court type. The available courts include hardwood, plastic, and rubber. Information and cost will inform the decision of the courts to be used in the facility.

Additionally, further research will investigate sports markings' flexibility as there are new technologies such as digital line projection systems which can accommodate these sports court markings, allowing the surface to visually remain blank and adapt based on the projections. This technology would allow for a faster adoption of new sports and may also have community or event applications. More investigation is required.

Figure 4.19: *Indoor sports court floor comparison of hardwood, plastic, and rubber*

Artificial Turf Field

The Artificial Turf Field research will investigate the desired program use, after which recommendations for the turf will be made based on program use and which turf best suits each use. The use case will inform the fiber height, infill weight, and shock pad of the turf. More detail and turf specifications will be proposed as programmatic requirements are finalized by user groups and the City of Calgary. This will also include which sporting lines are provided on the field.

Figure 4.20: *Turf comparison between soccer specific or multisport (multiple field markings)*

4 / Facility Design Considerations

Trends and Technology

This study investigates key sporting technology and trends. Some items may be identified as applicable to this program while others may prove to be cost-prohibitive for the facility, or not feasible in this phase. Regardless, the exercise requires the maintenance of an objective evaluation of any and all emerging technologies and trends.

Active Esports

With Esports being a fast-growing sporting demographic, the research investigated a hybrid experience that pairs virtual gaming with a physical environment. Esports were one of the few sporting segments that experienced continued growth and increased participation through the COVID-19 health restrictions. While this is a developing market, there are solutions that look at temporary installation opportunities for events. Esports arenas can be set up in either a flexible multi-use room or a multi activity court space. While Esports is not a traditional sporting endeavor, at this point in the study, it is important that all emerging sporting trends are evaluated.

Line Projection

Seeking to optimize court use while allowing for future flexibility, the study will investigate line projection technology. The premise is that the court maintains no permanent markings and, when the specified sport is being played, the lines are projected onto the surface. This allows for the gym to remain flexible for a variety of uses while not visually cluttering the court with too many observable markings. This technology also offers a number of visual possibilities for community, social, and other public events.

Glass Floor Sports Court

The glass floor option utilizes LEDs under the floor, which are installed to display any sports court. The flooring is made of tempered security glass and provides shock absorption and elasticity to accommodate sports use and athlete comfort. The concept is that the lines for various sports are pre-installed and will illuminate depending on the users' choice.

Smart Court Integrations

Smart court technologies exist to enhance sporting experiences across several sectors and are fast becoming mainstream. Whether for training, coaching, competition streaming, or the growing world of media creation, smart court integrations can be deployed to augment facility offerings. Additionally, sports broadcasting is evolving, with more events being streamed, and broadcast-ready infrastructure such as this is recommended as an attractor to tournament hosting opportunities.

The Virtual Fan and Spectator

With the rapidly growing experience of handheld connectivity, technology advancement, and content streaming services, the inclusion of virtual fan or virtual spectator accessibility has become a standard in sport and recreational spaces. Facilities must consider the ease of connectivity for media and production agencies within the facility, which should be both seamless and cost-effective. Facilities must additionally recognize the revenue and experience potential of connecting virtual fans and spectators with sport and recreational activities. The technological ability to integrate camera systems, data analytics systems, and in-play technology within the facility design is now the expected standard. This space is rapidly evolving and is highly dependent upon the baseline services included in the design, providing adaptability and flexibility as technology and expectations change at an unprecedented rate.

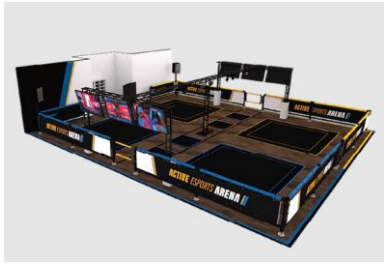


Figure 4.21: Esports arena

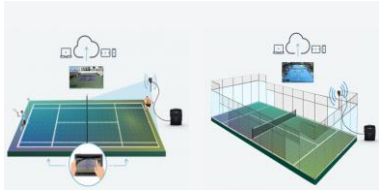


Figure 4.22: *Line technology, LED, and projection*

4 / Facility Design Considerations

Spacing and Dividing Options

Operationally, there will be a desire to divide and segregate spaces for individual functions, events, or sports based on the facility requirements and variables such as visual connection, auditory, sports use, etc. The final report will provide suggestions for the best solution based on programmatic requirements.

Netting

Netting is the suggested solution for areas where a strong visual connection is required for spectators and viewership. However, two key considerations are the auditory and safety requirements. Netting is typically used to protect spectators from errant soccer balls, for example, while noise and whistles can create confusion within the amenity.

Curtain

Curtains provide the best option for visually breaking up the space, along with providing auditory suppression, and provide industry-standard rigidity for dividers. Deployment time is minimal and, operationally-speaking, very easy to implement. Curtains are typically used to divide court spaces and provide separation between sporting activities. In the Artificial Turf Field Amenity, consideration will be given to the extent and configuration of curtains due to the large expanse of the field and the capital cost investment that is anticipated.

Demountable Hard Divider Screen

Demountable screen elements can be designed such that multi-activity courts can provide spaces for more niche sports and activities (e.g., padel). Hard dividers can be partially or wholly transparent and can be utilized for special events. Calgary has utilized these temporary structures downtown to showcase world-class squash games, but a facility like this could even expand upon that possibility into hosting tournaments or events, as there would be the ability to have more than one court.

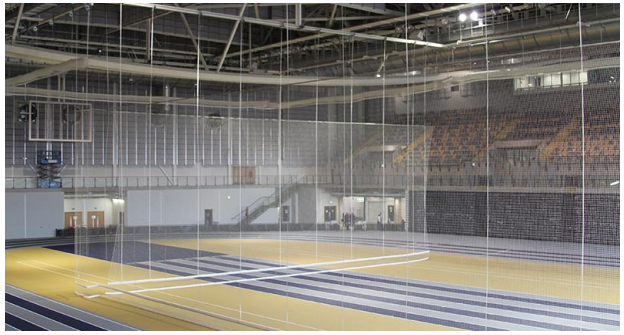


Figure 4.23: *Netting divider for sports*

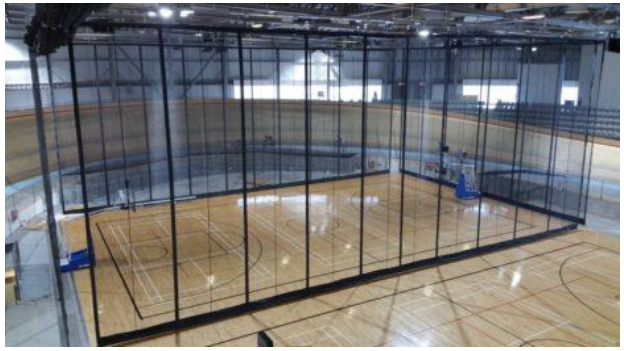


Figure 4.24: *Netting divider for gymnasium*

Figure 4.25: *Demountable sports walls*

4 / Facility Design Considerations

Feature Courts – World Class Events

Given that specific World-Class events and tournaments require distinct one-court markings, a solution that would need to be implemented would be the use of portable courts. This is standard procedure for world-level events and its associated costs are typically offset by the revenue generated by the event.

This allows the facility/amenity to provide flexible spaces while also meeting hosting requirements. It is not expected that this solution is used excessively, but rather it gives the facility further adaptability in its potential to host elite-level and world-class competition when needed.

Specific events and hosting requirements are case-by-case and will need to be further investigated when bidding for such events. In addition, a tournament layout with sufficient play, safety zones, spectator circulation, and media room(s) will be investigated to ensure that the facility has an adequate area for tournament use.

	FIBA Standard	FIVB Standard	BWF Standard	Pickleball Canada Standard
Court Surface	Wooden, Built by FIBA approved manufacturer	Wooden or Synthetic Flooring	Wooden sprung floor, or equivalent subfloor, with overlaid Bad minton Court Mat	Often concrete or asphalt with 100% acrylic coating

Figure 4.26: *Court standards by sport*

Figure 4.27: *Badminton competition flooring*

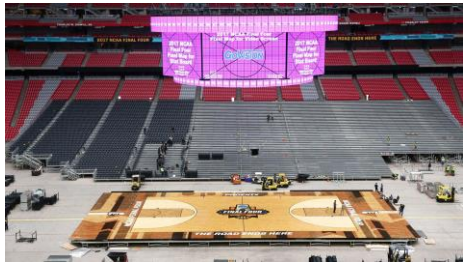


Figure 4.28: *Basketball competition flooring*

Figure 4.29: *Volleyball competition flooring*

4 / Facility Design Considerations

Seating Capacity Analysis – Track and Field

To meet the World Athletics category 1 classification, the facility must be able to seat 3,000 spectators. However, this can be a split between permanent and temporary seating. This split of permanent and event seating will be investigated to find the optimal mix to meet the day-to-day use as well as its ability to host world-class and elite-level competitions.

Permanent Seating

The number of permanent seating will depend on several factors which include the placement of the program and anticipated day-to-day use. The permanent seating will be placed in optimal viewing areas where it makes the most sense to integrate it into the sporting architecture.

Event Seating

Temporary seating will be used to meet the World Athletics minimum seating of 3,000 and provide additional seating for up to 5,000. Temporary seating solutions include retractable bleachers (telescopic), and temporary bleachers (rentable vs. stored).

Recommendation: 1,000 permanent seats with space for temporary seating to increase to +/-5,000 total capacity for world level competition hosting.

Figure 4.30: *Spectators seated on telescopic bleachers*

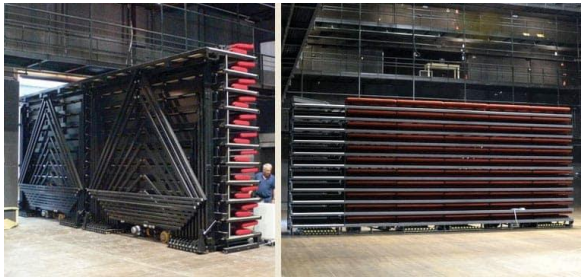


Figure 4.31: *Temporary retractable bleachers being transported for events*

4 / Facility Design Considerations

Seating Capacity Analysis - Gymnasia

Referencing a comparable facility (Saville Community Sports Centre (SCSC)), there is a noted importance of denoting a primary and supplementary sports court for both events and day-to-day use cases as well as seating infrastructure to accommodate both.

At the SCSC, the facility contains one competition gym with a seating capacity for +/-3,000 people.

The seating program is four retractable bleachers which pull out to frame a central court.

The gym contains three basketball courts which, in day-to-day use, utilize roof-suspended netting to divide the court into three basketball courts.

In the event configuration, the facility uses the perpendicular court, which contains basketball and volleyball markings for the University of Alberta games.

Recommendation: Provide one feature court with retractable seating for +/-3,000 spectators. This seating total is based on hosting requirements for basketball tournaments.

Figure 4.32: *Bleacher retractable seating in feature gym at full capacity*

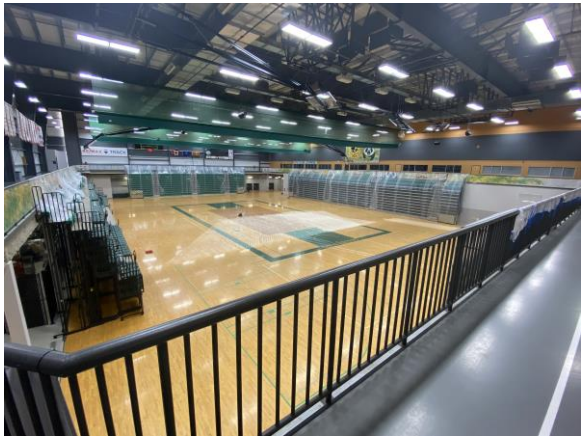


Figure 4.33: *Seating retracted in feature gymnasium*

Figure 4.34: *Seating extended in feature gymnasium*

4 / Facility Design Considerations

Seating Capacity Analysis – Artificial Turf Field

The seating capacity for the multi-use turf field will focus primarily on meeting the day-to-day needs of the facility. However, just like the track and field and the sports court programs, solutions to meet event and high-level capacity requirements will be identified.

Seating will be investigated alongside facility circulation. Spectator flows through the facility will be a critical consideration of how the public assesses the building experience.

One opportunity which has been identified from other facilities is to provide raised seating to maximize the view for events such as soccer. Given the fact that the turf field is likely to be divided, spectators may have to view over a long distance (which is one reason why an elevated seating position is preferred).

Recommendation: Provide a baseline of 500 spectator seats. If feasible in future design exercises, temporary seating opportunities can be explored to increase capacity, should use-cases dictate an increase is required.

The study of fixed and temporary seating delivered some strong findings. Fixed seating should be developed to minimize the conversion expense and time to meet the needs of the most prominent local and regional practice, game, and hosting opportunities. Although fixed seating is important within the program space it generally offers limited revenue generation and significant cost of maintenance, cleaning, and lost program space. The research performed suggests that a minimum baseline of fixed seating should be planned with coordinated purpose of adjacent space that will allow for the construction of temporary seating or the insertion of tip and roll seating systems to meet the less frequent but important sport tourism hosting opportunities. Seating development should be carefully balanced between the regular needs of day-to-day use and the space requirements to meet major sport tourism event bid guidelines. The potential to have fixed seating inventory and temporary expansion seating designed with the final facility program will be an essential alignment in the final program and design recommendation.

Figure 4.35: *Spectating from an elevated level*

Figure 4.36: *Spectating from an elevated level*

4 / Facility Design Considerations

Key Findings

Based on the analysis of Calgary's unique context, sporting participation evolution and programmatic opportunities presented by each amenity group, the following recommendations are made:

- Large multi-sport facilities must consider the opportunity for maximized space flexibility within the development to support the growing need of individual sport hosting opportunities and the adaptability of the space to respond to emerging sport and recreational trends that will present opportunities over the multi-decade operational lens of a facility.
- Space flexibility and planning will be critical within the independent program elements and within the overall footprint. The initial investment in space flexibility and conversion flexibility will ensure that proposed development will remain competitive over the life of the facility. Maximizing flexibility and the mailability of the space design must be a high priority.
- Empowering athletes and creating a more immersive experience for fans spectating at live events is critical as the blending of physical and digital infrastructure will create new functionality leading to enhanced guest experience.
- The pace of technology advancement will be an essential design consideration as it will offer operational efficiency, augment the guest and participant experience, and allow for adaptation to future sport requirements within the space.
- With significant growth in users for indoor Artificial Turf Field space and a disproportionate bump in participation in soccer following the 2022 World Cup, the maximization and modularity of the indoor synthetic field space will support local demand while concurrently providing a leading recreational sport hosting possibility.
- Most notable and after a **breakthrough year, women's** sports are in a strong position to further advance in 2023, but additional work is necessary to improve awareness, and grow investment.
- There is an anticipated surge of interest for playing soccer as a direct result of the FIFA 2026 World Cup being hosted in North America and Canada being assured of a team in the event.
- Access to public transit, bus parking, non-vehicular accessibility, and large volumes of vehicular parking to accommodate patrons accessing the multisport services will be essential. This facility will be highly dependent on ease of parking and proximity of parking. Given the high volume of vehicle parking needs and the hourly turnover of these parking spaces, site planning must be a core priority, particularly within the prime-time rental hours and weekend hosting times. Further parking analysis will be undertaken as part of the final study to support the final recommendation.

5 / Program Proposal

Baseline Amenity Options

In collating the research performed in sections 2, 3 and 4, the program proposal below is provided as a recommendation for the Foothills Multisport Fieldhouse.

This proposal is rooted in the data of a broad range of facilities and sporting requirements, analyzed within the context of Calgary's sporting environment.

Figure 5.1: *Baseline amenity proposal*

Amenity	Accommodates	Required Supporting Infrastructure	Spectator Seating Capacities
Track and Field	200m Track, 130m long Sprint Lanes (100m sprint, 110m hurdles and safety runoff)	Universal Change Rooms, Showers, Universal Change Stalls, Storage, Spectator Seating, First Aid, multipurpose rooms	+/- 1000 permanent seats with option and space planning to support up to +/- 5000 for elite level competition
Gymnasia	Feature Court, Individual Courts, Multi Activity Courts	Team Rooms, Universal Change Room, Operations Desk	Feature court with +/- 3000 retractable seats. Other informal seating and spectating likely from elevated concourse
Artificial Turf Field	Artificial Turf Field	Team Rooms, Referee Rooms, Storage, Spectator Seating, Washrooms (Barrier-Free)	+/- 500 permanent seats with further studies required to determine expansion opportunities/targets to support tournament hosting

5 / Program Proposal

Previous Program Overview

The previous program proposal was based on an indoor 400m track with seating for up to 10,000 spectators (2,500 permanent). Within the track was a FIFA regulation turf field designated for soccer. Additionally, the program contained eight basketball courts.

Recommendation

The 2023 program utilizes a 200m track (World Athletics Indoor Track and Field standard), and the inclusion of an auxiliary 130m long (100m sprint, 110m hurdle and safety runoff) eight-lane track for training. The turf program is an Artificial Turf Field to be separated from the Track and Field program.

The Gymnasia program contains one feature court with six individual courts and two supplementary multi-activity courts (MAC) to accommodate additional program use.

Figure 5.2: *2023 Program proposal as compared to Foothills Athletic Centre & Fieldhouse (Detailed Plan) – 2019*

Core Amenity	Previous Amenity	2023 Optimized Direction	2023 Amenity Proposal
Track and Field	400m Indoor Track Training Facility	200m Indoor Track and Field Amenity, meeting World Athletics standards	World Athletics Indoor Track and Field events
Gymnasia	8 Courts. 8 Basketball, 12 Volleyball, 16 Badminton	Feature Gym and 6 individual courts	11 Basketball OR 20 Volleyball OR 36 Badminton/Pickleball (or variations thereof. Numerous other emerging sports can be accommodated in MAC spaces.
		2 Multipurpose courts supplementary to court program	
Artificial Turf Field	Turf field located in the Infield of 400m track. FIFA Regulation	Separate multi-use turf field (74m x 160m)	FIFA regulation soccer field (68m x 105m) and additional flexible turf area
Supporting Amenities			
Fitness	Fitness space. Weight training, multipurpose rooms	Fitness space (same allowance as previous study)	Cardio, weight Training, multipurpose rooms
Community Components	Café, restaurant, and pedestrian access through the site. Civic & Community spaces and playground	Investigation and community engagement will be required to assess community needs. There is a current program allowance for flexible spaces.	

5 / Program Proposal

Baseline Program Proposal - Core Amenities

The baseline facility program detailed in the table below highlights the five key programmatic elements of the fieldhouse. Each of the five programs also contain auxiliary elements which will need to be considered and investigated to best maximize facility usage and ability to operate from a day-to-day level all the way up to world-class events and elite level competition.

As detailed in the program, there are elements which have been given capacity to support intense day-to-day usage, while remaining flexible to accommodate event usage. The table below shows gross areas related to each Core Amenity, including supporting infrastructure such as change facilities, storage, washrooms, showers etc. There are also additional allowances for a Fitness Centre and Common Area. Further study is required to refine these elements, but the provided targets align with the best practice analysis for a facility of this type and size.

Figure 5.3: *Baseline program for core amenities*

CORE AMENITIES	SQUARE METRES (SM)	SQUARE FEET (SF)
TRACK AND FIELD	10,427	112,239
GYMNASIA	9,860	106,135
ARTIFICIAL TURF FIELD	17,024	183,246
SUBTOTAL	37,312	401,620
SUPPORTING AMENITIES		
FITNESS CENTRE	2,185	23,521
COMMON AREA	3,049	32,818
SUBTOTAL	5,234	56,339
TOTAL	42,546	457,959

5 / Program Study

Track And Field Amenity Program

Below is the currently proposed 200m Track and Field program with supporting infrastructure.

Figure 5.4: *Track and Field amenity program*

PROGRAM	AREA / UNIT	NUMBER OF UNITS	SQUARE METRES (SM)	SQUARE FEET (SF)
1.1 INDOOR TRACK				
200M TRACK AND FIELD AMENITY, MEETING WORLD ATHLETICS STANDARDS			4,701	50,596
1.2 SPRINT LANES				
130M SPRINT LANES AND BUFFER SPACE (10 X 1.2M X 130M)			2,500	26,913
1.3 SUPPORT SPACES				
UNIVERSAL CHANGE ROOMS			600	6,459
UNIVERSAL SHOWERS	6	16	96	1,033
PRIVACY UNIVERSAL CHANGE STALLS	4	10	40	431
MEET MANAGEMENT ROOMS	30	1	30	323
FIRST AID ROOM			20	215
MEET MULTI PURPOSE ROOMS	50	2	100	1,077
STORAGE			100	1,077
SPECTATOR SEATING (EXPANDABLE TO 5000)	1	1000	1,000	10,765
SUBTOTAL			9,187	98,889
INTERNAL GROSSING FACTORS				
INTERNAL CIRCULATION ALLOWANCE	5%		459	4,944
BUILDING MECHANICAL (PRO-RATED)	6%		551	5,933
WALLS AND STRUCTURE	2.5%		230	2,472
SUBTOTAL			1,240	13,350
COMPONENT GROSS AREA			10,427	112,239

5 / Program Study

Gymnasia Amenity Program

Below is the currently proposed Gymnasia program with supporting infrastructure.

Figure 5.5: *Baseline program for Gymnasia amenity*

PROGRAM	AREA / UNIT	NUMBER OF UNITS	SQUARE METRES (SM)	SQUARE FEET (SF)
2.1 GYMNASIA				
FEATURE COURT CONVERTIBLE TO 3 SINGLE COURTS (3000 SEAT CAPACITY)	2,200	1	2,200	23,683
SINGLE COURT	680	6	4,080	43,921
MULTI-ACTIVITY COURT	680	2	1,360	14,640
2.2 SUPPORT SPACES				
TEAM ROOMS (HALF WITH SHOWERS)	40	10	400	4,306
UNIVERSAL CHANGE ROOMS (SHOWERS AND WASHROOMS)	100	1	100	1,077
STORAGE	50	3	150	1,615
OPERATIONS DESK	30	1	30	323
SUBTOTAL			8,321	89,565
INTERNAL GROSSING FACTORS				
INTERNAL CIRCULATION ALLOWANCE	10%		832	8,957
BUILDING MECHANICAL (PRO-RATED)	6%		499	5,374
WALLS AND STRUCTURE	2.5%		208	2,239
SUBTOTAL			1,539	16,570
COMPONENT GROSS AREA			9,860	106,135

5 / Program Study

Artificial Turf Field Amenity Program

Below is the currently proposed Artificial Turf Field with supporting infrastructure allowances.

Figure 5.6: *Baseline program for Artificial Turf Field amenity*

PROGRAM	AREA / UNIT	NUMBER OF UNITS	SQUARE METRES (SM)	SQUARE FEET (SF)
3.1 ARTIFICIAL TURF FIELD				
74M X 160M ARTIFICIAL TURF SURFACE (INCLUDES 68M X 105M FIELD OF PLAY)			13,761	148,126
3.2 SUPPORT SPACES				
TEAM ROOMS (NO SHOWERS)	50	10	500	5,383
UNIVERSAL CHANGE ROOMS (WITH SHOWERS)	20	4	80	861
STORAGE	50	2	100	1,077
SPECTATOR SEATING	1	500	500	5,383
PLAYER WASHROOMS	50	2	100	1,077
PLAYER BARRIER-FREE WASHROOMS	8	3	24	258
SUBTOTAL			15,066	162,165
INTERNAL GROSSING FACTORS				
INTERNAL CIRCULATION ALLOWANCE	5%		753	8,108
BUILDING MECHANICAL (PRO-RATED)	6%		904	9,730
WALLS AND STRUCTURE	2%		301	3,243
SUBTOTAL			1,959	21,081
COMPONENT GROSS AREA			17,024	183,246

5 / Program Study

Supporting Amenity Space

Below is the preliminary fitness center program with supporting infrastructure program based on work performed previously in the Foothills Athletic Centre & Fieldhouse (Detailed Plan) – 2019.

Figure 5.7: *Supporting amenity space program*

PROGRAM	AREA / UNIT	NUMBER OF UNITS	SQUARE METRES (SM)	SQUARE FEET (SF)
4.1 FITNESS				
CARDIO			600	6,459
WEIGHT TRAINING				8,504
MOVEMENT STUDIO - LARGE	220	1	220	2,368
MOVEMENT STUDIO - MEDIUM	175	1	175	1,884
STORAGE	20	3	60	646
TRAINING OFFICES	15	2	30	323
CONTROL DESK			10	108
SUPPORT STAFF/CONSELLING OFFICES	10	4	40	431
SUBTOTAL			1,925	20,723
INTERNAL GROSSING FACTORS				
INTERNAL CIRCULATION ALLOWANCE	5%		96	1,036
BUILDING MECHANICAL (PRO-RATED)	6%		116	1,243
WALLS AND STRUCTURE	3%		48	518
SUBTOTAL			260	2,798
COMPONENT GROSS AREA			2,185	23,521

5 / Program Study

Supporting Amenity Space

Below is the preliminary common space program.

Figure 5.8: *Common space program*

PROGRAM	AREA / UNIT	NUMBER OF UNITS	SQUARE METRES (SM)	SQUARE FEET (SF)
5.1 ADMINISTRATION				
CONTROL DESK AND TICKETING			50	538
OFFICES			250	2,691
5.2 MEETING, CLASSROOM ND MULTI-PURPOSE ROOMS				
MULTI-PURPOSE ROOMS - SMALL (CAPACITY 30)	75	2	150	1,615
MULTI-PURPOSE ROOMS - MEDIUM (CAPACITY 45)	110	1	110	1,184
STORAGE			20	215
5.3 LOBBY AND COMMON AREA				
VESTIBULES	15	3	45	484
LOBBY AND ATRIUM			1,000	10,765
WASHROOMS	80	2	160	1,722
INCLUSIVE/ASSISTED WASHROOMS	8	4	32	344
TENANT SPACE (PHYSIO, DAYCARE, FOOD, ETC.)			800	8,612
SUBTOTAL			2,617	28,170
INTERNAL GROSSING FACTORS				
INTERNAL CIRCULATION ALLOWANCE	8%		209	2,254
BUILDING MECHANICAL (PRO-RATED)	6%		157	1,690
WALLS AND STRUCTURE	2.5%		65	704
SUBTOTAL			432	4,648
COMPONENT GROSS AREA			3,049	32,818

6 / Operations Summary

Operational Analysis Methodology

A four-stage approach will be used to develop the proposed operational model for the Multisport Fieldhouse. This approach will include the following:

- Review of industry best practices
- Assessment of the anticipated facility performance
- Assessment of sport tourism standards and potential economic impact associated with sport and recreational event hosting
- Alignment of public outreach, sport user group requirements, and the final design program with the industry best practice findings and local market performance.

The review of the industry best practices will consider the evaluation of individual facility elements within the proposed program and the collective impact of clustering multisport amenities within a singular facility footprint. The intent of this assessment will be to create an operational proforma that creates best practice operational objectives based on leading facilities across North America. The approach will consider the following:

- Review of facility program and utilization results from 5 comparable indoor track and field facilities within a North American marketplace.
- Review of facility program and utilization results from 5 comparable indoor gymnasia facilities within a North American marketplace.
- Review of facility program and utilization results from 5 comparable artificial turf field facilities within a North American marketplace.
- Review of best practices in multisport facility clustering within a North American marketplace.

The assessment of the current facility performance within the City of Calgary marketplace will consider core program elements, ancillary amenity standards, revenue, expense, and cost recovery or earnings results, programing hours, and utilization. This review will consider both program elements that may align with the proposed Multisport Fieldhouse recommendations and individual program performance for track and field, gymnasia, and artificial turf field facilities. The intent of this review will be to create an operational proforma that is specific to the local marketplace.

The assessment of sport tourism standards will support the proposed Multisport Fieldhouse program development with the intent of aligning the design criteria with the ability to understand the potential sport tourism hosting opportunities within each individual facility program and the greater opportunity of maximizing the use within a large multi-purpose space. This study will deliver a clear overview of the eligibility for potential sport hosting opportunities, the frequency of event hosting in alignment with the local recreational needs, and the proposed economic impact within the visitor economy delivered through sport tourism.

6 / Operations Summary

Operational Analysis Methodology Continued

As public outreach and engagement progresses, the findings will inform the final recommended design criteria that will be delivered in the final report. With a fulsome understanding of local user group needs and performance feasibility, the operational assessment will align the program recommendation with best practice key performance indicators, a local market performance lens, and the opportunity for sport tourism and economic impact.

The final operational review format has been developed in consultation with the City of Calgary team and will include a detailed operational model that will focus on the following core elements:

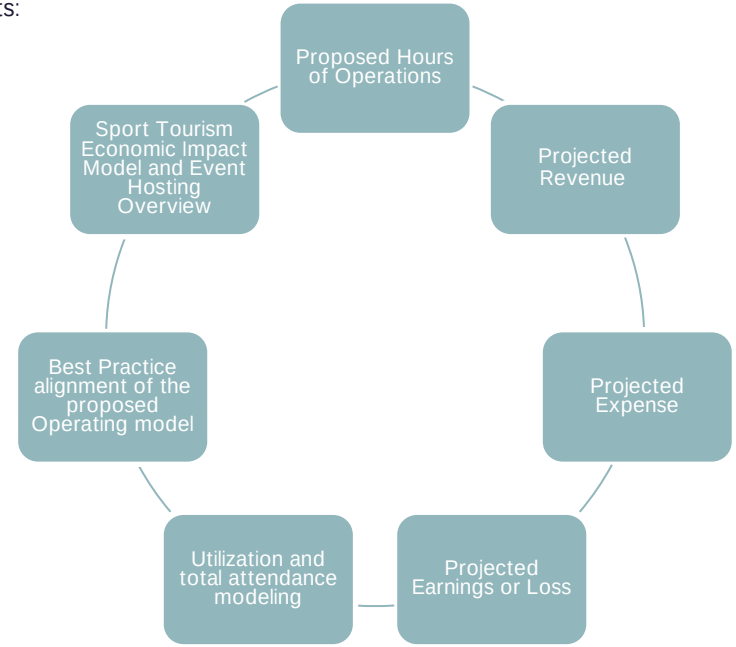
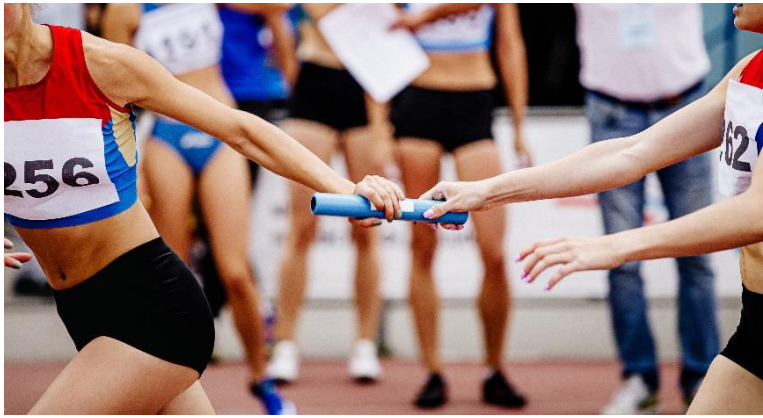


Figure 6.1: *Operational analysis methodology*



Multisport Fieldhouse Study Appendices

Interim Report

April 11, 2023

Prepared for:

Calgary

Prepared by:

GGA-ARCHITECTURE

OC Leadership

Read Jones Christoffersen
Consulting Engineers

Appendix 1 / Benchmark Facility Analysis

Track and Field

Appendix 1 / Benchmark Facility Analysis

Track and Field

Comparable: The TRACK at New Balance, Boston, MA US

Opening in April 2022, this premier multi-sport venue for athletes of all ages and abilities, the Boston Landing Track and Field complex features a 6-lane 200m hydraulically banked track with seating for over 5,000 with uncompromising facilities for training, events and recovery. A sophisticated 19,000 SF high tech sports research performance lab and ground floor retail rounds out Boston's destination location for athlete of all levels. The facility is equipped with a host of indoor track, turf and court systems from the Tarkett Sports family of brands. This athletic centre includes a dual terrain indoor track that can be converted to:

- FieldTurf EasyFIeld Roll retractable turf system used for soccer, lacrosse and baseball
- Tarkett Indoor EasyCourt portable floor system for 6 basketball courts, Volleyball and Pickleball courts

2023 will be the centres first year of complete operation and in 2022 they were able to announce that for 2023 there were already 80 track meets and 250 practice sessions booked. In addition, the facility has already been selected as the home of the 2024 D1 NCAA Indoor Championships

One level houses the 6-lane 200m hydraulic track, in-field Gymnasia, throwing area, a 24,000 SF athlete warm up track area. Another level is a flexible a multi-purpose gymnasium that contains a sports court for basketball, volleyball and weighted throw and shot putt. It contains retractable bleachers and 2,300 fixed spectator seating expandable to 5,000 while another level is a dedicated space for coaches and performance athletes offering a training space with a 130m 2-lane oval track, a 60m sprint track and a state-of-the-art fitness room.

TRACK:

- Beynon Sports Rise-N-Run 200-meter hydraulically banked indoor track
- Dedicated 24,000 SF athlete warm-up area
- Dedicated Track and Field throwing area
- Capable of accommodating up to 5,000 spectators
- Convertible to retractable turf for soccer, lacrosse and other sports
- (4) VIP boxes, video production room, event timing, press boxes, and hospitality area

Appendix 1 / Benchmark Facility Analysis

Track and Field

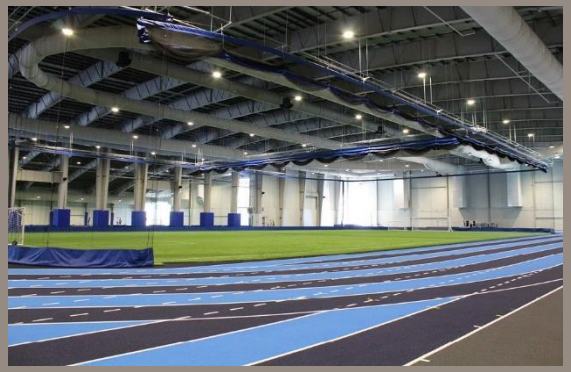
Comparable: Irving Oil Field House, NB

The Irving Oil Field House is a 110,000 SF indoor track, turf, and fitness facility. Owned by the greater St. John Field House Inc., the YMCA of Greater St. John oversee operations and programming. The centre is wheelchair accessible and offers child-care, after school and camp programming. This $27M structure consists of a multi-purpose room, a fitness centre, 8 team change rooms, universal member change room, 2 turf fields one of which is infield to the 200m 6-lane track. There is also a 100m sprint/hurdle track and a long Jump pit to the side of the main track and badminton courts.

It has minimal seating available through portable bleachers offering 650-700 capacity. Features include:

- Two indoor turf fields 92 x 172 SF both lined for ½ field play
- 200-metre indoor walking/running track
- High Jump, long jump, shot put and pole vault equipment
- Portable Pickleball and Badminton courts
- Sports and Recreation
- Team Change Rooms
- Group Fitness
- Multipurpose room
- Fitness center
- Rental opportunities
- Free Community Programs

The track is the official home of the Saint John track club and UNB track & field



Appendix 1 / Benchmark Facility Analysis

Track and Field

Comparable: Virginia Beach Sports Center, VA US

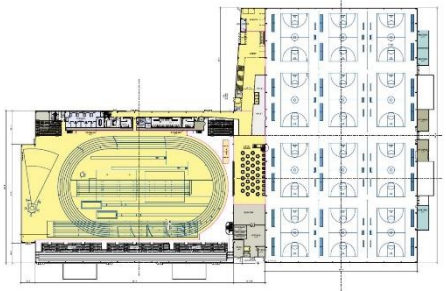
Virginia Beach was traditionally a summertime destination and a lot of businesses in the area used to close in the winter and shoulder months due to lack of activation and visitation. In an effort to attract more of the sports tourism industry to Virginia Beach, the city approved the construction of this sports centre in 2017. City Council had a long-standing goal of being a year-round destination and as a result of a collaborative public/private partnership, construction of this state-of-the-art 285,000 SF facility began in August 2018 and it opened its doors in October 2020.

The facility consists of a 117K SF hardwood court area and a 70.5K SF indoor 200m banked track area . The track venue features:

- Beynon Sports Rise-N-Run 200m indoor hydraulically banked track
- 2 sets of 8 sprint lanes, 2 x High Jump, 2 x Long/Triple Jump, Pole Vault, Throw Circle, Wrestling Mats,
- Seating for 5,000 spectators
- Ability to lay the track flat - Can be converted to 6 Basketball Courts
- The track is designed to NCAA standards to attract indoor Division 1 and 2 Track and Field tournaments.
- Capable of hosting NCAA and World indoor Track and Field meets, the venue can also host wrestling, gymnastics, field hockey, cheerleading, pickleball, cornhole and more.
- 600SF of meeting/media/multi-purpose rooms on mezzanine level with operable windows
- Private Warm-up area with 3 sprint lanes, 5 Restrooms (under the bleachers)
- Training rooms, offices, restrooms and locker rooms (76 women, 50 men) – all under the bleachers
- Dedicated athlete restrooms, dedicated official's locker rooms with private entrance.

The facility includes a programmable outdoor courtyard for festivals/plaza events and staging space for ceremonies or live entertainment. There are numerous meeting rooms and offices throughout the building and a full-Service Kitchen & Concessions with 400 dining seats having a view to the courts and track.

There are 1,100 paved parking stalls adjacent to the facility as well as accessible and motorcycle parking spaces.



Appendix 1 / Benchmark Facility Analysis

Track and Field

Comparable: The Podium in Spokane, WA

The Podium is a 135,000 SF facility including Concessions, Vendor, Management, Media and Medical Training Spaces. It features an access-controlled athlete warm-up area adjacent to competition floor, and an indoor 6-lane, 200m hydraulic banked Track Oval with easy conversion to multi-sport floor.

The infield is comprised of a 75,000 SF Competition Floor, measuring 365' X 205', with space for 16 volleyball courts, 9 basketball courts, 21 wrestling mats, or flexible multi-sport space.

Seating capacity is included for4,237 including 3,000 Permanent/1,000 Portable/237 VIP.

The Podium will generate an estimated $11-$20.5M annually in direct tourism spending in our community and create need for 17,000-33,000 hotel room nights per year. In addition, it would create new jobs through the construction phase and full-time employment once operational. Ultimately, the State and City will benefit from substantial new revenue streams that could not be realized without the existence of the facility.

Track Specifications Include:

- Radius: 19.30m (63.320')
- Lanes: 6 x 1.07m (3.50')
- Bank Angle: 12 Degrees
- 60m Sprint Straight Lanes: 8 x 1.22m (4.00')
- 60m Warm-up Straight Lanes: 4 x 1.22m (4.00')
- Long/Triple Jump: 40m (131.25') Runway
- Pole Vault: 40m (131.25') Runway
- High Jump (Freestanding): 21m (68.9') Approach
- Weight Throw: 100' Landing Sector
- Shot Put: 80' Landing Sector

Appendix 1 / Benchmark Facility Analysis

Gymnasia

Appendix 1 / Benchmark Facility Analysis

Gymnasia

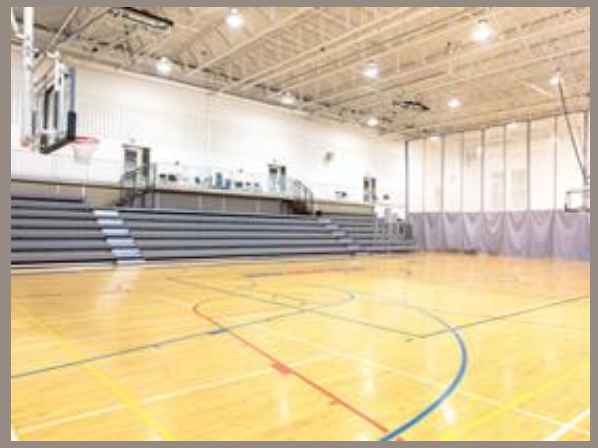
Comparable: Paramount Fine Foods Sportsplex

With approximately 100,000 visitations on a monthly basis since its opening in 2007, this 200,000 SF Sportsplex includes:

- A full-size FIFA indoor artificial turf,
- Gymnastics centre,
- Triple gymnasium,
- Fitness centre,
- Meeting space, and
- Licensed lounge.

The gymnasium features a full-sized competition basketball court and volleyball court.

A practice/warm-up court is located directly beside the competition court. When divided, the competition court converts into two additional practice courts for a total of three practice courts. Each practice court can accommodate up to three badminton courts or one volleyball court.



The gymnasium is home to Mississauga Monarchs Basketball, as well as the official practice gym for the Raptors 905 basketball team from the NBA Gatorade League.

The centre is adjacent to the 5,000 seat Paramount Fine Foods Centre arena. Alongside the sportsplex there are two Artificial Turf Fields with a full lighting system and domed in the winter which means they are in use all year round.

Appendix 1 / Benchmark Facility Analysis

Gymnasia

Comparable: Virginia Beach Sports Center, VA US

Virginia Beach was traditionally a summertime destination and a lot of businesses in the area used to close in the winter and shoulder months due to lack of activation and visitation. In an effort to attract more of the sports tourism industry to Virginia Beach, the city approved the construction of this sports centre in 2017. City Council had a long-standing goal of being a year-round destination and as a result of a collaborative public/private partnership, construction of this state-of-the-art 285,000 SF facility began in August 2018 and it opened its doors in October 2020.

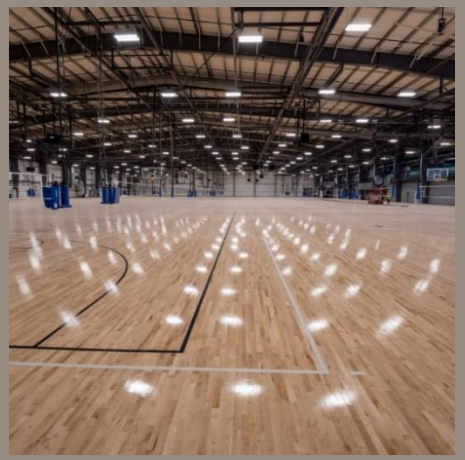
The facility consists of a hardwood court area and indoor 200m banked track area.

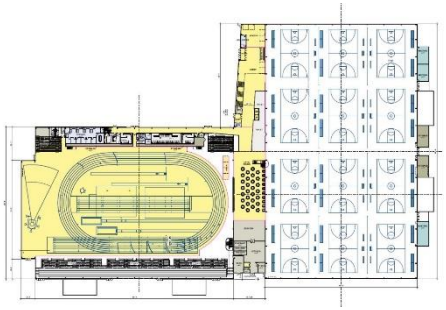
The court venue (117,870 SF) features:

- 12 hardwood Basketball courts convertible to 24 volleyball courts and 9 Field hockey – L:443' 8" x W:265' 8" x H: 46' at peak
- 500 SF of Skybox and hospitality space
- 2800 SF of meeting and storage rooms
- Ceiling-mounted goals, stations, scoring and division nets

The facility includes a programmable outdoor courtyard for festivals/plaza events and staging space for ceremonies or live entertainment. There are numerous meeting rooms and offices throughout the building and a full-Service Kitchen & Concessions with 400 dining seats having a view to the courts and track.

There are 1,100 paved parking stalls adjacent to the facility as well as accessible and motorcycle parking spaces.





Appendix 1 / Benchmark Facility Analysis

Gymnasia

Comparable: Richmond Olympic Oval, BC

This 362,000 SF facility was centered around its post-Olympic use rather than its function during the games. Following the Olympics in 2010, the venue was transformed into a community multi-sports park. The main level of the facility consists of three sections offering 2,000 spectator seats:

THE ICE ZONE	2 International dimension/Olympic size ice surfaces
THE TRACK ZONE	5-lane 200m oval running track, 5-lane 110m sprint track, 4-storey climbing wall and in-field athletics
THE COURT ZONE	Flexible - can be configured to: • 18 badminton courts • 13 FIVB volleyball courts • 10 FIBA basketball courts • 3 FIFA indoor regulation size soccer fields or • 16 international size table tennis tables

The court zone has been host to elite level competition in: table tennis, volleyball, badminton, and basketball and wheelchair basketball. The upper-level flexible space consists of a 20,000 SF fitness centre with over 200 pieces of equipment. This is a comprehensive fitness centre offering personal and group programs including a dedicated athletic and strength training studio, a fit RIDE studio featuring 24-foot screen used to display real-time data as well as Move and Flow classes studios. Gym equipment is in open spaces on this level providing a view to the lower-level activities. The facility also offers a rowing tank.

A $23M underground parking structure was built to support the centre offering 450 parking stalls. The venue is accessible by bus and is within walking distance of Lansdowne Station. The venue is also in the immediate vicinity of Vancouver International Airport.

Supporting amenities include meeting rooms, sauna, studios, batting and golf cages, child minding, restaurants, event support spaces, executive hosting suites, sport store, outdoor play structures, and much more. Supporting on-site services include a Canadian Sport Institute laboratory, LifeMark Sport Medicine, pharmacy and doctor's office.

Appendix 1 / Benchmark Facility Analysis

Gymnasia

Comparable: Saville Community Sports Centre, Edmonton Alberta

Saville Community Sports Centre is run by the University of Alberta's Faculty of Physical Education and Recreation. GO Sports is the operating body of the gymnastics, volleyball and basketball facilities located within the centre.

The facility which opened in 2003 as a dedicated ice facility has nearly 2000 curling members and currently serves as the national training centre for Curling Canada.

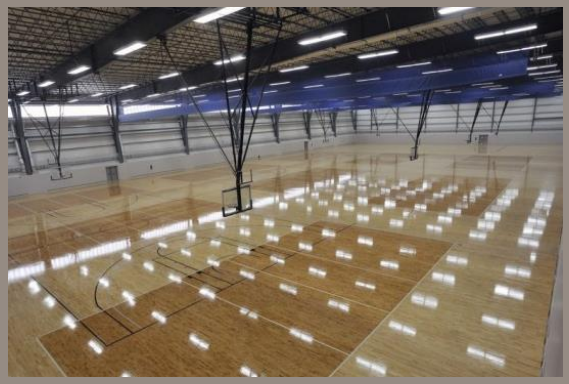
A West Wing, added in 2011, is Canada's largest hardwood installation and the home of the UofA Golden Bears and Pandas basketball and volleyball teams. The facility features 236,000 SF of recreation space including Canada's largest hardwood installation.

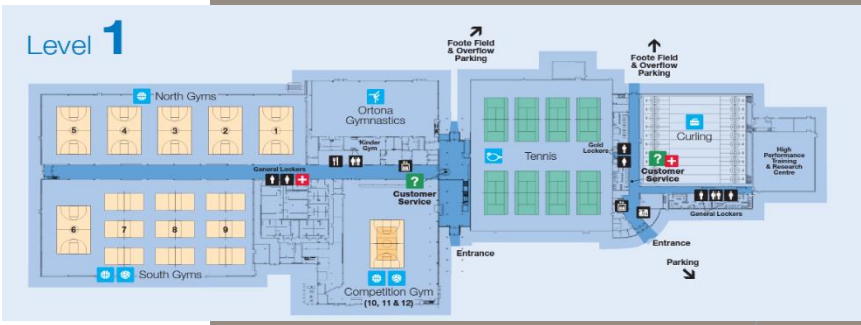
The facility has a 4,000 SF fitness centre stocked with state-of-the-art cardio and strength training equipment as well as a sport performance and sport science research centre.

The centre hosts a wide variety of sporting and recreational events recognized at the local, provincial, national and international level. In 2018-2019 annual review the centre boasts over 60 large scale events were hosted which resulted in over 1.5M visitors.

The facility houses 3 large gym spaces:

- The North Gym holds: 5 FIBA basketball courts, 10 volleyball courts, 30 badminton courts
- The South Gym holds: 12 volleyball courts, 4 FIBA basketball courts
- The Competition Gym holds: 3 FIBA basketball courts with 2,800 retractable spectator seats.
- There is an adjacent 8 court tennis facility





Appendix 1 / Benchmark Facility Analysis

Gymnasia

Comparable: Kamloops Tournament Capital Centre, BC

With a 200m indoor and 400m outdoor running tracks as well as a variety of fields and courts arranged indoors, this facility is host to many community sport and engagement programs and offers multiple concurrent uses. This use of space maximizes the contribution that the facility makes to its community.

The City of Kamloops uses this versatile and flexible facility to draw national and international competitions. The year-round availability of practice and performance training facilities increases the competitive edge of local athletes.

The centre consists of the fieldhouse, a gymnastics centre, Canada Games pool, indoor throws room, work-out facilities, an outdoor artificial turf soccer field, change rooms, media press room as well as several banquet rooms and meetings spaces.

The fieldhouse consists of an indoor 6-lane 200m track surrounding 3 NBA size basketball courts with seating for 2,200 spectators. There are 2 hardwood championship basketball courts and one removable hardwood court. The room itself is 65,000 SF.

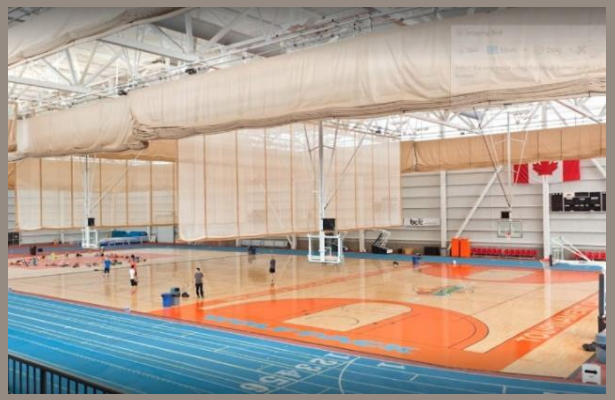
The primary function of the facility is the sports courts with 2 fixed hardwood structures in place. The 200m track is a secondary but important function.

Field House:

- 65,000 SF recreation space
- 3 Hardwood FIBA certified courts
- 200m 6-lane indoor Olympic-standard track
- 60m 10-lane sprint track
- Custom design indoor throws room
- 2,500 spectator seating
- Ceiling mounted divider curtains
- Electronic score clock
- 6 dressing rooms
- Spacious locker rooms
- Meeting rooms
- Concessions
- Wheelchair accessible

Supporting Amenities/Facilities:

- 8,000 SF workout space
- Fitness studio
- Spin studio
- Athlete performance centre
- Outdoor 400m 8-lane running track
- Canada Games Aquatics centre with Olympic length pool
- Hillside Stadium (2,500 seats, FIFA certified turf)
- 15,000 SF gymnastics facility
- Meeting rooms
- Sage Medical Centre



Appendix 1 / Benchmark Facility Analysis

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Artificial Turf Field

Appendix 1 / Benchmark Facility Analysis

Artificial Turf Field

Comparable: Saskatoon Sports Centre, Saskatoon SK

The Saskatoon Sports Centre indoor facility comprises a full-sized 69yd x 109yd artificial grass field, which is divisible by curtains to allow for more games to be played. The mezzanine of this two-storey 167,000 SF centre allows an excellent viewing experience of every field. The outdoor artificial grass fields stand as both football & soccer fields, and have bright overhead lighting, fencing, illuminated score clocks & bleacher seating for up to 1,500 people.

The Saskatoon Soccer Centre Inc. (SSCI) was born of a dream by the local soccer community to grow the sport through the operation of their own facilities. SSCI first registered as a non-profit corporation in 1993 when representatives of Saskatoon Adult Soccer Inc. (SASI) & Saskatoon Youth Soccer Inc. (SYSI) established a committee to raise funds to construct a building primarily for the sport of indoor soccer. With the help of the City of Saskatoon, organizations & individuals the Saskatoon Kinsmen/Henk Ruys Soccer Centre was opened for its first game in 1998. Since then, SSCI has been home to more than 10,000 soccer players annually.

In 2003 the soccer family determined that if soccer were to continue to grow, another facility was necessary. The design included one indoor & two outdoor artificial grass fields as well as hardcourt surfaces. SYSI & SASI previously utilized city fields for all their outdoor programs. This new facility allows leagues to schedule a significant number of games on the three artificial fields as they do not need the rest that natural grass fields require.

The Saskatoon Sports Centre is attached to Centennial Collegiate & the city operates a walking track & circuit centre within the complex, with a future civic facility planned. The partnership with the Saskatoon Public School Board & the City of Saskatoon was the first of its kind in Saskatoon & in Canada. The first indoor games were in January 2006 & the hard-court fields, pub & deck, cafeteria & walking track were opened shortly after. More recently bleacher seating & beach courts have been added to the outdoor park.

SSCI also offers a number of programs to the community beyond hosting leagues, tournaments and special events of all kinds. SSCI is proud to own & operate the two world class facilities that now enjoy over 1.4 million visitors annually. They regularly host soccer, volleyball, ball hockey, ultimate disc, football, baseball, roller derby, rugby, lacrosse & other sports, as well as cultural and special events.

Appendix 1 / Benchmark Facility Analysis

Artificial Turf Field

Comparable: Edmonton Soccer Dome, Edmonton AB

The Edmonton Soccer Dome is the largest sports dome in Canada with an impressive 135,000 SF playing surface. The Dome is a state-of-the-art air support structure constructed by Arizon Building Systems, over a FIFA Quality Pro-approved artificial turf surface.

The Edmonton Scottish Society's dream of building a Sports Facility was set in motion years before the doors opened to the public. The Edmonton Scottish Society has been well known for the quality of our outdoor grass fields and developed the Edmonton Soccer Dome for year-round non boarded play.

The state-of-the-art facility boosts air dynamics better than the outdoors for several different types of sport and activities.

The Dome is suitable for a wide range of activities: Soccer - Softball - Rugby - Lacrosse - Frisbee - Drone Racing.

It is the largest sports dome in Canada and provides Edmonton-area citizens of all ages a place to enjoy sport and leisure activities in a climate-controlled environment.

It is owned and operated by The Edmonton Scottish Society, which is a non-profit organization established in Edmonton in 1870.

- 135,000 SF of playing surface
- FIFA Quality Pro-approved artificial turf surface
- State of the art air support structure constructed by Arizon Building Systems
- Leading-edge energy-saving lighting and air-handling units
- Several field options to accommodate various game models
- A two-lane 470m long running track
- Four large fully equipped dressing rooms connected to the Dome
- Adjacent to the Scottish Pavilion, a kid friendly lounge with a full bar and food options

Appendix 1 / Benchmark Facility Analysis

Artificial Turf Field

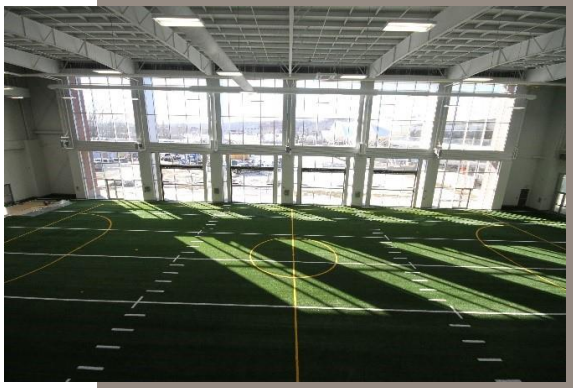
Comparable: Shell Place, Fort McMurray AB

Completed in 2015, Shell Place is an 83,250 SF multi-use sports venue for the MacDonald Island Park Corporation (MIPC) in the Regional Municipality of Wood Buffalo (RMWB). Located in MacDonald Island Park, and connected by pedway to the Suncor Community Leisure Centre, Shell Place plays host to a variety of recreation, sport and concert experiences.

This sports, recreation and mixed-use complex includes SMS Equipment Stadium, Legacy Dodge Field, a softball and baseball tournament facility as well as a field house, badminton and a high-performance training centre. The facility also offers a social profit shared space featuring United Way as the anchor tenant.

This facility is a $127M addition to the pre-existing MacDonald Island Park.

Shell Place includes a conference facility with banquet, community group support areas, field house, badminton facility as well as the development of a multi-use outdoor performance artificial turf football field capable of seating 3,650 spectators—expandable to 20,000, an artificial turf baseball complex capable of seating 1,600 both with luxury boxes and a variety of seating options. The facility is also adjacent to what is currently the largest recreation centre in Alberta (the Suncor Community Leisure Centre) which is operated by the MIPC in partnership with the RMWB.



Appendix 1 / Benchmark Facility Analysis

Artificial Turf Field

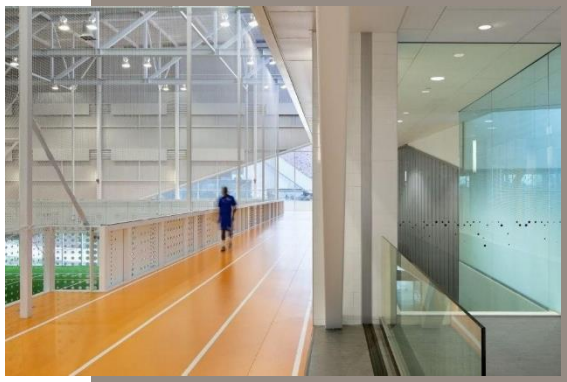
Comparable: Commonwealth Fieldhouse and Community Recreation Centre, Edmonton, AB

The centre consists of three main elements: - the fieldhouse, aquatic centre and gymnasium. The facility supports use by the community, the nearby stadium ownership and the local professional football team.

The running Track and Fieldhouse are designed as practice and play spaces and are NOT focused on high level competition. The 200m track is on the upper level with a balcony 360 view of the main indoor field.

Users have concurrent access to use the running track, pool, soccer fields, batting cages, fitness centre, basketball/volleyball/badminton courts, multi-purpose rooms and studios. Dividing and protective curtains separate the fields and courts to further allow for concurrent users.

While not focused on high-level competition, the facility should be considered as a model for concurrent use to maximize the utilization of a facility.



Appendix 1 / Benchmark Facility Analysis

Indoor Field House Amenities

Comparable: Paramount Fine Foods Centre Sportsplex, Mississauga ON

Opened in 2007, the 200,000 SF sportsplex expansion to the Paramount Fine Foods Centre. The centre is adjacent to the 5,000 seat Paramount Fine Foods Centre arena. Alongside the sportsplex there are two Artificial Turf Fields with a full lighting system are used year-round (domed in winter months) for football, soccer and other community activities. The sportsplex welcomes almost 100,000 visitors each month.

The gymnasium, home to the Mississauga Monarchs Basketball and official practice gym of the Raptors 905, features a full-sized competition basketball court and volleyball court. A practice/warm-up court is located directly beside the competition court. When divided, the competition court converts into two additional practice courts for a total of 3 practice courts. Each practice court can accommodate up to 3 badminton courts or one volleyball court.

The indoor artificial turf is home to the Adult Soccer League and Youth soccer League as well as drop-in programs and camps. It features a full-sized indoor soccer field (110m x 64m) that can be played as a full field, half field or quarter field. The outdoor fields can be domed in the winter to provide a second and third full-sized artificial turf surface all of which are lined for half and quarter fields.

The complex also houses a comprehensive fitness centre and a physiotherapy centre.