Appendix B

July 13, 2015
Project No. 214320

FINAL

CITY OF FORT SASKATCHEWAN

DOW CENTENNIAL CENTRE MASTER PLAN REPORT

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Executive Summary

EXECUTIVE SUMMARY

The City of Fort Saskatchewan has undertaken the task of reviewing the city wide recreation infrastructure with the intent of generating an overarching strategy for providing recreation services to the community which will be implemented over the coming years. The information provided in this report will be used in conjunction with several other reports completed on various recreation facilities in and around the City of Fort Saskatchewan to determine the best plan of action for each facility and determine how each facility will participate in the future of recreational service to the Community. In June 2014 BR2 Architecture was commissioned by the City of Fort Saskatchewan to develop a Master Plan to explore the potential program expansion opportunities at the Dow Centennial Centre (DCC) facility.

This report provides a Master Plan concept based on discussions with the City of Fort Saskatchewan and the members appointed to this team to review and explore potential expansion opportunities as well as the current short comings of the facility and see how best the City might position themselves to offer recreation services as requested by the community.

This report provides a high level review and a concept development which is meant to identify expanded or new programs that can be included at the DCC facility. This report did not review the existing facility in depth to determine the current state of the DCC and any upgrades that it may require due to age or maintenance. The information on the program elements to explore and add to the centre was given to the Design team by the City of Fort Saskatchewan Committee members. These new or expanded components included a new Hockey rink ice surface, aquatics centre, expanded fitness, full sized fieldhouse and expanded banquet facilities. In conjunction with the expansion and rejuvenation of the DCC a potential partnership with the Elk Island Public School Board and the development of adjacencies with a new high school was also identified.

An initial meeting with the City of Fort Saskatchewan representatives was conducted during which the intent and direction of the report was clarified and initial thoughts and comments were received. Each representative was asked to identify the known operational deficiencies of the facility and what specific improvements would be most beneficial to each of their programs. Along with these items identified, the team also discussed flow and operation of the Centre and how best the additions and expansions would best be organized to maintain or create adjacencies that would be beneficial to the collaboration and provision of recreation services to the community.

Included in this Master Plan was the development and rethinking of the exterior amenities and what would be required to support the facility from and external point of view. As well there were other community needs that were required to be included and or accommodated on the site. The additional site components identified for this Master Plan were to include an artificial turf field inset into a competition running track, play spaces for various ages and activities, special event spaces for multi-purpose use, activity nodes for the community; Sports fields and parking to provide for the new amenities added to the facility as well as a potential for a park and ride service for the community. The remaining site left over from the inclusion of these program elements was to be used for public park space.

Based upon the comments from the City representatives, BR2 Architecture began to investigate the site and all the opportunities available to position the new internal and external components. The information gathered was incorporated into a preliminary site development plan and set the baseline for the work to follow on the Concept development. The initial proposed addition and site layout was issued for review by the Committee and comments were received and reviewed. The comments received from the Committee confirmed that the program elements identified as priorities for the facility were in fact still valid and necessary. The initial layout presented provided for all the requirements set out by the Committee, however the organization generated good discussion on the interaction between the various entities of the facility and the integration of the proposed High School development. These new ideas and opportunities discovered were then requested to be put to paper as another Master Plan option that could be compared against the first Master Plan concept.

The Master Plan presented in this report is a direct result of the comments and ideas generated through the interactive process between the design team and the Fort Saskatchewan Committee team members. Both concepts are described in this report and the resultant final Master Plan concept is identified.

The two Master Plan concepts include the same components, however achieve the organization adjacencies in polar opposite manners. Concept 1 looks at focusing the development of a new façade to the east side of the facility, creating a visible face and entrance to the building from the intersection of Southfort Drive and 84th Street. The new aquatics, ice rink and fieldhouse were placed on the east side of the existing facility with the proposed allocated space for the new High School found on the southwest corner of the site. In contrast to this concept, the second Master Plan design moved the aquatics and fieldhouse to the south of the facility with the new ice rink being placed east of the existing building, directly adjacent the existing arena. The proposed High School allocation was located to the northeast corner of the site.

The proposed expansion and site development of the DCC encompasses an additional 18,972 m^2 of new floor space on both the main and second levels. The estimated construction time to complete the additions and renovations is 24 – 36 months and is dependent on phasing and existing building operations. A construction budget of $71,705,000.00 is estimated for this facility (2015 dollars). This budget does not include required upgrades or repairs that may be required in the existing facility.

Dow Centennial Centre – Site

1.0 Background

1.0 BACKGROUND

In June 2014, the City of Fort Saskatchewan retained BR2 Architecture to assist them in reviewing the existing Dow Centennial Centre (DCC) facility and developing a Master Plan for potential additions to the DCC to expand the current recreation opportunities and services offered at this facility. BR2 Architecture with representatives from the City set out to review the current state of the facility and discuss the wants and needs of the various entities involved in the operation and planning of the DCC.

Historical documents of the facility were made available to the design team, as well as previous reports, studies and thoughts that were generated from earlier investigations and discussions. This information was compiled and used to begin the master planning process and generated a list of objectives that were set as priorities to base the Master Plan success on.

The objective of the Master Plan was to provide for the following components or priorities:

.1 Provide a new face for the facility that is exposed and visible to the community.

.2 Work with the existing building infrastructure where possible to exploit any adjacencies and building systems.

.3 Provide a new single NHL sized arena with spectator seating for 150 – 250 persons.

.4 Provide a new full sized soccer fieldhouse with spectator seating.

.5 Provide a new aquatics facility with competition, leisure and drop-in spaces.

.6 Identify a location to partner with the Elk Island Public School Board and the potential for a new High School.

.7 New site amenities including, two ball diamonds, artificial turf pitch, running track, special event spaces, playgrounds for all ages, park'n'ride development adjacent the new parking lot.

.8 Provide ample parking for the existing and new facility components.

.9 Provide park space for the public at large to enjoy and connect this facility into the adjoining trail system in place in the community.

.10 Expand the existing banquet facilities to allow more space to offer these services.

.11 Expand the existing fitness facilities.

.12 Re-purpose the existing fieldhouse to a gymnasium.

2.0 Master Plan Development

2.0 MASTER PLAN DEVELOPMENT

2.1 Project Methodology

In order to determine the programming requirements and to develop the concept design, BR2 worked together with the following representatives from the City of Fort Saskatchewan:

.1 Project Management Team

Chair of the Committee
- Troy Fleming, General Manager Infrastructure and Community Services, City of Fort Saskatchewan

Members
- Grant Schaffer, Director Project Management, City of Fort Saskatchewan
- Barb Shuman, Director, Recreation, City of Fort Saskatchewan
- Chris Enders, Manager Facilities Management, City of Fort Saskatchewan
- Kelly Almer, Manager DCC, City of Fort Saskatchewan
- Lindsay Poitras, Aquatics Operations Supervisor, City of Fort Saskatchewan
- Kayla Berehulke, Aquatics Operations Supervisor, City of Fort Saskatchewan
- Ron Hale, Facilities Foreman, City of Fort Saskatchewan

At this time, we would like to thank the Committee members in conjunction with the stakeholders, for their valued input and support throughout this concept design development process.

.1 Consultant Team

Architectural/Programming – BR2 Architecture
- Shaun Visser, Partner

Structural Engineering – Protostatix Engineering Consultants Inc.
- Dino Loutas, Principal

Mechanical Engineering – Reinbold Engineering
- Reggie Nicholas, Principal

Electrical Engineering – MCW Hemisphere Ltd.
- Brian Rozak, Electrical Project Manager

2.2 Stakeholder Input

The project management team working with BR2 Architecture was responsible for bringing forth the stakeholder input and comments. BR2 met with the City of Fort Saskatchewan representatives and reviewed the proposed program additions and revisions. During this process each representative had the opportunity to bring forth and raise any issues and or comments regarding the development of the Master Plan concept plans and proposed additional program elements.

Dow Centennial Centre – Existing Facility

2.3 Program

.1 Existing Conditions

The DCC facility can be categorized as one of the major recreation centres in Alberta, providing a variety of recreational experiences and opportunities under one roof. This type of facility is commonly referred to as a multiplex in direct reference to the number of different recreational programs offered at the one facility. The DCC is unique in the fact that it provides amenities that are not just recreational in nature but also cultural as well. The DCC includes in its offerings, the Shell Performing Arts Theatre, a fully serviced banquet facility, NHL ice surface, indoor fieldhouse, large gymnasium, fitness centre including a running track, flex hall, indoor leisure ice surface, a children's play area and tenant spaces for lease. The DCC was completed in 2004 and covers approximately 170,000 ft^2.

.2 Design Approach

.1 General

The overall Master Plan as developed we believe, provides the optimal concept development solution considering the existing building placement and organization, current plan layout and available expansion opportunities.

.2 Objectives

The following primary concept objectives guided the design process for the development of the Master Plan:

.1 Provide a new face for the facility that is exposed and visible to the community.

.2 Work with the existing building infrastructure where possible to exploit any adjacencies and building systems.

.3 Provide a new single NHL sized arena with spectator seating for 150 – 250 persons.

.4 Provide a new full sized soccer fieldhouse with spectator seating.

.5 Provide a new aquatics facility with competition, leisure and drop in spaces.

.6 Identify a location to partner with the Elk Island Public school Board and the potential for a new High School.

.7 New site amenities including, two ball diamonds, artificial turf pitch, running track, special event spaces, playgrounds for all ages, park'n'ride development adjacent the new parking lot.

.8 Provide ample parking for the existing and new facility components.

.9 Provide park space for the public at large to enjoy and connect this facility into the adjoining trail system in place in the community.

.10 Expand the existing banquet facilities to allow more space to offer these services.

.11 Expand the existing fitness facilities.

.12 Re-purpose the existing fieldhouse to a gymnasium.

2.4 Program Development

The process of identifying and documenting the program objectives, created two distinct master planning concepts. Each concept focused on the adjacencies of the new programs and their relationships to the existing and other potential new facility components. The major driving force behind each concept centres around a few major elements, first the placement of the proposed High School and its relationship the surrounding community and existing facility. Second, the direction of the new face and front door of the building and the connection of the site amenities to the surrounding community.

.1 Master Plan – Concept No. 1

Concept No. 1 of the Master Plan Study was the initial review and foray into analyzing the potential adjacencies and site organization of the proposed additional components and site amenities. The idea behind this concept was to create a new face to the DCC that would directly relate to the intersection of Southfort Drive and 84th Street. The current facility does not have a front door that is readily visible or identifiable from the community, mainly due to the development of the surrounding areas.

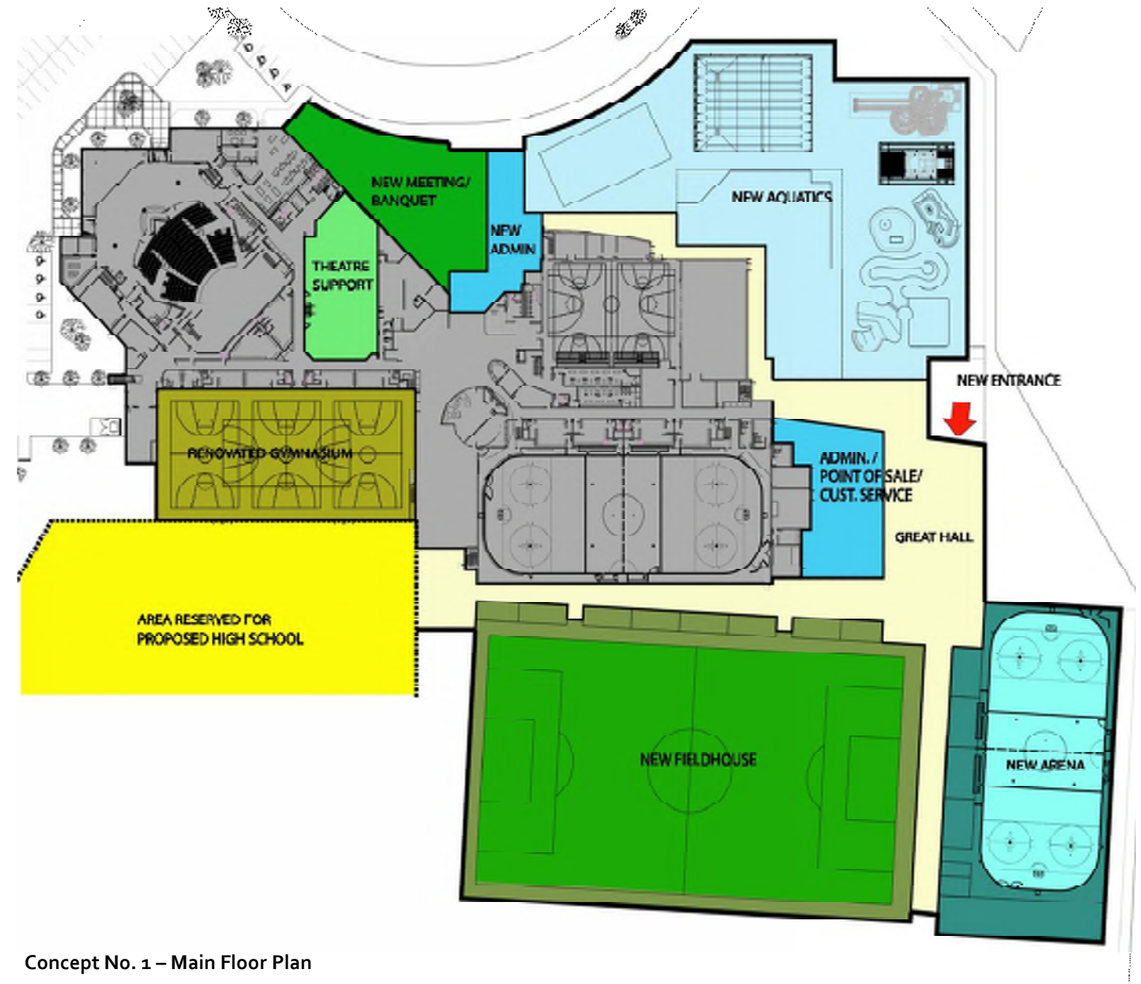
The DCC was the first facility developed in this area and therefore it had no immediate context to relate to nor direct planning issues. Due to the fact that it was first in, the facility now faces a hotel and eating establishment and shares parking with these facilities. Additional parking is located to the east of the facility and requires users to walk around the east side of the building in order to access the main front entry. With the development of the surrounding parcels, the orientation of the facility does not fit well with in the current context. Therefore the design basis for Concept No. 1 is to create a new east façade and orientate the new expansion elements in a way that would expand to the east and provide a new front door that is readily identifiable to the public who are passing by or arriving to the facility.

The organization of Concept No. 1 places the new aquatics and ice arena on the east side of the original DCC complex. The aquatics component is located on the northeast corner of the facility and bridges the existing main entrance with a proposed new main entrance that faces east. The location of the aquatics in this position allows for direct views to the exterior, natural but not direct daylighting and exposes the interior elements to anyone who is passing by or traveling to the hotel or restaurants in the area. The ice arena is located on the southeast corner of the facility and frames the main entrance opposite the aquatics addition. The location for this allows a high traffic program element to be accessed easily from multiple locations and reduces the travel distance for those users with hockey equipment.

Between the aquatics and the ice arena, is the main entry. This component contains the heart of the new addition and provided spaces for administration, point of sale, customer service and a great hall that provides the user an initial experience as they arrive to the facility and allowing east navigation and clarity to find their desired destination.

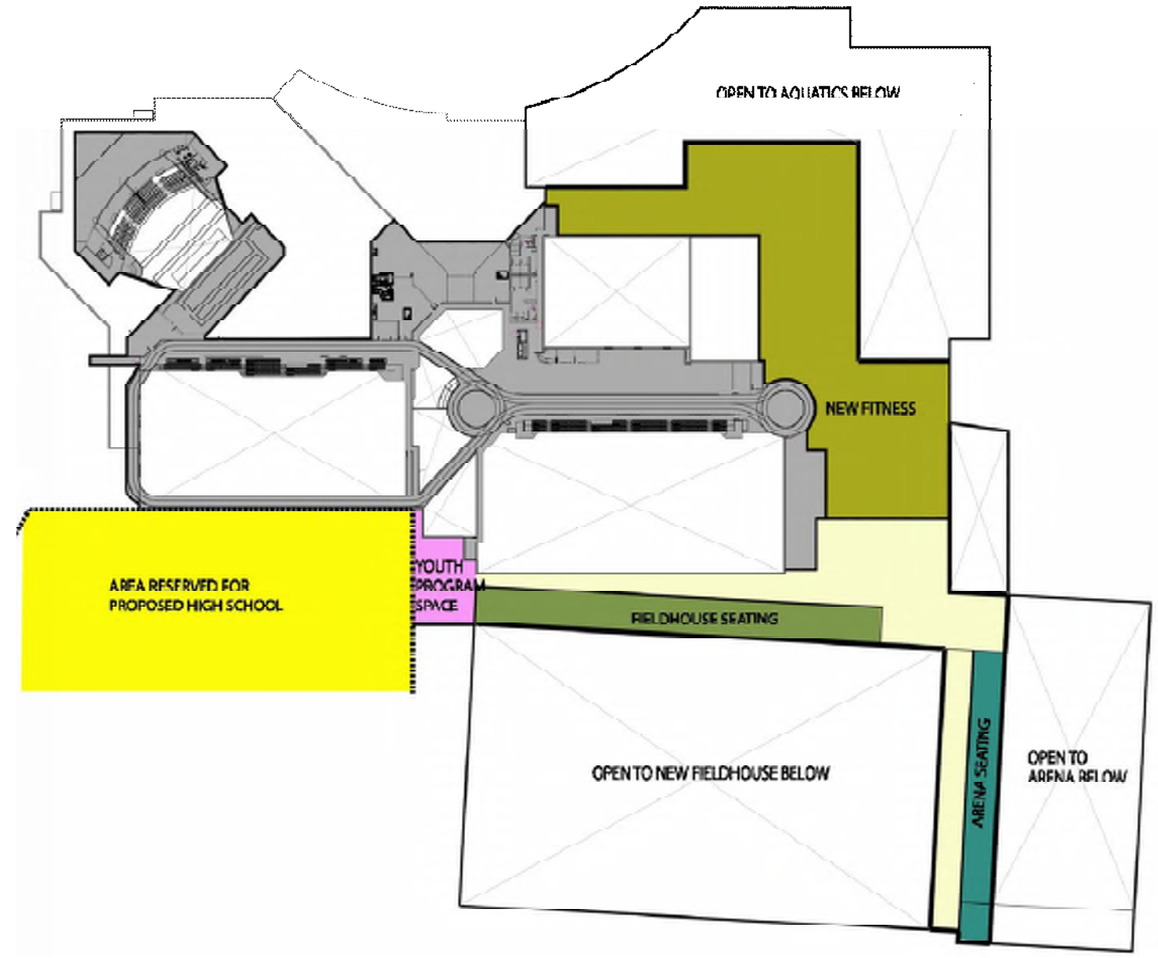
The south side of the existing DCC is reserved for the new fieldhouse and potential High School development. The location of these two elements in this configuration allows for direct access to the play fields, areas that are anticipated to be highly utilized by each of these program elements. Between the fieldhouse and proposed area for the High School would be another entrance to the facility. This entrance would be most utilized by those patrons that were using the fields and amenities outside of the facility, and gives them easy access to the programs and facilities found in the DCC. Another reason for locating the proposed High School development on the southwest corner of the existing facility, was to explore options to share the usage of the existing fieldhouse and renovate this space into a more gymnasium like space. This adjacency would allow the High School to share the gymnasium space during the day for their physical education activities and eliminate the need to build a new gymnasium as part of their future development.

Also included in the Concept No. 1 Master Plan was a vision to expand the theatre support spaces and add some additional space for a new banquet hall that would be required due to the elimination of the current banquet facility for additional theatre program space.



Concept No. 1 – Main Floor Plan

The second floor of the Concept No. 1 Master Plan is primarily spectator support spaces for the new amenities. The fieldhouse, arena and aquatics would all have second level viewing in to each of their spaces directly accessed from the corridor. The second floor would contain two additional program spaces, the first being an expansion to the existing fitness component and would utilize the space over the pool change rooms. This location provides direct adjacency to the existing fitness components as well as views into the pool environment from the upper level. The second additional program space found on the upper level is the youth program space. This location would be central to the south face of the facility and would have views to the external field and amenities. This location give the youth a destination that is still integral to the facility but is not front and central, thereby giving the youth a sense of distinction and presence in the facility,



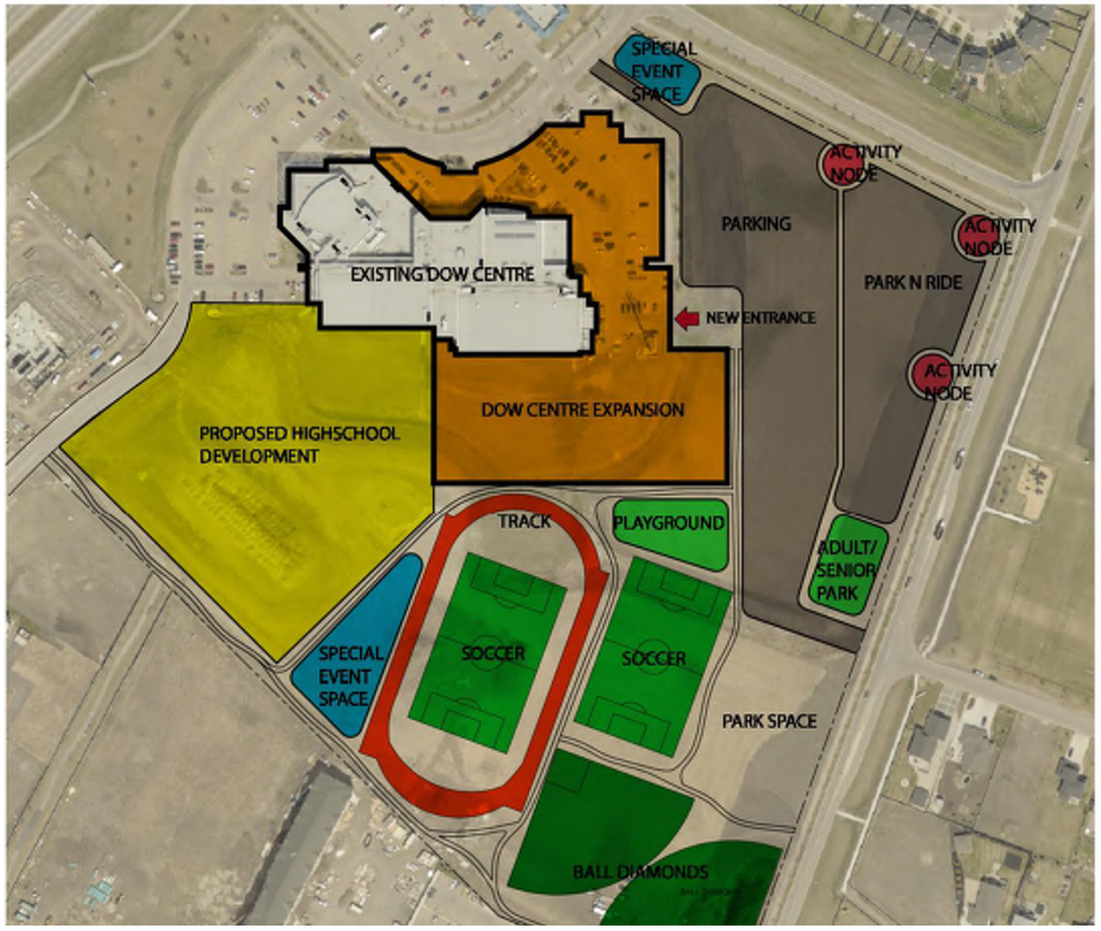
Concept No. 1 – Second Floor Plan

The external design of the parcel as a whole supports the layout of the new additions to the complex by placing parking and vehicle orientated activities to the northeast corner of the site and gathering the playfields and outdoor activities to the southeast corner of the site.

The northeast corner of the site will be the location for the facility parking, directly adjacent the new main entrance, and would incorporate and requirements for a park'n'ride program that is being reviewed by the City. The street edge of this parking lot would incorporate activity nodes in order to break up the large expanse of parking. These activity nodes could include bus stops, public seating areas, information displays, interactive art displays or exterior fitness opportunities. This parking would also be well situated to serve the parking needs of the play fields that are located across Southfort Drive. Special consideration to traffic flows and how pedestrians could cross Southfort Drive would need to be reviewed.

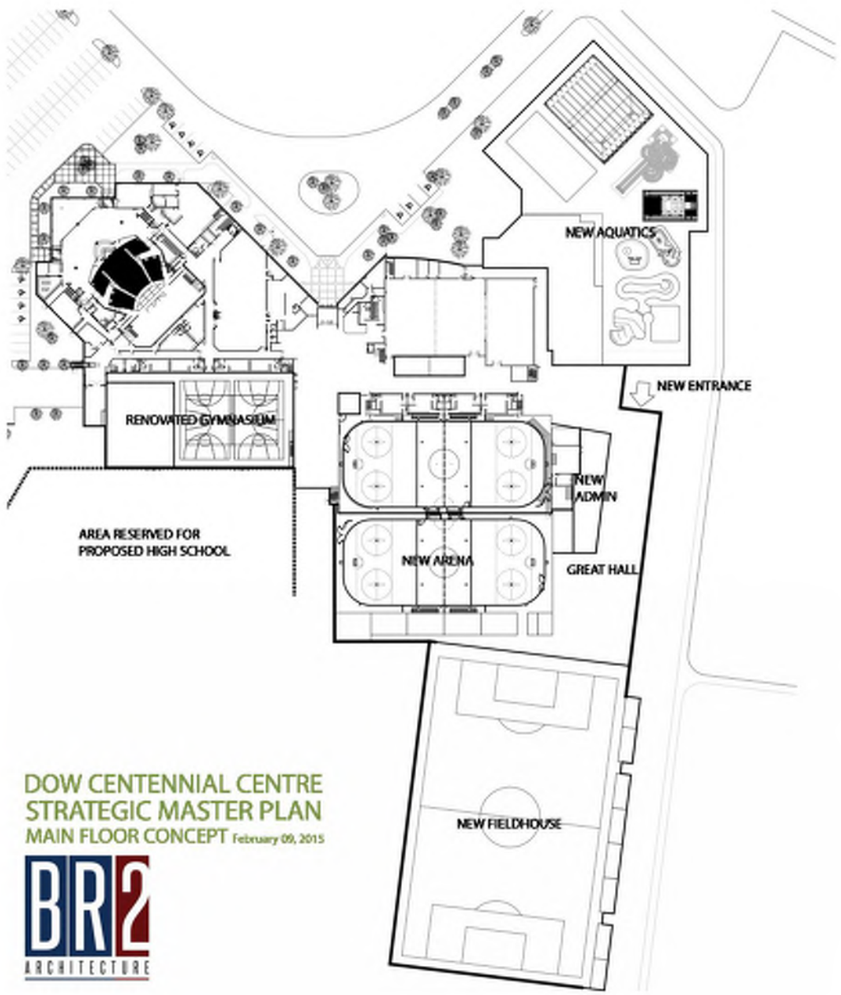
The southeast corner of the site is protected for the outdoor activities and spaces found in the Concept No. 1 Master Plan. Here you will find soccer pitches, two sports fields, a running track, junior and senior playgrounds, parks and special event spaces that can support activities such as municipal art, memorials, seasonal markets and community events. These amenities are located in such a way that allows for direct and easy access from the parking lot and the new addition to the DCC. As well the location of these outdoor amenities is well suited for the use and access by the proposed High School development.

The location of the proposed High School component was reviewed with relation to site access for student parking and bus access. The location on the southwest corner of the existing DCC provides direct access to Town Crest Road, on the west side of the site. This road is not a heavily used road and connects to the parking that is currently located on the north side of the building. This connection to the parking on the north side can potentially create shared parking for the school and the Shell Performing Arts Theatre and would capitalize on the different operating peaks for the two facilities. Integral to the site is the network of paths that would be directly connected to the existing path system as found in the community, and would strengthen the connection to the external community and promote non vehicular access to the site and facility.

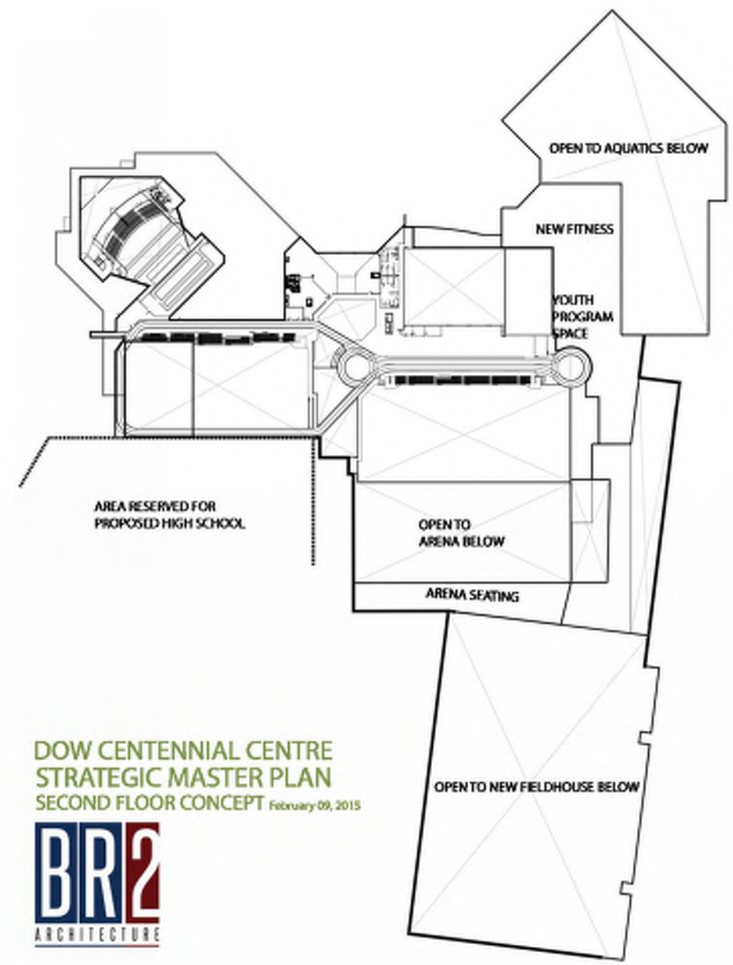


Concept No. 1 – Site Plan

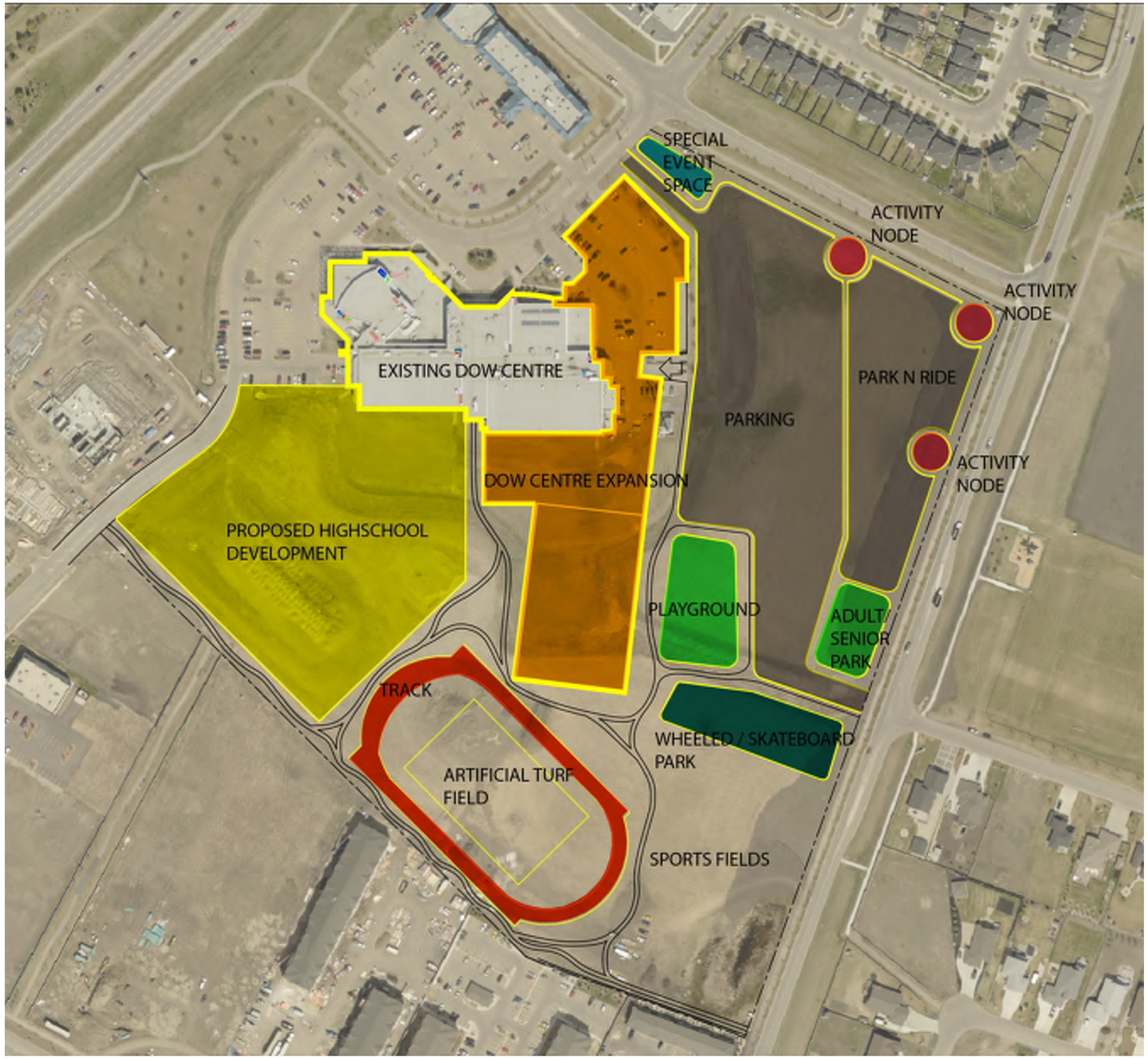
As a result of the Committee reviews of the Concept No. 1 Master Plan, some minor changes were recommended to the arrangement of the components and how they related to the existing facility. The driving force behind these changes was to create a twin arena and try to capitalize on the existing infrastructure in place, i.e. the ice resurfacer room and potentially the ice plant. This revision required a re-orientation of the fieldhouse and placed it on the far southeast corner of the facility.



Concept No. 1A – Main Floor Plan



Concept No. 1 – Second Floor Plan



Concept No. 1A – Site Plan

.2 Master Plan – Concept No. 2

Concept No. 2 of the Master Plan is a direct response to a review of the Concept No. 1 by the Committee. Building on the ideas and priorities set out during the design of Concept No. 1, the Committee reviewed the Master Plan and challenged the design team to see if there were any other ways of achieving the goals identified. In order to achieve the goal of creating an identifiable face for the facility, it was determined that the only other location for a new main entrance would be on the south side of the building. With this criteria established, the priority of adjacency was established to see what should be directly located beside the main entrance. Based on the components desired, it was agreed that the aquatics and the fieldhouse would be the best elements to flank the new entrance and create the new face of the DCC. The arena component was identified to be end on to the existing arena in order to share the infrastructure of the existing ice plant and ice resurfacer. With the expansion kept primarily to the south of the existing DCC, it is possible to keep the existing main entrance open and the rest of the facility operational with little interference from the new construction.

The organization of Concept No. 2 places the new aquatics and fieldhouse on the south side of the original DCC complex. The aquatics component is located on the southwest corner of the facility with the new fieldhouse located on the southeast corner of the building. This arrangement creates the opportunity to place the new entrance between these two components and maintains the ability to create a central hall to contain the administration, point of sale, customer service and main gathering/circulation space of the facility. The new main entrance located on the opposite side as the current main entrance reinforces the north / south axis of the facility, tying in all of the existing services and amenities found in the building, while maintaining a familiar and clear wayfinding for the users of the new and existing facility.

The new arena is placed to the east of the existing ice rink and adjoins the existing rink end on. This configuration allows for the ice resurfacer to service both the new and existing arenas and eliminates the need for two ice resurfacers. This configuration also allows for any crossover connections or use of the existing ice plant, thereby potentially reducing some of the required infrastructure for the new arena.

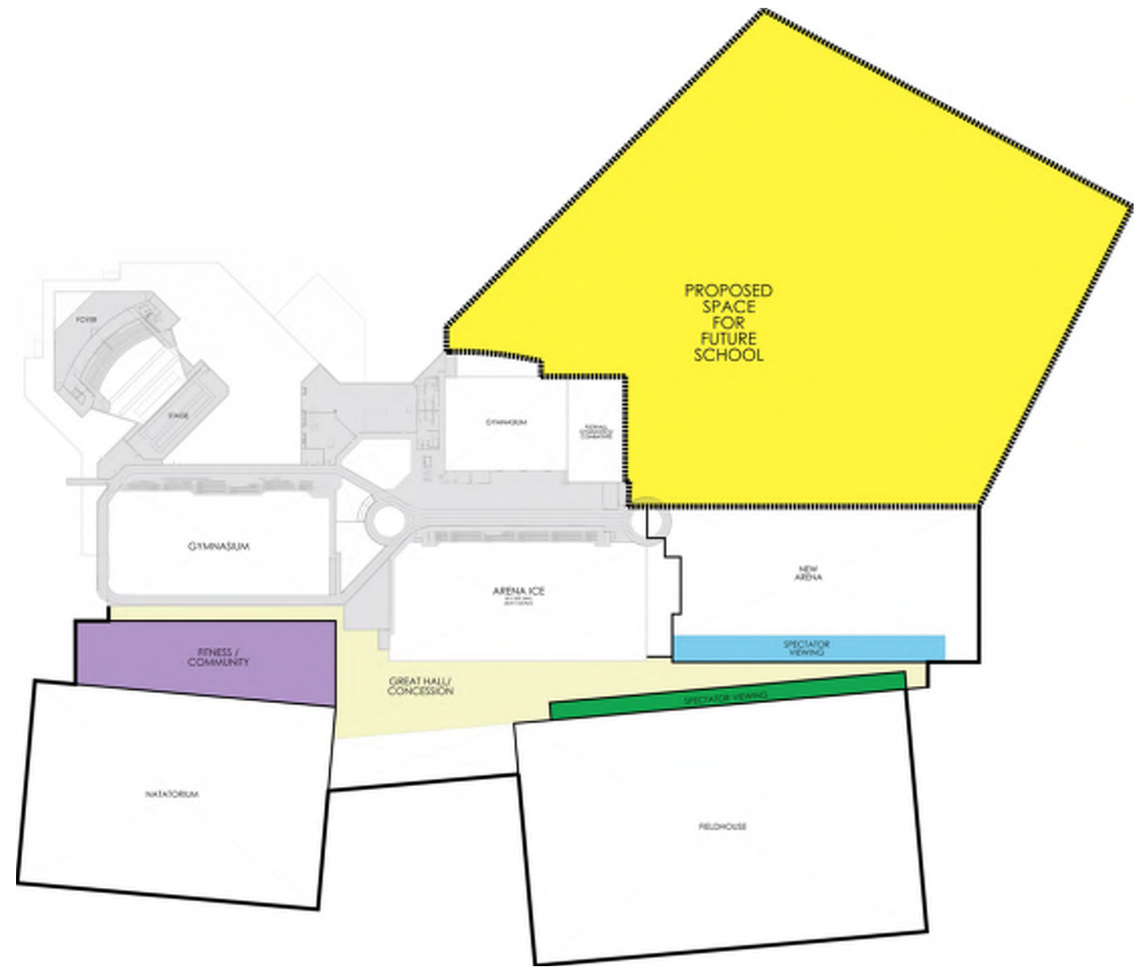
With all of the new development planned for the south side of the facility, the best location for the proposed High School development is to the northeast of the DCC. The benefit of having this location for a new High School would be the ability to create a location for the High School that would have visual frontage to a main street thereby creating a distinct identity for the High School, separate from the DCC.

Along with the previously identified program components, the banquet facility also requires additional area. It is desired to expand the banquet halls from the existing two halls to a total of three, by adding a new banquet hall. The expansion north of the facility allows for the direct connection to the existing server and service component of the banquet facility.

In addition to the banquet hall expansion, the existing fieldhouse in the DCC will undergo a transformation from the current indoor soccer venue, to a more gymnasium style facility focusing on multi-purpose activities as opposed to indoor soccer based activities.

Concept No. 2 – Main Floor Plan

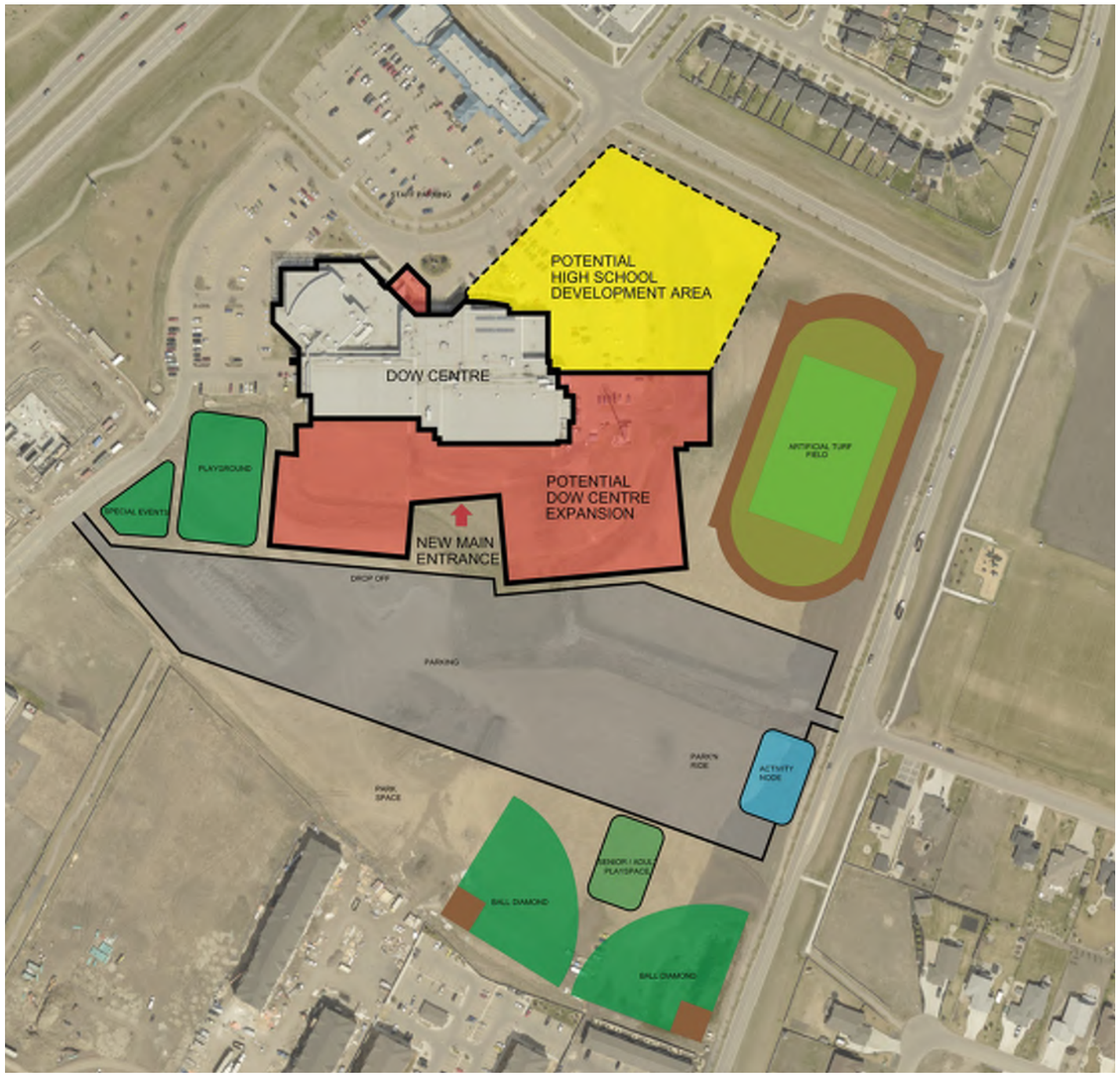
The second floor of the Concept No. 2 Master Plan follows the lead of the Concept No. 1 Master Plan and houses all of the spectator support spaces for the new amenities. The fieldhouse, arena and aquatics all have second level viewing into each of their spaces directly accessed from the corridor. The second floor would contain the two additional program spaces, the expansion to the existing fitness component and would utilize the space over the pool change rooms. This location provides direct adjacency to views into the pool environment from the upper level. The second additional program space found on the upper level is the youth program space. This location can be anywhere central to the new expansion and therefore provide equal access to all amenities.



Concept No. 2 – Second Floor Plan

The site design of the development engages the layout of the new additions to the complex but in a different manner. By placing parking and vehicle orientated activities to the center of the site and separating the play fields and outdoor activities to the north and south, the parking lot can serve each activity space more equally and allows for some distinction of areas for the High School and the DCC. As well, the parking lot can connect to both the Southfort Drive and Town Crest Road, allowing two separate accesses and exits from the parking lot. The parking lot will also contain the requirements for the potential park'n'ride program and additional activity nodes as identified in the next level of design. The running track and one play field would be located northeast of the parking lot and east of the proposed High School location. The remaining sports fields, soccer pitch, park space and play areas will be located south and west of the parking.

Enlarged Concept Design Drawings have been provided within **Appendix A**.



Concept No. 2 – Site Plan

2.5 Engineering Reviews

.1 Structural

The addition to the existing DCC facility as indicated in the preliminary architectural layouts will also be structurally possible. Protostatix Engineering Consultants Inc. was the original structural consulting engineers of the existing DCC, and as such are aware of the existing structure its history, and any associated critical areas that may require special attention.

Based on their experience with the existing DCC the challenge with the existing building was to overcome weak soil conditions. Dynamically cast-in-place (compacto or Franki) piles were utilized as a foundation system and we will assume that the same system will be utilized for the new proposed addition.

As far as the proposed structural systems for the superstructure the following systems are recommended:

.1 Main Floor

A reinforced cast-in-place slab on grade will be provided for the main floor. The floor will consist of 130 mm reinforced concrete slab unless noted otherwise by the soils report, resting on compacted 150 mm clean well-graded granular base over native clay till soils below. Cast-in-place concrete structural supported floors will be provided for all exterior concrete stoops at doorways, and any other areas which may be designated as "sensitive to movement", such as the new swimming pool.

.2 Second Floor

The second floor structure will consist of 125 mm reinforced concrete topping over 38 mm composite steel deck, supported by a series of steel joists on top of load bearing masonry walls, and or steel beams and columns.

.3 Mechanical Rooms

Pending the architectural layout, if a new mechanical room will be necessary at a mezzanine level, the floor system for the mechanical room will consist of 125 mm thick reinforced concrete topping acting composite with 38 mm steel decking, supported by steel beams.

Utilization of steel deck and joists becomes feasible and economically viable due to multiple units, where the repetitive use of standard components manufactured in a factory may be fully utilized.

This system has excellent structural rigidity and at the same time provides fire resistance, sound control, durability, low maintenance and rapid construction, thus eliminating any unwanted construction waiting periods.

.4 Roof System

The roof structure over the new addition will consist of a combination of steel deck supported by steel joists, beams, and steel trusses, which is compatible to the existing building.

Exposed steel trusses will be utilized to support the roof over the pool areas, as well above areas that maybe required to satisfy the architectural design.

.5 Wall System

152 mm insulated metal studs in combination with masonry walls will be utilized for the construction of the new perimeter walls.

.6 Site Construction Overview

Pre-fabrication of structural members combined with speed of erection saves valuable overall construction time. Pre-fabricated steel joists, beams, and steel deck are manufactured and precut to length while foundations and site work proceed at the same time, allowing delivery and erection from truck to structure on a precise and predetermined construction schedule. Once installation of the precut members is underway, construction of the roof will proceed shortly afterwards, thus reducing unwanted construction schedule delays.

In terms of the structure it will be environmentally friendly mainly by using construction materials high in recycled content. Steel is one of the most recycled construction material in the industry. Components of recycled materials proposed for the new addition, will include but are not limited to: structural steel members, steel stud, open webbed steel joists, roof and floor deck, rebar, and other miscellaneous metals. Steel products, being shop fabricated, also reduce the amount of waste compared to other construction materials.

For the concrete components of the structure, an effective mix will be designed where fly ash, slag or silica fume replace a certain percent of the cementitious materials. Replacing Portland Cement with recycled content in this way is a sustainable design choice that will also result in cost savings. Recycled aggregate will also be used in concrete structures, as well as for base course for the slab-on-grade.

.2 Mechanical

This architectural option involves a major expansion to the existing DCC facility. The mechanical requirements for this upgrade are:

.1 Aquatics

.1 Site Servicing

Upgrade existing DCC gas service and add new 2 PSI distribution to expansion area to accommodate additional gas fired equipment.

Add new DCW lines from existing main water service to new facility expansion area.

Reuse existing sprinkler tree fire pump system and add new sprinkler zone to service expansion. Sprinkler to NFPA 13.

New sanitary and storm Drainage service the expansion areas where the existing services may be inadequate.

.2 Mechanical Plumbing

Review existing domestic hot water system for recovery rates and storage capacities to accommodate the additional domestic heating water loads for the expansion. Retrofit the system to include additional heaters and/or storage tanks to accommodate. If retrofitting the existing system is not feasible, a new dedicated system can be utilized for the expansion.

New Infrared high efficiency low flow water closets, urinals and lavatories suitable for the facility.

New electronic, push button shower valves complete with vandal resistant shower head and thermostatic mixing valve.

New mop sinks to suit programming requirements.

New roof drains, floor/trench drains to suit architectural design.

.3 Mechanical Heating Plant

New boiler plant with Condensing boilers, pumps, air separator and expansion tank.

New heat exchangers to provide heating to each new pool.

New heating distribution loop.

New terminal heating equipment for perimeter/envelope heating.

.4 Mechanical Air Systems

New Natatorium ventilation air supply system and exhaust system to provide pool and change room ventilation.

Glycol heat recovery system complete with air to water heat exchangers, circulation pump, air separator expansion tank.

.5 Controls

Expand and integrate a DDC control system complete with energy management system to allow for the trending of HVAC system function and allow for enhanced system operation by identifying existing and potential energy waste in the mechanical systems.

.6 Pool Filtration

New Sand and/or Regenerative Media Filters c/w pumps, controls and distribution piping, inlets, outlets to accommodate new pools.

Pool Disinfection and Water chemistry system c/w dosing pumps and controls.

New surge tanks and/or backwash buffer tank to prevent surging existing sanitary service lines.

.7 Demolition/Renovation Scope

Some demolition and renovation will be required where the new expansion areas tie into the existing facility. Some scope such as relocation of existing plumbing, heating terminals and ventilation distribution piping and/or ductwork and drainage.

.2 Arena, Fieldhouse and Other Expansion Areas

.1 Site Servicing

The new expansion areas will require an upgrade to the existing gas service. A review of the existing and proposed loads will determine the gas requirements for the expansion areas and a new dedicated 2-5PSI gas pressure line will be routed through the facility to service these spaces.

The existing plumbing service will be reviewed to ensure the service size is sufficient to accommodate domestic water and sprinkler services to the new expanded areas. Were required, new water and gas services can be coordinated to supplement the existing services.

The new areas will require new dedicated sanitary and storm services from the adjacent utilities services.

.2 Mechanical Plumbing

Review existing domestic hot water system for recovery rates and storage capacities to accommodate the additional domestic heating water loads for the expansion. Retrofit the system to include additional heaters and/or storage tanks to accommodate. If retrofitting the existing system is not feasible, a new dedicated system can be utilized for the expansion.

New Infrared high efficiency low flow water closets, urinals and lavatories suitable for the facility.

New electronic, push button shower valves complete with vandal resistant shower head and thermostatic mixing valve.

New mop sinks to suit programming requirements.

New roof drains, floor/trench drains to suit architectural design.

.3 Mechanical Heating Plant

New boiler plant with Condensing boilers, pumps, air separator and expansion tank. Sized to offset new expansion areas and to complement existing systems and

New heating distribution loop.

New terminal heating equipment for perimeter/envelope heating.

Due to the large scope of the expansion for the DOW center, opportunities to consolidate the heating plants are recommended to reduce overall equipment and operational and maintenance costs. This would entail a study of the entire existing facility in conjunction with the new expansion heating requirements and the design of a larger consolidated heating plant. Although the cost would be dramatic. Depending on the timing of the expansion, it may potentially coincide with the timing of equipment replacements and be an attractive option for further review.

.3 Mechanical Systems

.1 Ice Arena

The new arena will require a new centralized ammonia ice chiller plant dedicated for the expansion. This will include a new water cooled chiller plant and outdoor cooling tower. As an alternative, a packaged air cooled chiller can be considered depending on the size of the ice sheets and overall cooling requirements.

The ventilation system will be comprised of a dedicated air system, gas fired makeup air unit with integrated gas fired desiccant regeneration wheel for the arena. Since the existing facility is undergoing a major retrofit to go away from a heat recovery system from the ice plants, a heat recovery system will not be considered for the expansion.

.2 Fieldhouse

The fieldhouse will incorporate a mechanical assisted ventilation system comprising with a recirculating air unit with economizer function together with interlocked exhaust systems. A glycol run around loop can be considered for the heat recovery to suit the facilities goals in energy conservation. The ventilation system will also incorporate the integration of DE stratification fans to complement the energy conservation goals of the facility.

.3 Gymnasium, Fitness Areas and Spectator Areas Overlooking Fieldhouse

Gymnasium and fitness areas will implement additional packaged gas fired rooftop units dedicated for those spaces. The units will be ASHRAE 90.1 compliant and MNECB compliant and be sized to accommodate the minimum ventilation requirements for the spaces. The units will be specified with a powered supply fan, powered exhaust fan and economizer function for energy savings.

.4 Controls

Expand and integrate a DDC control system complete with energy management system to allow for the trending of HVAC system function and allow for enhanced system operation by identifying existing and potential energy waste in the mechanical systems.

.5 Demolition/Renovation Scope

Some demolition and renovation will be required where the new expansion areas tie into the existing facility. Some scope such as relocation of existing plumbing, heating terminals and ventilation distribution piping and/or ductwork and drainage.

.3 Electrical

The electrical information within this report is intended to indicate the upgrades required to accommodate the proposed addition.

.1 Power Service And Distribution

Based on the proposed addition of lap pool, program pool, surf rider, and administrative area and new the mechanical loads, the existing electrical service to the facility will have to be upgraded.

The exact size of service to be determined during the detail design. To keep the existing facility in operation, a new electrical room should be provided for in the addition. This new electrical room will feed the existing service.

.2 Lighting

The existing lighting throughout the facility and controls will be reviewed in detail at the time of detail design in reference to age of fixtures and the possibility of replacement with new LED type.

Lighting throughout the addition will utilize LED type fixtures and the possibly of utilizing LED suspended direct/indirect fixtures throughout the pool areas.

.3 Lighting Control

Lighting control throughout the addition will utilize low voltage switching with master switch detail located in the pool office for all areas of the pools.

.4 Emergency Lighting and Exit Lighting

The existing facility's emergency lighting and exit lights will be reviewed during detail design in reference to locations and conditions. Within the new addition exit and emergency lighting will be provided to meet all current code requirements.

.5 Telephone System

Telephone/data requirements will be reviewed with the City of Fort Saskatchewan during design with their IT personnel.

.6 Security System

Security system requirements will also be reviewed during detail design in reference to door access, card readers and CCTV cameras.

.7 Fire Alarm System

The existing facility is equipped with a fire alarm system. This system will be investigated in reference to its capacity to handle the proposed addition.

3.0 Cost Opinion

3.0 COST OPINION

A cost opinion was generated by Altus Group at the request of BR2 Architecture. The complete cost opinion is contained in **Appendix B** and was completed as a high level assessment of the Master Plan presented by the design team. This cost opinion required many assumptions based on the limited level of detail available from the design concept and takes into account current market conditions, construction values and historic costing of other projects that are similar in scope, size or program elements. The costing presented gives a solid representation for a typical addition of this size and magnitude.

4.0 Conclusion

4.0 CONCLUSION

In conclusion, the progression of the thinking and feedback from the Design Committee has evolved the Master Plan from the original Concept No. 1, into Concept No. 1A, finally culminating in the Concept No. 2 as presented in this report. Concept No. 2 was selected for further public consultation and this consultation occurred in April of 2015.

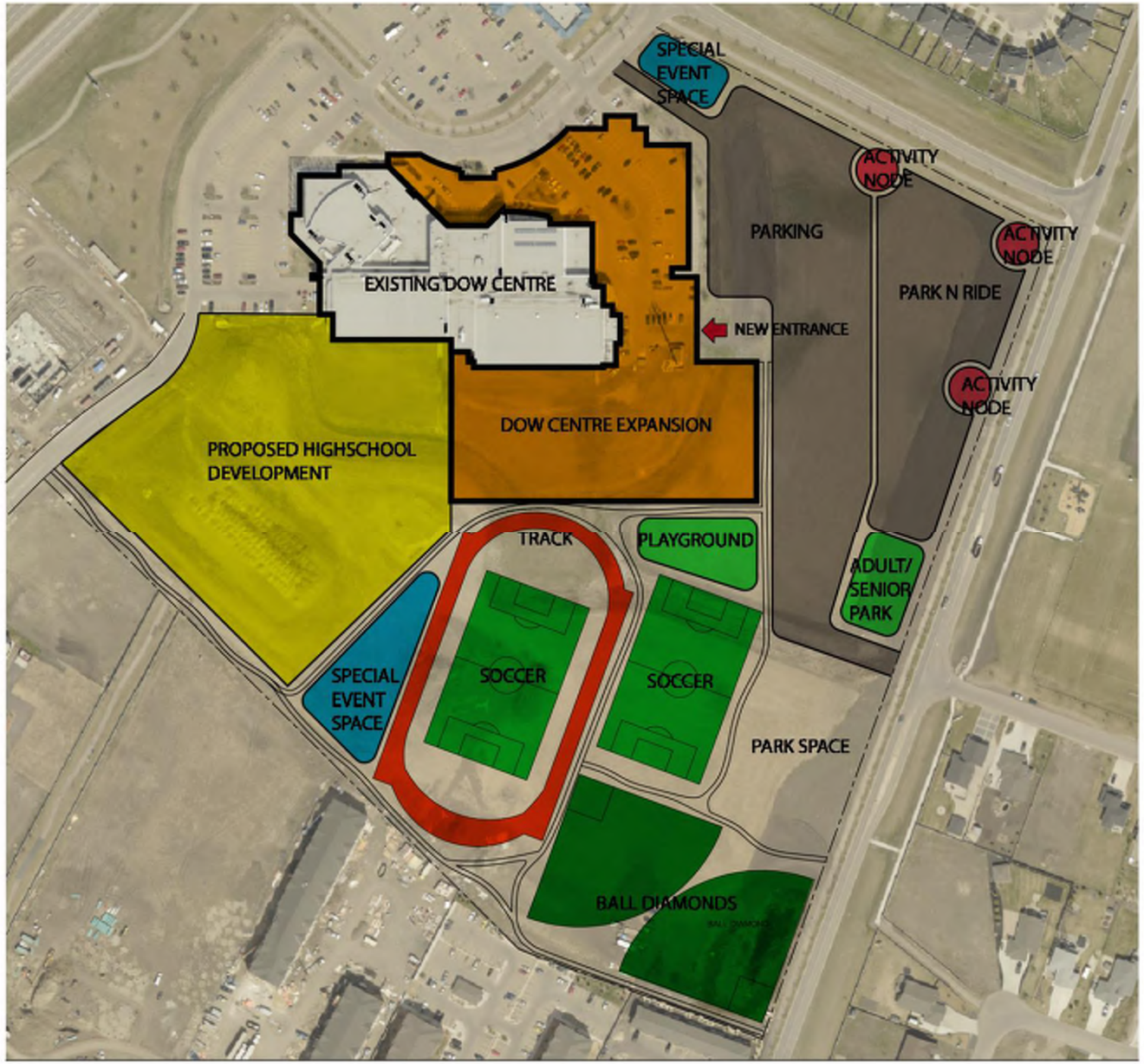
The Master Plan presented here does not include any feedback or revisions based on the public engagement process and it would be recommended that the review of this Master Plan coincide with the results of the public engagement process.

This Master Plan identifies that the feasibility of adding the desired components to the existing DCC can be achieved on the site while maintaining enough site area for additional outdoor program spaces and amenities, as well as providing ample parking opportunities for both the users and a park'n'ride program.

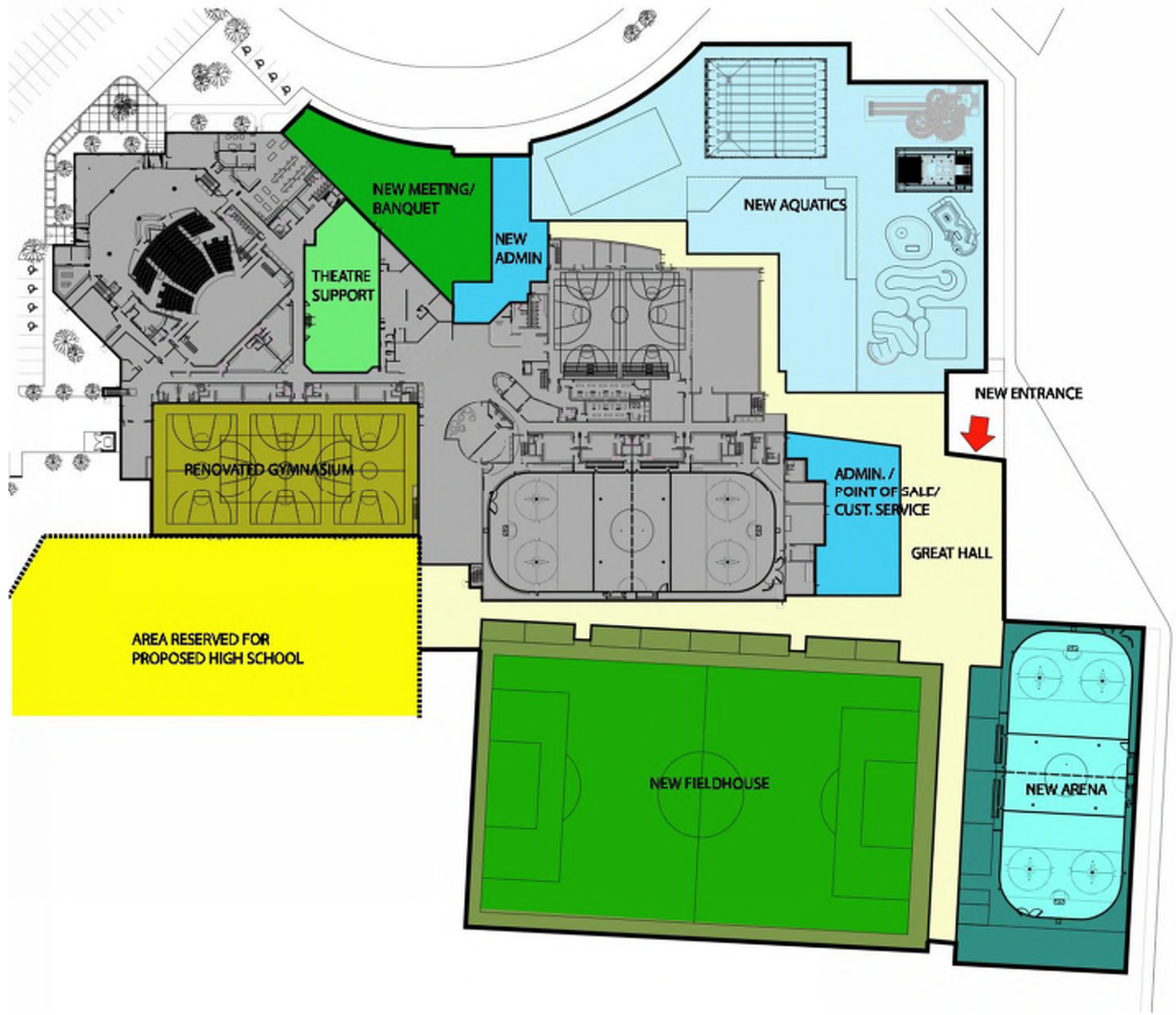
With this Master Plan in hand and the previous Recreational Facility Evaluation Reports commissioned on numerous recreation facilities throughout the City of Fort Saskatchewan, the City can move forward with the task of making informed decisions on the future of recreation in Fort Saskatchewan.

Appendices

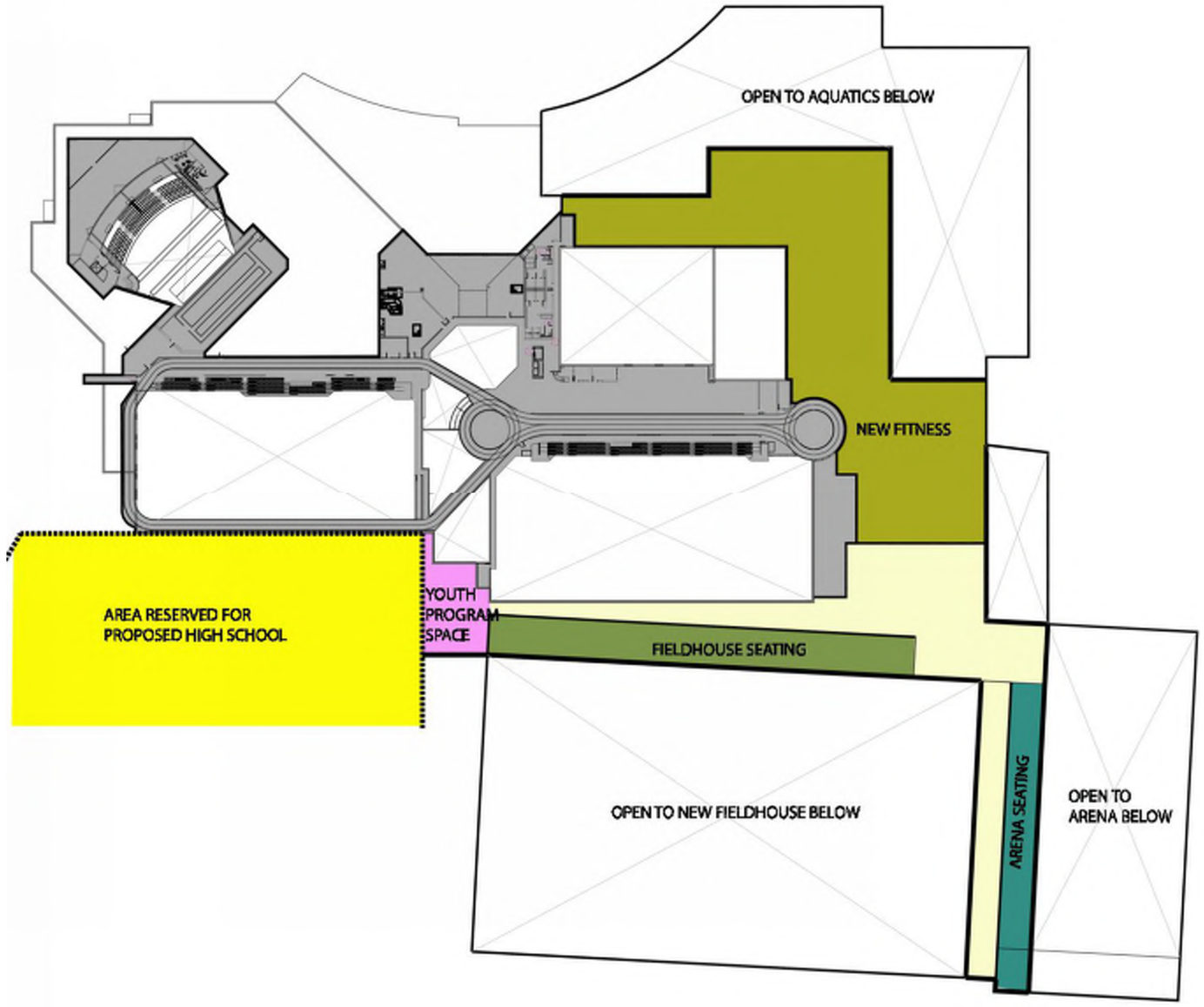
Appendix A – Master Plan Design Drawings



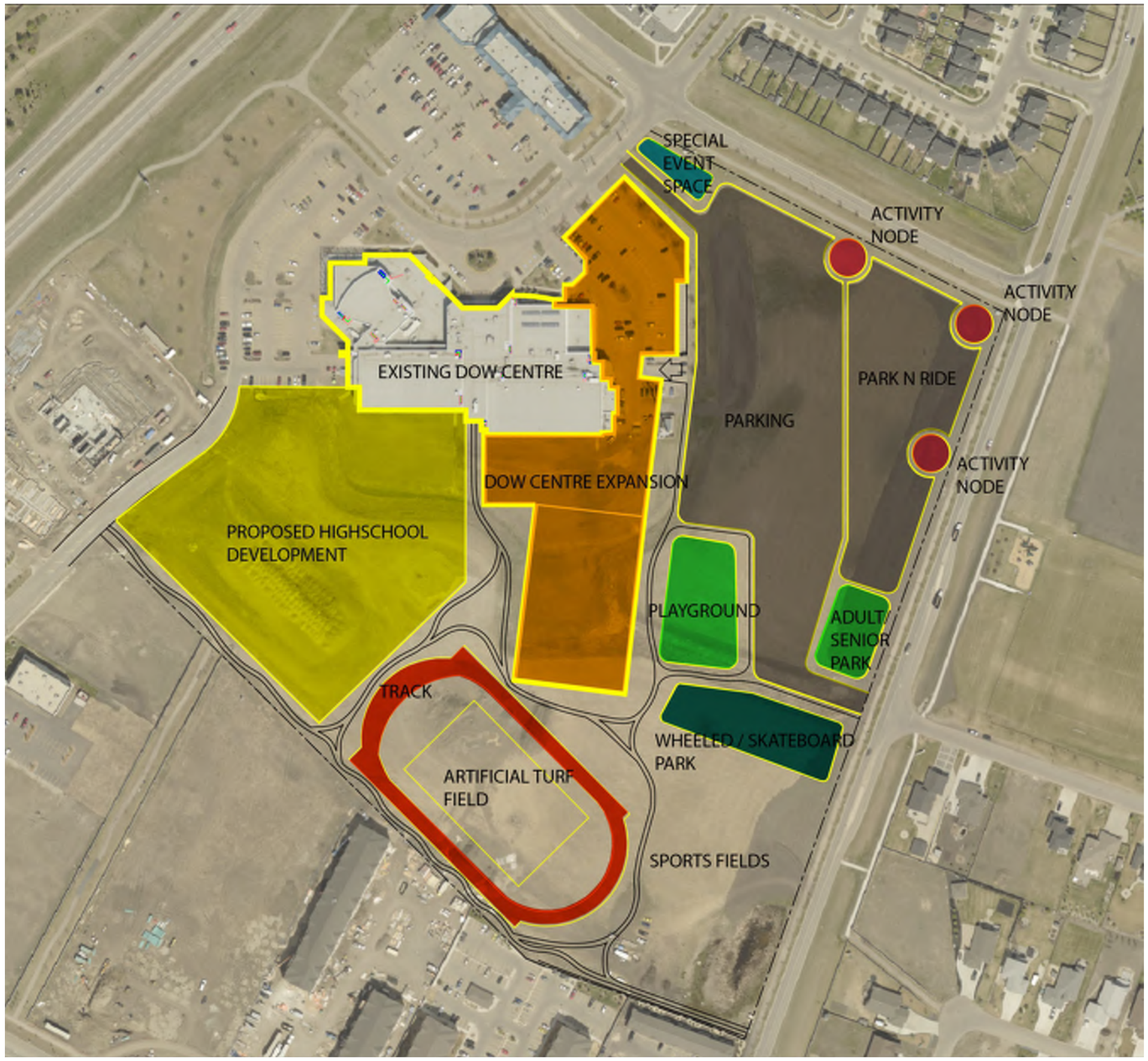
Dow Centennial Centre – Site
CONCEPT NO. 1



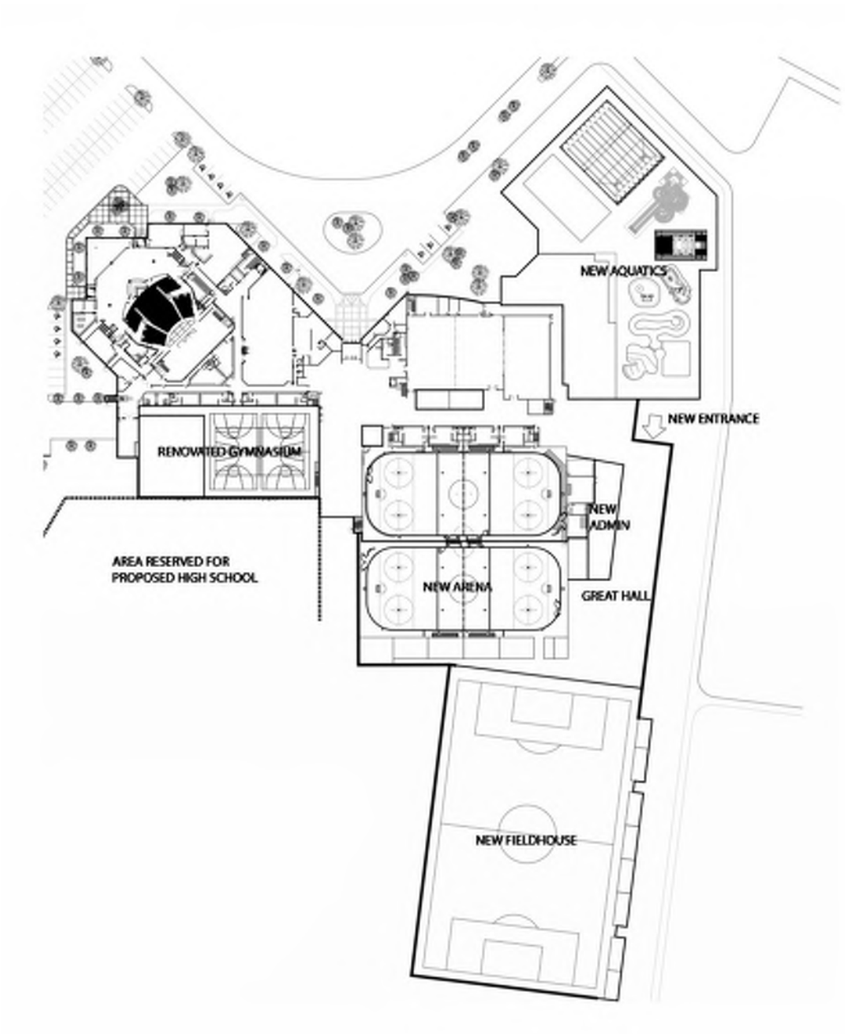
Dow Centennial Centre – Main Floor
CONCEPT NO. 1



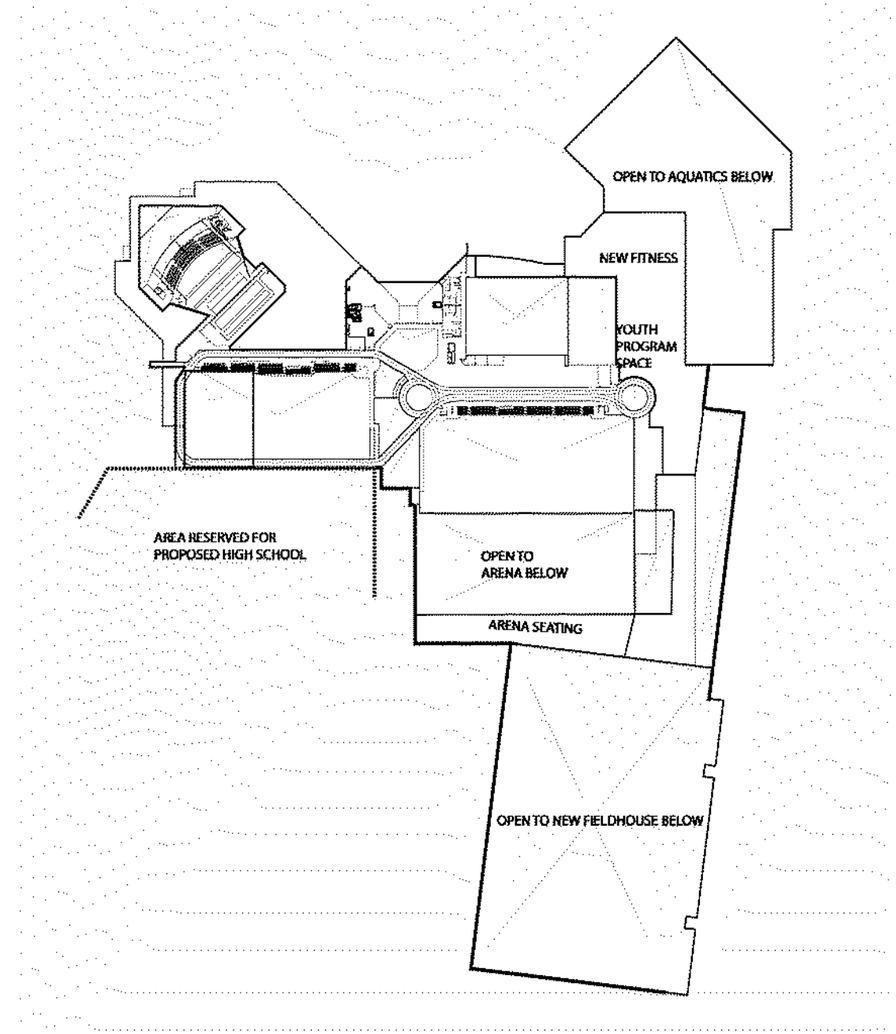
Dow Centennial Centre – Second Floor
CONCEPT NO. 1



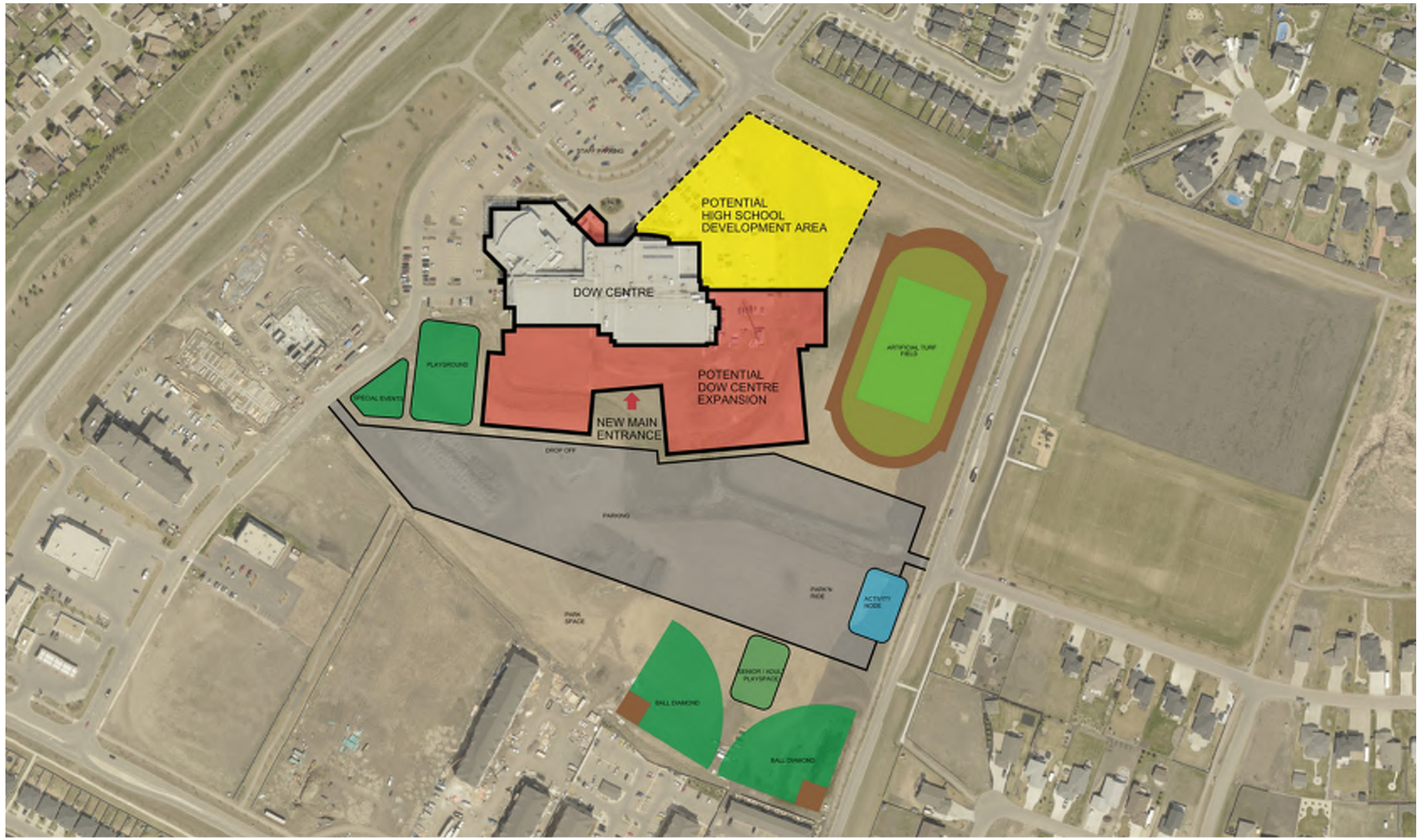
Dow Centennial Centre – Site CONCEPT NO. 1A



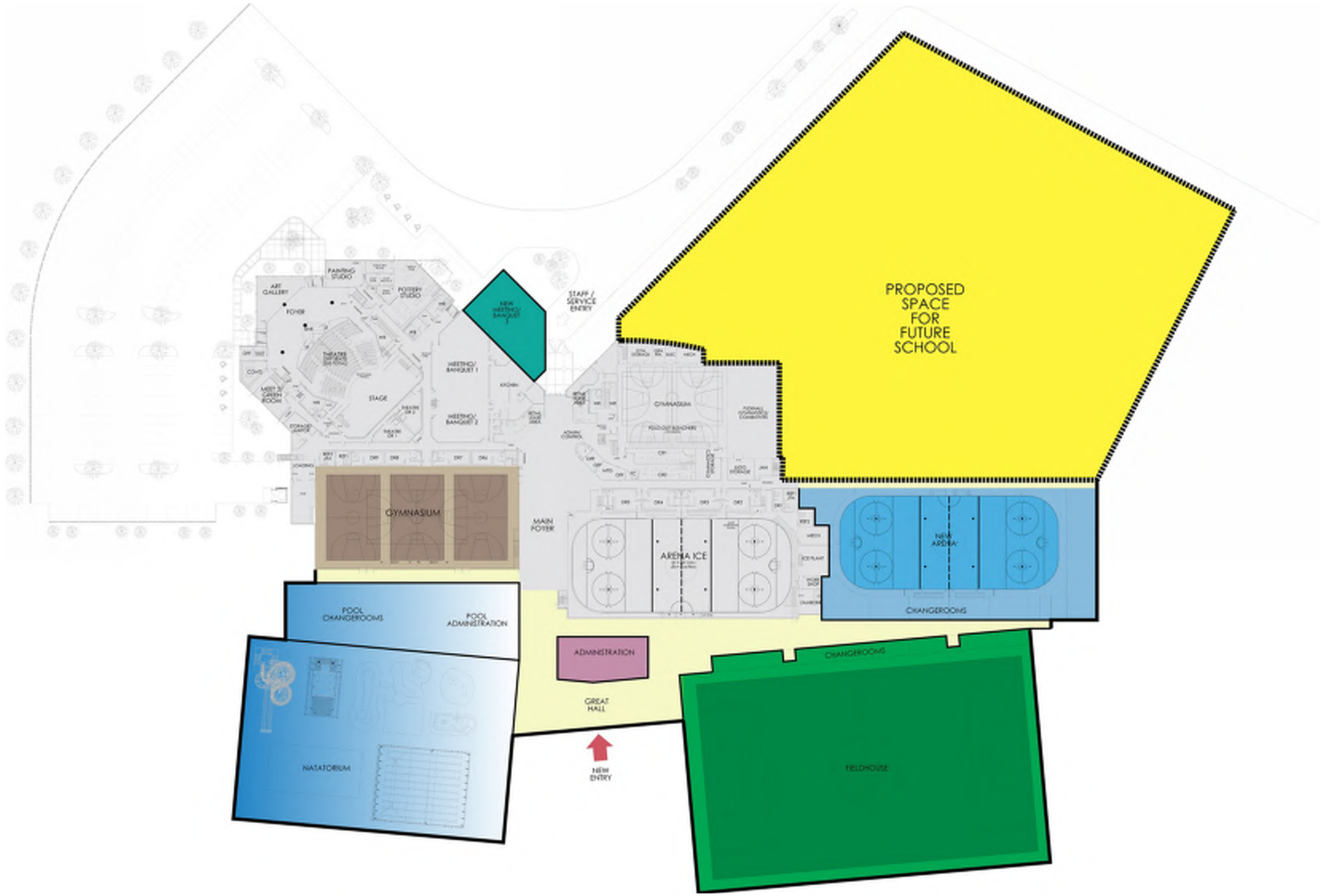
Dow Centennial Centre – Main Floor
CONCEPT NO. 1A



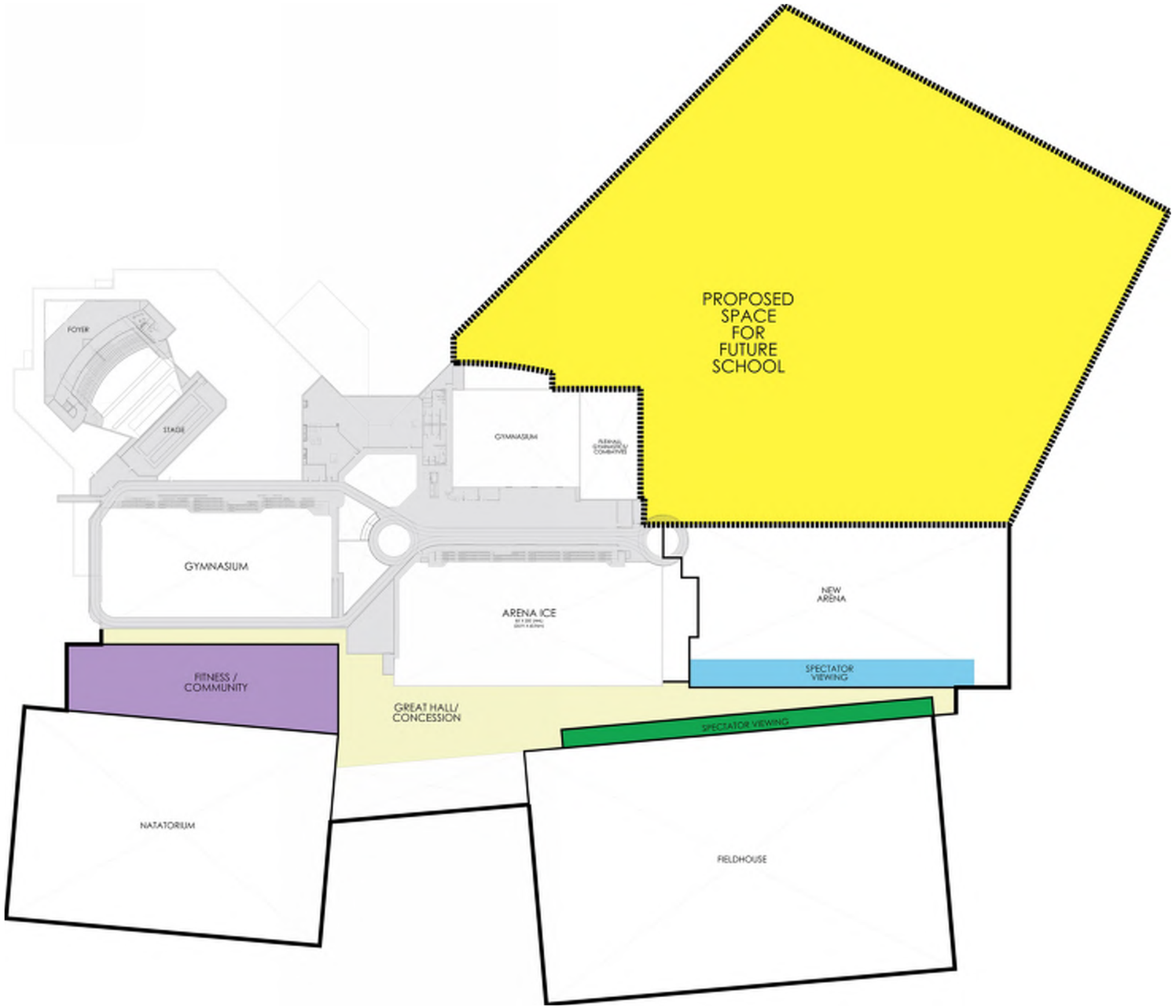
Dow Centennial Centre – Second Floor
CONCEPT NO. 1A



Dow Centennial Centre – Site
CONCEPT NO. 2



Dow Centennial Centre – Main Floor
CONCEPT NO. 2



Dow Centennial Centre – Second Floor
CONCEPT NO. 2

Appendix B – Cost Opinion

DOW CENTENNIAL CENTRE – MASTER PLAN

Fort Saskatchewan, Alberta

FUNCTIONAL/CONCEPTUAL DESIGN CONSTRUCTION COST ESTIMATE

Updated Draft

Prepared for:
BR2 ARCHITECTURE
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Edmonton, Alberta T5N 1N8
Phone: 780.423.6606

Prepared by:
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Issued: February 20th, 2015
Job No. 12130.100040.000

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Street Smart. World Wise.

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February 20th, 2015

Job No.:12130.100040.000

BR2 ARCHITECTURE
201, 10441-123 Street
Edmonton, Alberta T5N 1N8

Attention: Mr. Shaun Visser

Re: Dow Centennial Centre Master Plan - Functional Construction Cost Estimate

Dear Shaun,

We submit for your review the Functional Conceptual Design Construction Cost Estimate, in accordance with the terms of our engagement.

Please note that this estimate in general includes all direct and indirect construction costs, general conditions, as well as contractor's overheads and profit. The estimate also addresses the following contingencies and allowance values, detailed within the body of this report.

- 10% Design and pricing contingency has been included
- Escalation of construction costs to anticipated tender dates has not been included, as the timeline for design and construction has not been contemplated
- Construction (change order) contingency has been included; at a recommended percentage 5.5%, as the construction is primarily new build

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Should you have any questions related to this report please do not hesitate to contact Curtis Cameron at the address listed below.

Yours truly,

ALTUS GROUP LIMITED

Per: Curtis Cameron, PQS, C.E.T.
Associate

Per: Kevin Ellis, MBA, FRICS, PQS
Senior Director

Updated Draft

Contents

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1 Introduction 1

2 Project Details 1

3 Contingencies 3

4 Project Description and Scope Assumptions 4

5 Project Statistics 5

6 General Statement of Liability 5

Appendices
Appendix A – Cost Estimate Summary
Appendix B – Cost Estimate Details
Appendix C – Drawings / Documents List

Updated Draft

1 Introduction

1.1 Scope

The scope of work includes primarily the construction of a new aquatics center, a new arena, a new field house and a central administration space (great hall) to tie the new functional spaces together. In addition new parking, a park and ride, new baseball diamonds, new track and field, connecting pathway were also considered and included in the estimate. An allowance was made for the demolition and renovations required to the existing facility due to the contemplated new construction.

The Functional Construction Cost Estimate is intended to provide a realistic budget check based on the design information provided. The estimate reflects our opinion as to budget value for the construction of this proposed project.

The estimate includes all direct and indirect construction costs consistent with the information provided for the project. Certain exclusions and qualifications may apply; please refer to Section 4.2 and the detail contained within the functional estimate included within the Appendices.

2 Project Details

2.1 General Information

From the information provided, we have measured quantities where possible and applied unit rates for the specific item of work based on historical and current cost data for this type of project. Where design information was limited, we have spoken and/or attended meetings with the relevant design discipline or indeed made design assumptions based upon our experience on projects of a similar type, size, and standard of quality.

We confirm that for the development of this report, we spoke to the prime consultant (Architect).

2.2 Location

The location cost base for this estimate is Fort Saskatchewan, Alberta.

2.3 Measurement and Pricing

The estimate has been derived using generally accepted principles on method of measurement as per the Canadian Institute of Quantity Surveyors Elemental Cost Analysis.

The rates used and developed for this estimate where applicable include labour and material, equipment, and subcontractor's overheads and profit. Pricing developed for this project is based upon our firms and indeed teams experience with similar projects, and/or quotes provided by subcontractors as noted within the estimate.

Updated Draft

2 Project Details (Continued)

2.4 Environmental Sustainability

The estimate incorporates design elements consistent with a sustainable project as identified within the design information provided for this project. Although the design and pricing incorporates energy efficient and sustainable elements, actual certification with a regulatory body has not been included in the estimate.

2.5 Taxes

The estimate excludes the Goods and Services Tax (GST).

2.6 Fees and General Requirements

The general requirements and fee included within the estimate for the General Contractor is included as a percentage of the hard construction cost. The general requirements are based on our assumptions of the anticipated construction approach and construction schedule for the project. The general requirements percentage includes the cost associated with bonding and insurance, however excludes development and/or building permit costs.

2.7 Procurement Methodology

We have assumed that the project will be procured with a Stipulated Lump Sum approach under a CCDC standard form of contract. We have assumed a minimum of 5 General Contractor bids and at least 3 major subtrade/supplier bids received for all trade categories to establish competitive bidding and tender results. The estimate is a determination of fair market pricing and not a prediction of lowest bid in any trade category.

2.8 Schedule / Phasing

The existing occupied facility will remain open during construction and will be completed as a single project; decanting during the construction process should be minimal. Decanting costs have not been included in this construction cost estimate. The unit rates in our estimate are based on construction activities occurring during normal working hours and proceeding within a non-accelerated schedule.

2.9 Gross Floor Areas / Project Statistics

The gross floor areas for this project have been measured in accordance with the Canadian Institute of Quantity Surveyors Standard Method of Measurement. Detailed areas and project statistics are included in Section 5 of this report.

Updated Draft

3 Contingencies

3.1 General

The effective use of contingencies in construction cost planning requires a clear understanding of estimating risks in both a project specific and general construction market sense. The appropriate level of contingency is dependent on the amount of information available, knowledge of the design teams' methods and philosophy, the timing of the estimate preparation relative to the project design and construction schedule, and the anticipated complexity of the construction work.

3.2 Design and Pricing Contingency

10.0% design and pricing contingency has been included in the estimate. This allowance is meant to cover the design and pricing evolution of the tabled design during the preparation of this estimate, this contingency is not intended to cover additional scope or additional functional program requirements.

3.3 Escalation Allowance

Construction escalation has been excluded from this report. This allowance typically addresses anticipated changes in construction costs due labour and material increases between the date of this estimate and the anticipated tender date for the project, however no timelines were provide so this allowance was excluded.

3.4 Construction (change order) Contingency

Construction (change order) contingency has been included from this report, at the recommended percentage, 5.5% of the hard construction cost for change orders that may occur during the construction phase of the project.

3.5 Phasing Allowance

0.0% phasing contingency has been included; it is assumed the new construction can be completed in a single phase with minimal disruption to the existing facility, while maintaining access to a functioning work environment for the occupants. It should be noted this estimate does not cover the decanting of the occupants.

Updated Draft

4 Project Description and Scope Assumptions

4.1 Inclusions and Assumptions

All details of inclusions and assumptions are specifically described and itemized within the various estimate details located in the Appendices of this report. Please refer to the Appendices for assumptions and/or design for the applicable option.

4.2 Exclusions

The following is excluded from the estimate:

- Goods and Services Tax (GST)
- Soft costs and professional fees
- Land, survey and associated costs
- Moving / Relocation Cost
- Removal and/or handling of hazardous/contaminated material
- Acceleration Premium
- Owner's administration expenses
- Legal fees
- Marketing/promotion
- Realty taxes and levies, if applicable
- Operating expenses
- Interest/finance charges
- Remedial work to existing buildings/structures/property (unless noted)
- Owner supplied FF&E (except as noted)
- Loose furniture and equipment
- Development and/or building permit fees
- Extensive winter construction
- Market (non-competitive) allowance

The estimate is based on a building Gross Floor Areas, measured and priced by Altus Group Limited and verified by the Architect.

Updated Draft

5 Project Statistics

5.1 Gross Floor Area / Project Statistics

Scope	Quantity As Measured	Unit of Measure
Aquatics Facility	4,552	m2
Arena	3,317	m2
Great Hall	4,661	m2
Field House	6,442	m2
sub-total	18,972	m2
Site	89,364	m2
TOTAL AREA	108,336	m2

6 General Statement of Liability

6.1 Probable Costs and Ongoing Cost Control

Altus Group Limited does not guarantee that tenders or actual construction costs will not vary from this estimate. Acute market conditions, proprietary and/or sole source specifications, or reduced competition among contractors will cause tenders to vary from reasonable estimates based on normal and abnormal competitive conditions.

Altus Group Limited recommends the owner and/or design team review the cost estimate report including line item descriptions, unit prices, allowances, assumptions, exclusions, and contingencies to ensure the appropriate design intent has been accurately captured within the report.

It should be noted that cost consultants are not qualified to confirm that construction work and design is in accordance with approved plans and specifications.

Updated Draft

Dow Centennial Centre – Master Plan
Fort Saskatchewan, Alberta

Report Date: February 20th, 2015

Updated Draft

Appendix A

Cost Estimate Summary

FUNCTIONAL/CONCEPTUAL DESIGN CONSTRUCTION COST ESTIMATE

Street Smart. World Wise

AltusGroup

AltusGroup

Job No: 12130.100040.000
February 20th, 2015

Dow Centennial Centre - Master Plan
FUNCTIONAL/CONCEPTUAL COST ESTIMATE
Fort Saskatchewan, AB
February 20th, 2015

EXECUTIVE SUMMARY
The 'Hard' Construction Cost Estimate can be summarized as follows :

Component		GFA(m2)	GFA(sf)	$/m2	$ ESTIMATE
New Aquatics Centre		4,552	48,998	$4,369	$19,886,100
New Arena		3,317	35,704	$2,612	$8,662,800
New Great Hall		4,661	50,171	$2,707	$12,615,300
New Field House		6,442	69,342	$1,969	$12,685,700
Sub Total - GFA (Excluding Site, Renovation and Demolition)		**18,972**	**204,215**	**$2,938**	**$53,849,900**
Demo Existing Dow Centre		724	7,793	$150	$108,600
Demo Existing Parking Lot		5,834	62,797	$20	$136,680
Renovation Allowance	Allowance				$2,000,000
Sub Total - GFA (Including Site)		**18,972**	**204,215**	**$2,956**	**$56,075,180**
Site Development :					
Parking Lot (includes curbing and lighting)		19,209	206,766	$100	$1,920,900
Park and Ride (includes heavy duty asphalt, curbing and lighting)		8,773	94,433	$120	$1,052,760
Baseball Fields (includes fencing and infield)		9,244	99,502	$40	$369,760
Track (includes synthetic field, and simple shale track)		14,250	153,387	$80	$1,140,000
New Pathway (1.5m wide, assumed simple asphalt)		4,080	43,917	$50	$204,000
Landscaping (combination of hard and softscape)		33,808	363,909	$25	$845,200
Mechanical Site Servicing (Assumes service to site is adequate for expansion)		18,972	204,215	$15	$284,580
Electrical Site Servicing (Assumes service to site is adequate for expansion)		18,972	204,215	$10	$189,720
TOTAL CONSTRUCTION COST (excluding Contingencies)		**18,972**	**204,215**	**$3,272**	**$62,052,000**
Design Contingency	10.0%	18,972	204,215	$327	$6,208,200
Owners Change Order Contingency	5.5%	18,972	204,215	$180	$3,414,510
TOTAL CONSTRUCTION COST (Excluding GST)		**18,972**	**204,215**	**$3,780**	**$71,705,000**
Goods and Services Tax (GST)					EXCLUDED
TOTAL CONSTRUCTION COST (Excluding GST)		**18,972**	**204,215**	**$3,780**	**$71,705,000**

Updated Draft

Dow Centennial Centre – Master Plan
Fort Saskatchewan, Alberta

Report Date: February 20th, 2015

Appendix B

Cost Estimate Details

Updated Draft

FUNCTIONAL/CONCEPTUAL DESIGN CONSTRUCTION COST ESTIMATE

Street Smart. World Wise

AltusGroup

ELEMENTAL COST SUMMARY

FUNCTIONAL/CONCEPTUAL COST ESTIMATE

AltusGroup

Project: Dow Centennial Centre - Master Plan — Aquatics Centre
Location: Fort Saskatchewan, AB
Owner/Client: City of Fort Saskatchewan
Architect: BR2 Architecture

Cat: N/A
File: N/A
Date: February 20th, 2015
Project Number: 12330.100040.000
Gross Floor Area: 4,552 m2

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/m2	Amount	
A SHELL							
A1 SUBSTRUCTURE					$132.25		
A11 Foundation	0.97	4,400 m2	$80.00	$352,000	$77.33		
A12 Basement Excavation	1.10	5,000 m3	$50.00	$250,000	$54.92	$602,000	3%
A2 STRUCTURE					$496.56		
A21 Lowest Floor Construction	0.97	4,400 m2	$150.00	$660,000	$144.99		
A22 Upper Floor Construction	0.03	152 m2	$400.00	$60,800	$13.36		
A23 Roof Construction	0.97	4,400 m2	$350.00	$1,540,000	$338.21	$2,260,800	10%
A3 EXTERIOR INCLOSURE					$529.77		
A31 Walls Below Grade	0.00	0 m2	$0.00	$0	$0.00		
A32 Walls Above Grade	0.49	2,250 m2	$500.00	$1,125,000	$247.14		
A33 Windows & Entrances	0.09	400 m2	$1,200.00	$480,000	$105.45		
A34 Roof Covering	0.97	4,400 m2	$175.00	$770,000	$169.16		
A35 Projections	0.02	100 m2	$365.00	$36,500	$8.02	$2,411,500	10%
B INTERIORS							
B1 PARTITIONS & DOORS					$228.47		
B11 Partitions	0.88	4,000 m2	$235.00	$940,000	$206.50		
B12 Doors	0.01	50 No	$2,000.00	$100,000	$21.97	$1,040,000	5%
B2 FINISHES					$286.66		
B21 Floor Finishes	1.00	4,552 m2	$145.00	$660,040	$145.00		
B22 Ceiling Finishes	0.97	4,400 m2	$65.00	$286,000	$62.83		
B23 Wall Finishes	2.25	10,250 m2	$35.00	$358,750	$78.81	$1,304,800	6%
B3 FITTINGS & EQUIPMENT					$869.05		
B31 Fittings & Fixtures	1.00	4,552 m2	$424.53	$1,932,440	$424.53		
B32 Equipment	1.00	4,552 m2	$444.53	$2,023,480	$444.53		
B33 Conveying Systems	0.00	0 stp	$0.00	$0	$0.00	$3,955,900	17%
C SERVICES							
C1 MECHANICAL					$845.00		
C11 Plumbing & Drainage	1.00	4,552 m2	$345.00	$1,570,440	$345.00		
C12 Fire Protection	1.00	4,552 m2	$40.00	$182,080	$40.00		
C13 H.V.A.C.	1.00	4,552 m2	$510.00	$2,321,520	$510.00		
C14 Controls	1.00	4,552 m2	$50.00	$227,600	$50.00	$4,301,600	19%
C2 ELECTRICAL					$275.00		
C21 Service & Distribution	1.00	4,552 m2	$125.00	$569,000	$125.00		
C22 Lighting, Devices & Heating	1.00	4,552 m2	$120.00	$546,240	$120.00		
C23 Systems & Ancillaries	1.00	4,552 m2	$30.00	$136,560	$30.00	$1,251,800	5%
NET BUILDING COST (Excluding Site)					$3,762.83	$17,128,600	74%
D SITE & ANCILLARY WORK							
D1 SITE WORK					$0.00		
D11 Site Development	0.00	0 m2	$0.00	$0	$0.00		
D12 Mechanical Site Services	0.00	0 m2	$0.00	$0	$0.00		
D13 Electrical Site Services	0.00	0 m2	$0.00	$0	$0.00	$0	0%
D2 ANCILLARY WORK					$0.00		
D21 Demolition	0.00	0 m2	$0.00	$0	$0.00		
D22 Alterations	0.00	0 m2	$0.00	$0	$0.00	$0	0%
NET BUILDING COST (Including Site)					$3,762.83	$17,128,600	
Z GENERAL REQUIREMENTS & ALLOWANCES							
Z1 GEN. REQ. DESIGN FEES & FEES	16.1%				$605.82		
Z11 General Requirements	12.6%			$2,158,178	$474.12		
Z12 Design Fees	0.0%		EXCLUDED	$0	$0.00		
Z13 Fees	3.5%			$599,494	$131.70	$2,757,700	12%
TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)						$19,886,300	86%
Z2 ALLOWANCES	19.0%				$707.17		
Z21 Design Contingency	10.0%			$1,988,610	$436.87		
Z22 Escalation Allowance	0.0%			$0	$0.00		
Z23 Phasing Allowance	0.0%			$0	$0.00	$3,988,610	
						$23,874,710	
Z24 Owners Change Order Cont.	5.5%			$1,203,109	$264.30	$1,203,109	5%
GOOD & SERVICES TAX	0.0%		EXCLUDED	$0	$0.00	$0	0%
TOTAL CONSTRUCTION ESTIMATE (Including Allowances)						$25,077,819	100%
						Cost/m2	
GFA	4,552 m2					$5,509.82	
GFA	48,998 sf					$471.00	

Updated Draft

ELEMENTAL COST SUMMARY
FUNCTIONAL/CONCEPTUAL COST ESTIMATE

AltusGroup

Project: Dow Centennial Centre - Master Plan — Arena
Location: Fort Saskatchewan, AB
Owner/Client: City of Fort Saskatchewan
Architect: BR2 Architecture

Cat: N/A
File: N/A
Date: February 20th, 2015
Project Number: 12130.100040.000
Gross Floor Area: 3,317 m2

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/m2	Amount	
A SHELL							
A1 SUBSTRUCTURE					$153.67		
A11 Foundation	0.81	2,697 m2	$189.00	$509,733	$153.67		
A12 Basement Excavation	0.00	0 m3	$0.00	$0	$0.00	$509,700	5%
A2 STRUCTURE					$546.22		
A21 Lowest Floor Construction	0.81	2,697 m2	$258.00	$695,826	$209.78		
A22 Upper Floor Construction	0.19	620 m2	$495.00	$306,900	$92.52		
A23 Roof Construction	0.81	2,697 m2	$300.00	$809,100	$243.93	$1,811,800	18%
A3 EXTERIOR INCLOSURE					$527.86		
A31 Walls Below Grade	0.00	0 m2	$0.00	$0	$0.00		
A32 Walls Above Grade	0.42	1,400 m2	$350.00	$490,000	$147.72		
A33 Windows & Entrances	0.05	150 m2	$800.00	$120,000	$36.18		
A34 Roof Covering	0.81	2,697 m2	$175.00	$471,975	$142.29		
A35 Projections	0.00	15 m2	$365.00	$5,475	$1.65	$1,087,500	11%
B INTERIORS							
B1 PARTITIONS & DOORS					$125.33		
B11 Partitions	0.50	1,650 m2	$230.00	$379,500	$114.41		
B12 Doors	0.01	30 No	$1,650.00	$49,500	$14.92	$429,000	4%
B2 FINISHES					$97.62		
B21 Floor Finishes	0.40	1,330 m2	$85.00	$113,050	$34.08		
B22 Ceiling Finishes	1.00	3,317 m2	$35.00	$116,095	$35.00		
B23 Wall Finishes	1.42	4,700 m2	$20.00	$94,000	$28.34	$323,300	3%
B3 FITTINGS & EQUIPMENT					$360.00		
B31 Fittings & Fixtures	1.00	3,317 m2	$160.00	$530,720	$160.00		
B32 Equipment	1.00	3,317 m2	$200.00	$663,400	$200.00		
B33 Conveying Systems	0.00	0 stp	$0.00	$0	$0.00	$1,194,300	12%
C SERVICES							
C1 MECHANICAL					$450.00		
C11 Plumbing & Drainage	1.00	3,317 m2	$85.00	$281,945	$85.00		
C12 Fire Protection	1.00	3,317 m2	$40.00	$132,680	$40.00		
C13 H.V.A.C.	1.00	3,317 m2	$300.00	$995,100	$300.00		
C14 Controls	1.00	3,317 m2	$25.00	$82,925	$25.00	$1,492,700	15%
C2 ELECTRICAL					$185.00		
C21 Service & Distribution	1.00	3,317 m2	$85.00	$281,945	$85.00		
C22 Lighting, Devices & Heating	1.00	3,317 m2	$75.00	$248,775	$75.00		
C23 Systems & Ancillaries	1.00	3,317 m2	$25.00	$82,925	$25.00	$613,600	6%
NET BUILDING COST (Excluding Site)					$2,249.47	$7,461,500	74%
D SITE & ANCILLARY WORK							
D1 SITE WORK					$0.00		
D11 Site Development	0.00	0 m2	$0.00	$0	$0.00		
D12 Mechanical Site Services	0.00	0 m2	$0.00	$0	$0.00		
D13 Electrical Site Services	0.00	0 m2	$0.00	$0	$0.00	$0	0%
D2 ANCILLARY WORK					$0.00		
D21 Demolition	0.00	0 m2	$0.00	$0	$0.00		
D22 Alterations	0.00	0 m2	$0.00	$0	$0.00	$0	0%
NET BUILDING COST (Including Site)					$2,249.47	$7,461,500	
Z GENERAL REQUIREMENTS & ALLOWANCES							
Z1 GEN. REQ. DESIGN FEES & FEES	16.1%				$362.17		
Z11 General Requirements	12.6%			$940,149	$283.43		
Z12 Design Fees	0.0%	EXCLUDED		$0	$0.00		
Z13 Fees	3.5%			$261,153	$78.73	$1,201,300	12%
TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)						$8,662,800	86%
Z2 ALLOWANCES	10.0%				$281.16		
Z21 Design Contingency	10.0%			$866,280	$261.16		
Z22 Escalation Allowance	0.0%			$0	$0.00		
Z23 Phasing Allowance	0.0%			$0	$0.00	$866,280	
						$9,529,080	
Z24 Owners Change Order Cont.	5.5%			$524,099	$158.00	$524,099	5%
GOOD & SERVICES TAX	0.0%	EXCLUDED		$0	$0.00	$0	0%
TOTAL CONSTRUCTION ESTIMATE (Including Allowances)						$10,053,179	100%
						Cost/m2	
K10	3,317 m2					$3,030.80	
K10	35,704 sf					$281.57	

Updated Draft

ELEMENTAL COST SUMMARY
FUNCTIONAL/CONCEPTUAL COST ESTIMATE

AltusGroup

Project: Dow Centennial Centre - Master Plan — Great Hall
Location: Fort Saskatchewan, AB
Owner/Client: City of Fort Saskatchewan
Architect: BR2 Architecture

Cat: N/A
File: N/A
Date: February 20th, 2015
Project Number: 12130.100040.000
Gross Floor Area: 4,661 m2

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/m2	Amount	
A SHELL							
A1 SUBSTRUCTURE					$55.51		
A11 Foundation	0.53	2,464 m2	$105.00	$258,720	$55.51		
A12 Basement Excavation	0.00	0 m3	$0.00	$0	$0.00	$258,700	2%
A2 STRUCTURE					$450.22		
A21 Lowest Floor Construction	0.53	2,464 m2	$120.00	$295,680	$63.44		
A22 Upper Floor Construction	0.47	2,197 m2	$400.00	$878,800	$188.54		
A23 Roof Construction	0.53	2,464 m2	$375.00	$924,000	$198.24	$2,098,500	16%
A3 EXTERIOR INCLOSURE					$547.89		
A31 Walls Below Grade	0.00	0 m2	$0.00	$0	$0.00		
A32 Walls Above Grade	0.51	2,400 m2	$575.00	$1,380,000	$296.07		
A33 Windows & Entrances	0.13	600 m2	$1,200.00	$720,000	$154.47		
A34 Roof Covering	0.53	2,464 m2	$175.00	$431,200	$92.51		
A35 Projections	0.01	45 m2	$500.00	$22,500	$4.83	$2,553,700	19%
B INTERIORS							
B1 PARTITIONS & DOORS					$69.83		
B11 Partitions	0.32	1,500 m2	$180.00	$270,000	$57.93		
B12 Doors	0.01	30 No	$1,850.00	$55,500	$11.91	$325,500	2%
B2 FINISHES					$271.34		
B21 Floor Finishes	1.00	4,661 m2	$135.00	$629,235	$135.00		
B22 Ceiling Finishes	1.00	4,661 m2	$90.00	$419,490	$90.00		
B23 Wall Finishes	1.16	5,400 m2	$40.00	$216,000	$46.34	$1,264,700	9%
B3 FITTINGS & EQUIPMENT					$191.45		
B31 Fittings & Fixtures	1.00	4,661 m2	$120.00	$559,320	$120.00		
B32 Equipment	1.00	4,661 m2	$50.00	$233,050	$50.00		
B33 Conveying Systems	0.00	2 stp	$50,000.00	$100,000	$21.45	$892,400	6%
C SERVICES							
C1 MECHANICAL					$500.00		
C11 Plumbing & Drainage	1.00	4,661 m2	$85.00	$396,185	$85.00		
C12 Fire Protection	1.00	4,661 m2	$45.00	$209,745	$45.00		
C13 H.V.A.C.	1.00	4,661 m2	$320.00	$1,491,520	$320.00		
C14 Controls	1.00	4,661 m2	$50.00	$233,050	$50.00	$2,330,500	16%
C2 ELECTRICAL					$245.00		
C21 Service & Distribution	1.00	4,661 m2	$75.00	$349,575	$75.00		
C22 Lighting, Devices & Heating	1.00	4,661 m2	$120.00	$559,320	$120.00		
C23 Systems & Ancillaries	1.00	4,661 m2	$50.00	$233,050	$50.00	$1,141,900	8%
NET BUILDING COST (Excluding Site)					$2,331.24	$10,865,900	74%
D SITE & ANCILLARY WORK							
D1 SITE WORK					$0.00		
D11 Site Development	0.00	0 m2	$0.00	$0	$0.00		
D12 Mechanical Site Services	0.00	0 m2	$0.00	$0	$0.00		
D13 Electrical Site Services	0.00	0 m2	$0.00	$0	$0.00	$0	0%
D2 ANCILLARY WORK					$0.00		
D21 Demolition	0.00	0 m2	$0.00	$0	$0.00		
D22 Alterations	0.00	0 m2	$0.00	$0	$0.00	$0	0%
NET BUILDING COST (Including Site)					$2,331.24	$10,865,900	
Z GENERAL REQUIREMENTS & ALLOWANCES							
Z1 GEN. REQ. DESIGN FEES & FEES	16.1%				$375.33		
Z11 General Requirements	12.6%			$1,369,103	$293.74		
Z12 Design Fees	0.0%	EXCLUDED		$0	$0.00		
Z13 Fees	3.5%			$380,407	$81.59	$1,749,400	12%
TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)						$12,615,300	86%
Z2 ALLOWANCES	10.0%				$270.66		
Z21 Design Contingency	10.0%			$1,261,530	$270.66		
Z22 Escalation Allowance	0.0%			$0	$0.00		
Z23 Phasing Allowance	0.0%			$0	$0.00	$1,261,530	
						$13,876,830	
Z24 Owners Change Order Cont.	5.5%			$763,226	$163.75	$763,226	5%
GOOD & SERVICES TAX	0.0%	EXCLUDED		$0	$0.00	$0	0%
TOTAL CONSTRUCTION ESTIMATE (Including Allowances)						$14,640,056	100%
						Cost/m2	
K10	4,661 m2					$3,140.97	
K10	50,171 sf					$291.80	

Updated Draft

ELEMENTAL COST SUMMARY
FUNCTIONAL/CONCEPTUAL COST ESTIMATE

AltusGroup

Project:	Dow Centennial Centre - Master Plan	Field House	
Location:	Fort Saskatchewan, AB		
Owner/Client:	City of Fort Saskatchewan		
Architect:	BR2 Architecture		

Cat:	N/A
File:	N/A
Date:	February 20th, 2015
Project Number:	12130.100040.000
Gross Floor Area:	6,442 m2

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/m2	Amount	
A SHELL							
A1 SUBSTRUCTURE					$85.00		
A11 Foundation	1.00	6,442 m2	$85.00	$547,570	$85.00		
A12 Basement Excavation	0.00	0 m3	$0.00	$0	$0.00	$547,600	4%
A2 STRUCTURE					$430.00		
A21 Lowest Floor Construction	1.00	6,442 m2	$130.00	$837,460	$130.00		
A22 Upper Floor Construction	0.00	0 m2	$0.00	$0	$0.00		
A23 Roof Construction	1.00	6,442 m2	$300.00	$1,932,600	$300.00	$2,770,100	19%
A3 EXTERIOR ENCLOSURE					$392.47		
A31 Walls Below Grade	0.00	0 m2	$0.00	$0	$0.00		
A32 Walls Above Grade	0.53	3,400 m2	$350.00	$1,190,000	$184.73		
A33 Windows & Entrances	0.04	250 m2	$800.00	$200,000	$31.05		
A34 Roof Covering	1.00	6,442 m2	$175.00	$1,127,350	$175.00		
A35 Projections	0.00	30 m2	$365.00	$10,950	$1.70	$2,528,300	17%
B INTERIORS							
B1 PARTITIONS & DOORS					$27.05		
B11 Partitions	0.10	650 m2	$230.00	$149,500	$23.21		
B12 Doors	0.00	15 No	$1,650.00	$24,750	$3.84	$174,300	1%
B2 FINISHES					$124.59		
B21 Floor Finishes	1.00	6,442 m2	$85.00	$547,570	$85.00		
B22 Ceiling Finishes	1.00	6,442 m2	$25.00	$161,050	$25.00		
B23 Wall Finishes	0.73	4,700 m2	$20.00	$94,000	$14.59	$802,600	5%
B3 FITTINGS & EQUIPMENT					$125.00		
B31 Fittings & Fixtures	1.00	6,442 m2	$75.00	$483,150	$75.00		
B32 Equipment	1.00	6,442 m2	$50.00	$322,100	$50.00		
B33 Conveying Systems	0.00	0 stp	$0.00	$0	$0.00	$805,300	5%
C SERVICES							
C1 MECHANICAL					$357.00		
C11 Plumbing & Drainage	1.00	6,442 m2	$42.00	$270,564	$42.00		
C12 Fire Protection	1.00	6,442 m2	$40.00	$257,680	$40.00		
C13 H.V.A.C.	1.00	6,442 m2	$250.00	$1,610,500	$250.00		
C14 Controls	1.00	6,442 m2	$25.00	$161,050	$25.00	$2,299,800	16%
C2 ELECTRICAL					$155.00		
C21 Service & Distribution	1.00	6,442 m2	$60.00	$386,520	$60.00		
C22 Lighting, Devices & Heating	1.00	6,442 m2	$70.00	$450,940	$70.00		
C23 Systems & Ancillaries	1.00	6,442 m2	$25.00	$161,050	$25.00	$998,500	7%
NET BUILDING COST (Excluding Site)					$1,696.13	$10,926,500	74%
D SITE & ANCILLARY WORK							
D1 SITE WORK					$0.00		
D11 Site Development	0.00	0 m2	$0.00	$0	$0.00		
D12 Mechanical Site Services	0.00	0 m2	$0.00	$0	$0.00		
D13 Electrical Site Services	0.00	0 m2	$0.00	$0	$0.00	$0	0%
D2 ANCILLARY WORK					$0.00		
D21 Demolition	0.00	0 m2	$0.00	$0	$0.00		
D22 Alterations	0.00	0 m2	$0.00	$0	$0.00	$0	0%
NET BUILDING COST (Including Site)					$1,696.13	$10,926,500	
Z GENERAL REQUIREMENTS & ALLOWANCES							
Z1 GEN. REQ. DESIGN FEES & FEES	16.1%				$273.08		
Z11 General Requirements	12.6%			$1,376,739	$213.71		
Z12 Design Fees	0.0%	EXCLUDED		$0	$0.00		
Z13 Fees	3.5%			$382,428	$59.36	$1,759,200	12%
TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)						$12,685,700	86%
Z2 ALLOWANCES	10.0%				$196.92		
Z21 Design Contingency	10.0%			$1,268,570	$196.92		
Z22 Escalation Allowance	0.0%			$0	$0.00		
Z23 Phasing Allowance	0.0%			$0	$0.00	$1,268,570	
						$13,954,270	
Z24 Owners Change Order Cont.	5.5%			$767,485	$119.14	$767,485	5%
GOOD & SERVICES TAX	0.0%	EXCLUDED		$0	$0.00	$0	0%
TOTAL CONSTRUCTION ESTIMATE (Including Allowances)						$14,721,755	100%
						Cost/m2	
K10	6,442 m2					$2,285.28	
K10	69,362 sf					$212.31	

Updated Draft

Appendix C - Drawings / Documents

Dow Centennial Centre – Strategic Master Plan			
Provided By: BR2 Architecture			
Number	Name	Date Issued	Date Received
	Conceptual Plans	Feb 2, 2015	Feb 13, 2015

Updated Draft