Castlegar & District Community Complex

Arena Expansion

Concept Design

Date
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1.0 Project Context

DESCRIPTION

For several years numerous expansion opportunities have been considered for the Castlegar & District Community Complex (CDCC). These expansion opportunities include additional aquatic space, fitness opportunities, renovated circulation, social and administrative areas and a second sheet of ice. Most recently, public engagement carried out by the RDCK indicated that the strongest public support was for a second sheet of ice to be added at the CDCC site. Additionally, the closure of the Pioneer Arena has added additional ice-programming pressures to the remaining single sheet of ice at the CDCC.

hcma architecture + design has been retained to develop a concept design for this expansion and provide a Class D level project cost estimate.

2.0 Concept Design

Building Massing Concept Sketch

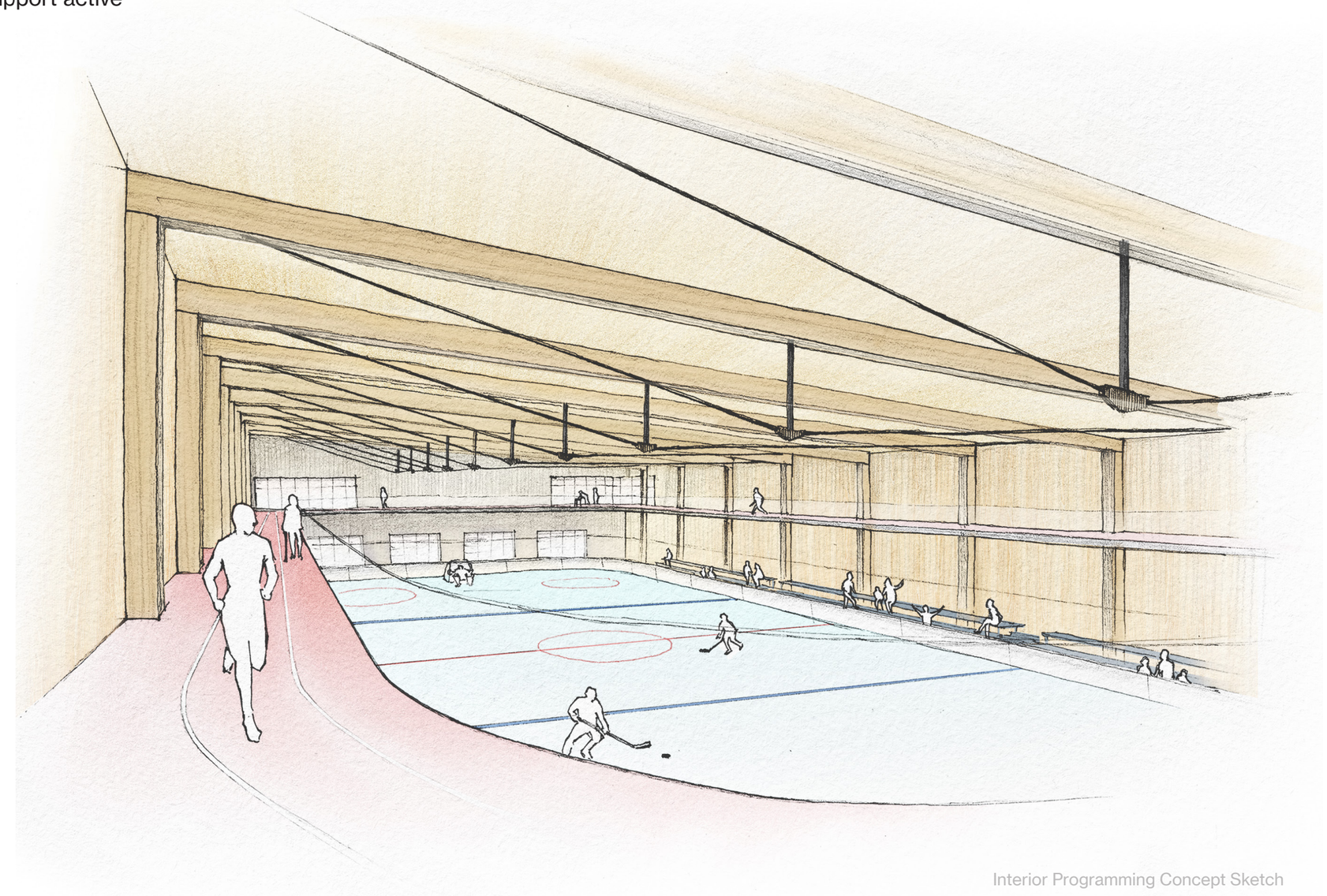
2.1 Building Program

Given that the existing arena at the CDCC already supports higher level hockey (and the required seating counts), the programming focus for the expanded arena is on a practice facility, with modest seating to support minor hockey games and tournaments. Additionally, public engagement indicated strong support for an indoor walking track to support active living during the colder winter months.

The arena expansion includes the following components:

- NHL regulation sized ice sheet
- 250 spectator seats in a bench seating configuration
- 5 new team rooms
- Officials change room
- First aid room
- Elevated walking track (185m length)
- New building entry point and lobby
- Additional public washrooms
- Elevator
- 60 additional parking spaces
- Entry plaza
- Ice resurfacer room with ice melt pit
- Refrigeration room
- Mechanical room

The total area of the proposed expansion is 8,096 m².



Interior Programming Concept Sketch

2.2 Site Plan


6TH AVENUE
PROPERTY LINE
NEW PARKING
DROP-OFF AREA
EXISTING BUILDING
CHILDCARE CENTRE
NEW BUILDING
NEW FIRE ACCESS LANE
LANDSCAPED
20TH STREET
CROWSNEST HIGHWAY
N
0 1 5 10m 50m

2.3 Building Siting

The proposed arena is located as a connected expansion to the CDCC. The design team reviewed the option of locating the building in the adjacent ball field as a fully separate building, and while this feasible, the expansion option offers the following benefits:

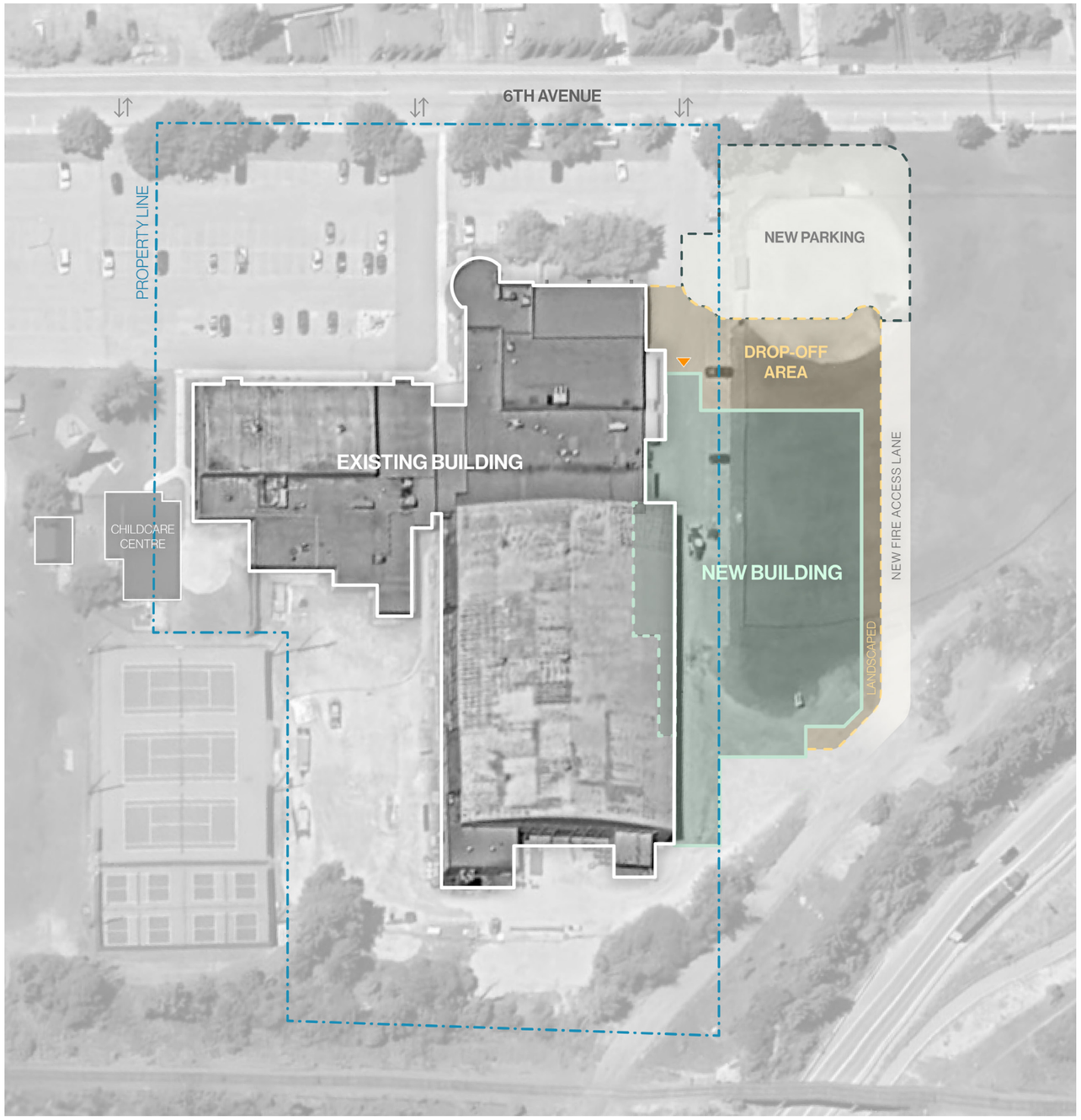
- More direct integration with energy and heat recovery systems of the existing building
- Reduced staffing costs
- Reduced operational costs related to ice-cleaning
- Greater flexibility from an ice-programming standpoint, especially as it relates to access to team rooms
- Better facility oversight from main reception
- Better patron experience due to connectivity to other recreation uses within the existing CDCC
- Better social potential with an integrated facility

It is recommended that further study be undertaken to review the impacts of potential snow drift on the existing roof, environmental remediation needed to any renovation areas and any potential seismic upgrade requirements triggered by the expansion.

The proposed concept design suggests an additional entrance be implemented on 6th Avenue. An additional 60 parking stalls have been shown to account for increased traffic volume to the site. A new drop-off area facilitates a right hand drop off with direct access to the new facility entrance. It is recommended that a traffic study be commissioned to validate parking demand and to determine on and off-site vehicle flows.

The existing fire-lane and service vehicle access is rerouted around the expansion. Further study (on the basis of a topographic survey) is needed to determine exact footprint of the expansion, particularly given the sloping part of the back half of the site.

A generous plaza area has been shown in front of the arena. In fair weather this plaza can facilitate a variety of different events. Large overhead doors connect the plaza to the arena boosting its event hosting capabilities.



2.4 Building Planning

The proposed floor plan ties the building directly into the main building circulation system. This facilitates good oversight from the central reception area. While two entrances are typically discouraged in recreation facilities, the plan does allow for direct visual oversight of the arena entrance from the main reception desk.

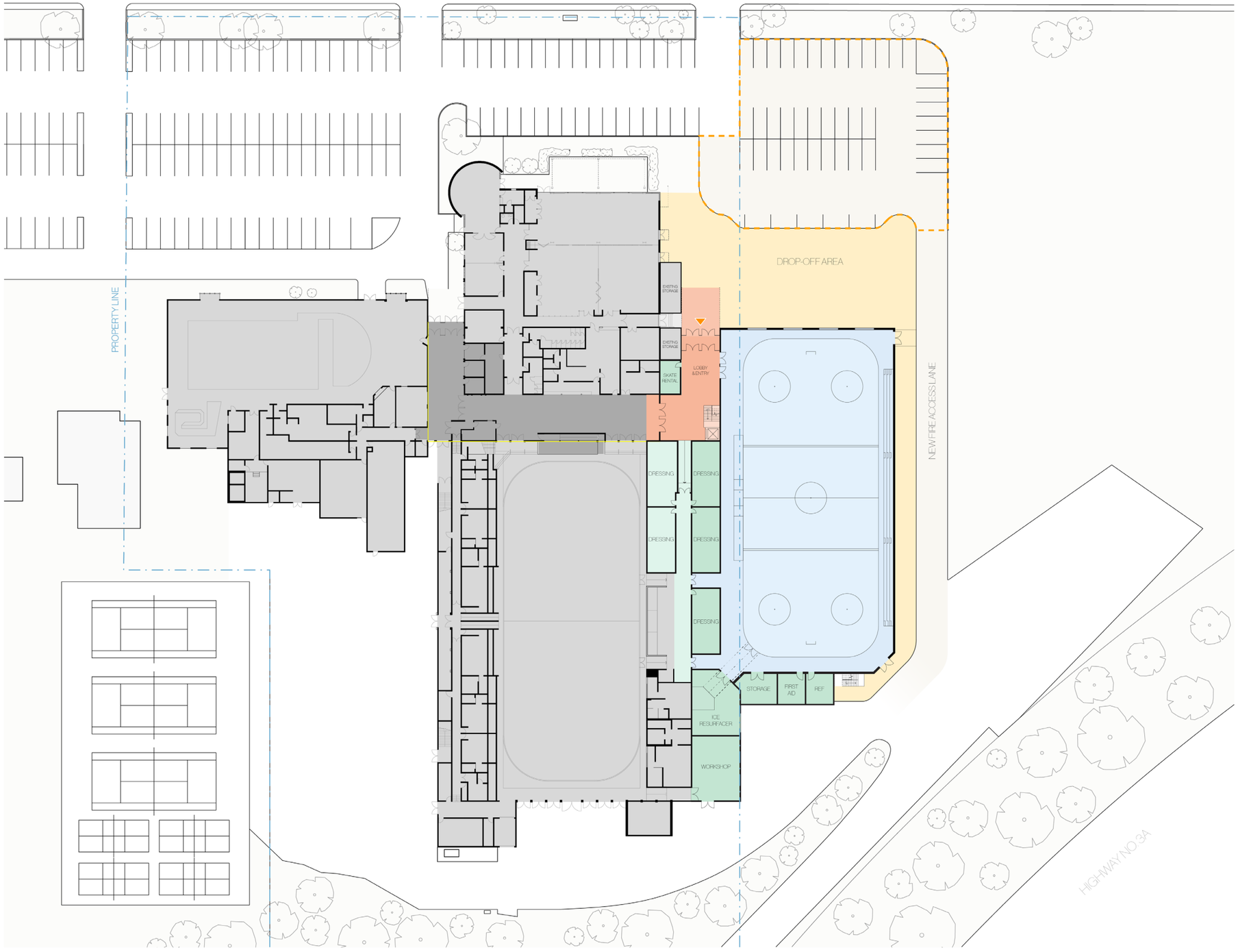
2 of the 5 team rooms have been accommodated as renovated space within the north area of the existing arena that is currently used as storage. This reduces the need for more expensive new-build construction and makes use of an underutilized area.

A two lane walking track has been located at the upper floor level. This track is accessed by a new elevator. Further analysis should be undertaken to determine whether an extension to the existing arena seating area is possible from this new elevator as this would significantly enhance the accessibility of this space.

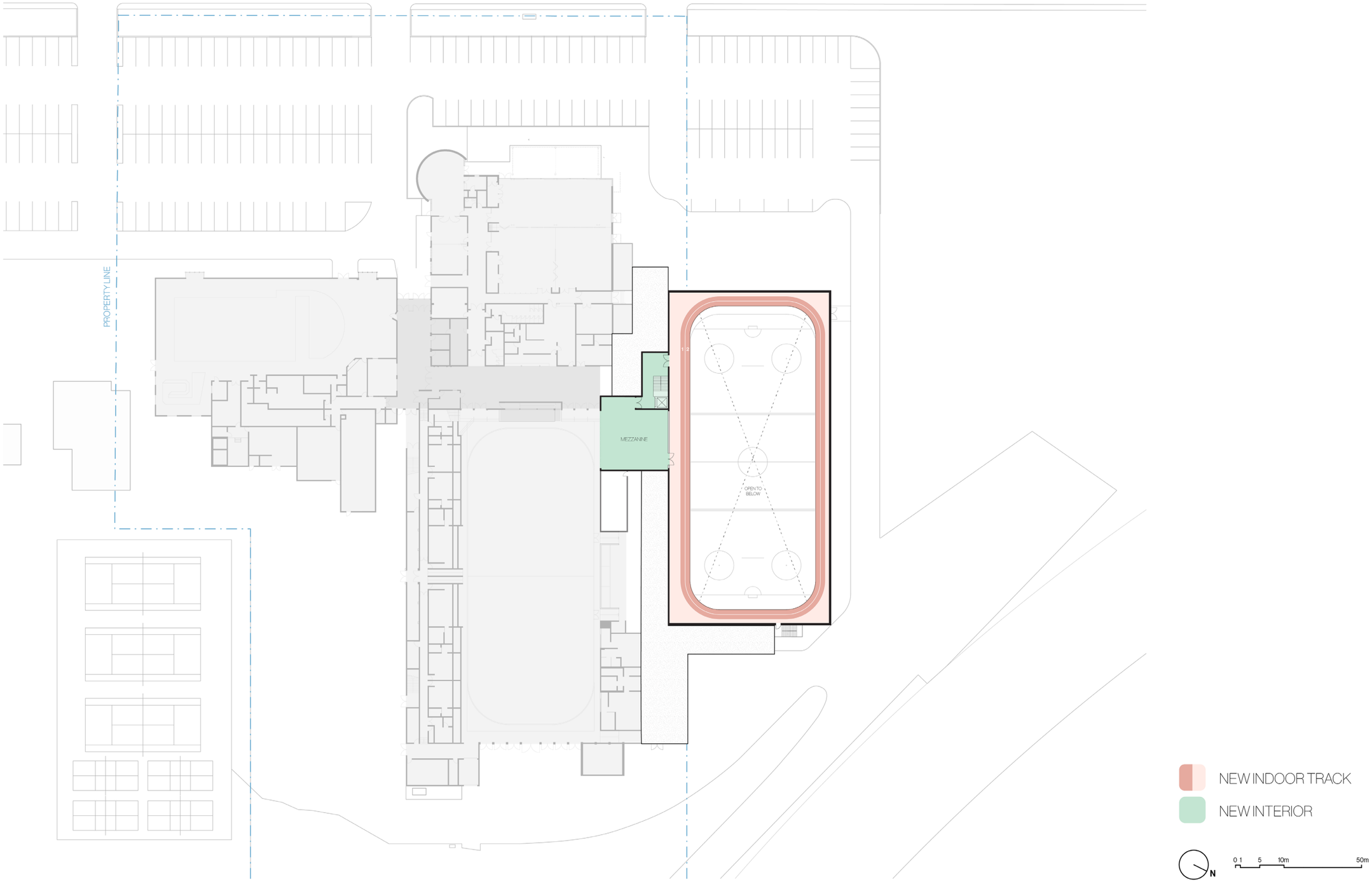
The planning of the expansion would allow it to be sectioned off for ticketed events, or fully integrated from a day to day operational perspective.

Indoor Track Concept sketch

2.5 Level 1 Floorplan



2.6 Level 2 Floorplan



2.7 Building Systems

Architectural

- Exterior cladding is assumed to be insulated metal panel with 10% glazed openings.
- Roof is assumed to be a low slope TPO membrane roof that retains the snow.
- Interior finishes are intended to be primarily concrete block and steel stud and drywall..
- Flooring surfaces (non-ice) are proposed to be polished concrete and poured rubber for the walking track surface.

Mechanical

- Further study is needed to determine the effectiveness of expanding the existing ammonia refrigeration plant. For this study it is assumed that a new, second plant is required and that it would be a low-charge ammonia system.
- A baseline, BCBC compliant energy approach has been assumed for this study.

Structural

- RDCK has indicated a strong preference for the primary and secondary structural systems to be built with mass timber components that are locally sourced. This has been incorporated into the concept design.
- Further geotechnical investigations should be carried out to determine the appropriate foundation system as this can have a large impact on cost.

Electrical

- The capacity of the incoming electrical service should be evaluated for its suitability to service the new expansion.

Civil

- The capacity of the water, sewer and stormwater service should be evaluated for its suitability to service the new expansion.

We are **hcma**. We believe human connections are the best path to solving the fundamental problems of our time.

Thank you

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