

Appendix K
Functional Program

ONTARIO SCIENCE CENTRE RELOCATION

Final Functional Program

January 2023

Lord Cultural Resources is a global professional practice dedicated to creating cultural capital worldwide.

We assist people, communities, and organizations to realize and enhance cultural meaning and expression.

We distinguish ourselves through a comprehensive and integrated full-service offering built on a foundation of key competencies: visioning, planning and implementation.

We value and believe in cultural expression as essential for all people. We conduct ourselves with respect for collaboration, local adaptation and cultural diversity, embodying the highest standards of integrity, ethics and professional practice.

We help clients clarify their goals; we provide them with the tools to achieve those goals; and we leave a legacy as a result of training and collaboration.

Our Toronto office is located within the traditional territory of many nations, including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples. Toronto is home to many diverse First Nations, Inuit, and Métis peoples. Our New York office is located on the traditional lands of the Lenape peoples. We encourage you to acknowledge the presence of the people who came before, wherever you are.

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1. EXECUTIVE SUMMARY

Lord Cultural Resources has been commissioned by Infrastructure Ontario to explore a reimagined Ontario Science Centre (OSC), including potential relocation, as an opportunity to achieve both the OSC's modernization and sustainability objectives, and the Government's vision for Ontario Place as an exciting, year-round destination for local and international visitors alike.

Part of Lord's work was to develop this functional program – a plan that addresses and identifies the spatial requirements and their functions for a relocated OSC aligning with the Centre's vision for the future. The Program provides the required information needed to determine order of magnitude capital cost estimates and will ultimately serve as a guide for the design of the new Ontario Science Centre.

This Functional Program report includes:

- **Planning and Design Assumptions:** Facility and site assumptions specific to the project that have served to inform the programming process.
- **Functional Narratives:** A brief narrative describing how each major room or space operates, and the activities within.
- **Zoned Space Program:** A comprehensive program that includes a Space Allocation Table identifying the spaces/rooms required and how much space should be allocated to each. The space program is organized according to a system of zones, which identifies the net (useable) area in terms of public and non-public functions.
- **Adjacency Diagrams:** Schematic diagrams which visually communicate the appropriate interactions among those areas identified in the Space Allocation Table.

The functional programming process began in October 2022 and was completed in December 2022. It was intentionally structured to be a highly collaborative process, involving multiple stakeholder teams within the OSC. Through a series of facilitated group workshops and individual discussions with OSC, a comprehensive list of spaces and corresponding sizes (in net sq.ft.) were identified along with their functional requirements.

The total net area (the summation of all individual spaces identified) is **175,580** net sq.ft. and is summarized as follows under the key functional categories:

Functional Category	Net Area (sf)
Engagement Space (Exhibits/Programs)	109,550
Office Space	12,150
Meeting Space	2,650
Building Support	11,125
Storage	10,155
Visitor Care Space	26,050
Visitor Care Space Support	3,900
Total Net Area (New Building and Pods)	175,580

The new OSC will be housed in a combination of new structure/building, and the adaptively reused Ontario Place Pods Complex (Pods), Cinesphere and connecting Bridges. OSC determined which functions will be located in the Pods and which to be assigned in the new building. As a result, of the total 175,580 net sq.ft. OSC requires, 40,500 net sq.ft. be in the Pods, and 135,080 net sq.ft. for the new building. The Cinesphere (not included in the OSC net area) will remain as a 614-seat projection-based venue for both mission-driven and non-mission-driven movies, features, and other OSC programming.

Space programming includes two key measurements, 1) identification of net square footage (the usable programmable space required for functions or activities and 2) determination of a gross square footage multiplier (represented as a percentage of the net area) leading to a total gross building area.

Applying estimated grossing factors to each of the structures – Pods, Bridges, new building and the Cinesphere, the gross floor areas are as below. (By comparison, the current Ontario Science Centre is 568,000 gross sq.ft.)

New OSC at Ontario Place	Gross Floor Area (sq.ft.)
New Mainland Building	198,000
Pods	40,500
Bridges (9 and 10)	17,500
Cinesphere	19,700
Total	275,700

Note: Gross floor areas provided to Lord by Infrastructure Ontario. Pods net and gross area are assumed to be the same amount.

2. INTRODUCTION

REPORT CONTENTS

Lord Cultural Resources has been commissioned by Infrastructure Ontario to explore a reimagined Ontario Science Centre (OSC), including potential relocation, as an opportunity to achieve both the OSC’s modernization and sustainability objectives, and the Government’s vision for Ontario Place as an exciting, year-round destination for local and international visitors alike.

The Functional Program report includes:

- **Planning and Design Assumptions:** Facility and site assumptions specific to the project, that have served to inform the programming process.
- **Functional Narratives:** A brief narrative describing how each major room or space operates, and the activities within.
- **Zoned Space Program:** A comprehensive program that includes a Space Allocation Table identifying the spaces/rooms required and how much space should be allocated to each. The space program is organized according to a system of general zones and individual functional categories, and identifies the net (useable) area in terms of public and non-public functions.
- **Adjacency Diagrams:** Schematic diagrams which visually communicate the appropriate interactions among those areas identified in the zoned space program.

Through the combined content described above, the goal of the functional program is to help ensure the relocated OSC:

- Meets its stated mission and vision objectives;
- Successfully plans for current and future needs in relation to visitor experience, exhibitions, educational programs, administration, and other major functions;
- Provides future design teams with sufficient information for the concept and schematic design, development and execution;
- Helps inform preliminary order of magnitude cost estimates for the IO Business Case to Treasury Board.



PLANNING PROCESS

The functional programming process began in October 2022 and was completed in December 2022. It was intentionally structured to be a highly collaborative process, involving multiple stakeholder teams within the OSC. Through a series of facilitated group workshops and individual discussions, the report has been structured to ensure the project goals and aspirations are defined and efficiently documented. By identifying these aspirations together, the aim of the programming process was to co-create enthusiastic “believe in”, rather than passive “buy in”, and in doing so raised jointly held aspirations for what the OSC can be in the future.

Based on this approach, the programming process sought to achieve the following goals:

- Stimulate thought about the future needs for the OSC;
- Explore the nature of the visitor experience at the Ontario Place location;
- Identify major program elements necessary to complete a detailed costing exercise and subsequent design exercises.

To develop and inform the contents of the Functional Program, the following steps have been completed during this time.

- **Document Review:** A review of background documentation, including site plans, facility floor plans, Ontario Place Pod Complex and Cinesphere drawings and condition assessment reports, heritage reports, and comments from stakeholders, to understand the context and history of decisions made to date.
- **Programming Workshops:** A series of working sessions with the OSC and Infrastructure Ontario to discuss functional needs, assumptions, and progress.
- **Project Costing:** A preliminary order of magnitude costing exercise of likely capital construction and project costs based on various size scenarios of the space program. Completed by others.

The programming study was completed by Dov Goldstein, Vice President (LCR), and Sean Stanwick, Director Facility Planning (LCR). Design Test-Fit diagrams were completed by Quadrangle BDP Architects to communicate the physical realization of the programming work.

PLANNING DEFINITIONS / ACRONYMS

The following definitions and acronyms have been referenced during the planning process.

- **ASHRAE Class B Standard:** Refers to a standard for environmental conditioning including the specification of acceptable humidity and temperature levels and associated fluctuations. The Class B standard is based on the ASHRAE (American Society for Heating, Refrigerating and Air-Conditioning Engineers) Applications Handbook, Chapter 21.
- **Bridges:** A series of partially enclosed steel and glass links connecting the mainland site with the Pods and Cinesphere and other features at Ontario Place.
- **Cinesphere:** The world's first permanent IMAX movie theatre, located on the grounds of Ontario Place in Toronto, Ontario. Part of the subject site of this study.

- **Design Object:** The Design Object is the largest artifact that will be frequently moved on a regular basis and accommodated not only in exhibit galleries and storage rooms, but also in corridors, elevators and loading areas in the collection and exhibit zones – anywhere that exhibit items may be moved, displayed, studied, or treated. It is not necessarily the largest object that will ever be moved.
- **Design Year:** The last year for which the building being planned will provide sufficient space and facilities.
- **Facility Zones:** A system of organizing and classifying spaces or groups of spaces within the space program according to whether a space is public or not, and whether it holds collections or not.
- **Functional Program:** A strategic document that quantifies the physical and spatial needs of the institution and its exhibits. It also works to confirm goals and assumptions for the project.
- **Furniture, Fixtures and Equipment (FF&E):** Includes movable furniture, fixtures, or other equipment that have no permanent connection to the structure of a building or utilities.
- **Gross Area (GFA):** Total of all space allocations in the building program or space list, multiplied by a percentage factor to allow for thickness of walls, mechanical/electrical service areas, and both horizontal and vertical circulation space. The proportion of net to gross area is typically 1.3 to 1.5 depending on design.
- **Infrastructure Ontario (IO):** The procurement and commercial lead for all major public infrastructure projects in the province. Part of the client group for this exercise.
- **Lord Cultural Resources (LCR).** The museum programming consultant for this project.
- **Net Area (NFA):** Total of all assignable areas allocated on the space list in the facility program, excluding thickness of walls, mechanical/electrical service areas, and circulation.
- **New Building:** This refers to a new building that will be constructed on the mainland (at the north end of Ontario Place) to accommodate the spatial needs of the Ontario Science Centre.
- **Ontario Place:** An entertainment venue, event venue, and park in Toronto, Ontario. Part of the subject site of this study.
- **Ontario Science Centre (OSC):** The science centre in Toronto, Ontario. The subject institution for this study.
- **Pods:** The existing "Pods" are five steel and aluminium building pavilions suspended above the water and connected via a series of bridges. Part of the subject site of this study.
- **Project Architect:** The architect who is ultimately responsible for overseeing the process from conceptual design through to detailed design and construction.
- **RH:** Relative Humidity.

PROGRAMMING PRINCIPLES AND ASSUMPTIONS

This section outlines the current principles and assumptions that have informed the programming and planning decisions. These assumptions should be confirmed by the client and architect teams during subsequent design development stages.

PROGRAMMING PRINCIPLES

- Providing functional and spatial requirements of a modern OSC to align with its vision.
- Strengthening of OSC's brand as a leading international science centre and positioning it as an anchor at a major cultural, recreational and tourism precinct in the province.
- Adaptive reuse of existing iconic heritage structures and elements at the Ontario Place (Pods & Cinesphere) and their views.
- An understanding of the relationship of the new OSC to the Waterfront.
- Optimization of spaces at the site and within the OSC.

PROGRAMMING ASSUMPTIONS

FACILITY

- The new OSC will be housed in a combination of a new construction and the existing Ontario Place Pods, Cinesphere and connecting Bridges. The existing OSC location is not included in this study. No off-site locations are considered at this time.
- The new building will be located on the north end of Ontario Place (the mainland) at Lakeshore Boulevard West on a designated site approximately 87,000 sq.ft. in area.
- The OSC will take advantage of the existing bridges (#9 and #10), to connect from the mainland from the pods. It is not yet determined how the new building will connect with these bridges. The connection approach will be confirmed in a subsequent stage of the design development process and will be coordinated with the proposed underground parking structure.
- A separate, independent entrance to the OSC will be required and located within the new building programming.
- The total net area required to meet the OSC programming needs is approximately 175,580 sq.ft.
- The total gross building area (including Pods, Cinesphere and Bridges) is assumed to be approximately 275,700 sq.ft.
- Initial assumptions are for a new building with an approximate footprint area of approximately 50,000 sq.ft. – of which some floors will be 20' and higher to accommodate the exhibit halls, lobby, and others with other floors being standard institutional heights, based on need. Design teams should confirm and test this assumption during the design stage.
- All five pods will be occupied by the OSC. The Pods are assumed to be approximately 8,000 net sq.ft. per pod with a dimension of approximately 89 feet per side and approximately 30' in height. It is assumed that the Pods will require upgrades to meet facility and code compliance requirements. The Pods will meet the OSC's load capacity for exhibitions and other uses. As noted below, the Pods

have a heritage significance and as such all interventions must be compliant with any heritage requirements.

- The Cinesphere is assumed to be approximately 19,700 sq.ft. in total GFA. It is understood the Cinesphere has recently undergone a major interior and exterior renovation.
- The Bridges (specifically Bridges #9 and #10) have been considered as “circulation” space and thus counted in the gross building area calculation. As noted below, it is assumed the existing bridges will be upgraded and enclosed as necessary to enable all-season visitor access.
- After-hours access to select program spaces, activity areas or research spaces should be assumed. See Functional Narratives below for specific access requirements.

SPACE PROGRAM

- The space program makes every effort to ensure that the spaces listed are right-sized and avoids duplication. However, variations to the space program should be anticipated during the design process. Any significant variations from these recommendations should be discussed with the OSC team prior to proceeding with final design.
- The program does not assume any unassigned area.
- The space program does not include FF&E requirements or document specific FF&E layout needs. Only relevant FF&E assumptions that were used to drive space assumptions are noted.
- The OSC is conceived as a single-phase project. No construction phasing was assumed in the space program.
- Projections of attendance are not included in the program.

SITE

- The subject site for the new OSC is at Ontario Place in Toronto, Ontario. The OSC complex will be comprised of a new building, the adaptive re-use of the existing Pods (to be repurposed for OSC use), and the existing connecting bridges (Bridge #9 and #10).
- The OSC new building will occupy a plot of land that fronts onto Lakeshore Boulevard West (north end of Ontario Place).
- The Lakeshore site is approximately 87,000 sq.ft. (2 acres) dedicated for the OSC new building and includes an exterior plaza space which can accommodate outdoor programmable space to be determined.
- Below grade parking, at the eastern end of the site is assumed. Parking is considered a shared amenity and not dedicated for any one specific tenant.

ADAPTIVE REUSE CONSIDERATIONS

Ontario Place was recognized as a cultural heritage landscape of provincial significance by the Province of Ontario in 2014 and was listed on the City of Toronto’s Heritage Register in 2019. As a

provincially significant property, it is subject to the Ontario Heritage Act and the Standards and Guidelines for the Conservation of Provincial Heritage Properties.

Rehabilitation of the Pods and Cinesphere (Megastructures)

The megastructures are modernist structures constructed in a man-made lagoon at the core of Ontario Place. Designed by Ontario Place architect Eb Zeidler in the late 1960s, the megastructures were designed as exemplars of progressive engineering and architecture and are celebrated as modernist architectural icons.

The Pods Complex - A series of five linked modular structures elevated above Lake Ontario. Their heritage value lies in their form and structure, views of the mainland as well as their association with leading edge principles of design and engineering.

The Pods are candidates for adaptive reuse in accordance with the following guiding principles:

1. Refrain from altering their current forms with additions that impact their legibility;
2. In particular, refrain from adding structures above or below the Pods;
3. Rehabilitate the Pods and adapt the interiors, roof decks and pathways for suitable contemporary programming;
4. Adapt cladding/glazing to suit new program needs; and
5. Maintain the views to the Pods from the shore.

Cinesphere - The Cinesphere is a triodetic dome housing the world's first permanent IMAX theater. Its 3D aluminum truss structure forms a unique spherical volume visible from the shore and from the lake.

The Cinesphere is a candidate for adaptive reuse in accordance with the following guiding principles:

1. Refrain from altering the form and massing with additions that impact its legibility;
2. Rehabilitate the structure for uses connected to its original purpose as a center of educational, technological and scientific innovation;
3. Consider maintaining its use as a screening facility for large format projection (e.g. IMAX technology) to conserve its associative value of being the world's first permanent IMAX theatre;
4. If the structure is adapted for another use, ensure that the IMAX theatre components are salvaged and stored in a manner that protects them for future use and, potentially, re-installation in future (i.e. ensure that the alterations required are reversible); and
5. Maintain the views to the Cinesphere from the shore.

CONSIDERATIONS FOR SITE INTENSIFICATION

Should the floor area requirement for future programming exceed the area available in the Pods and Cinesphere, consider utilizing existing structures in Ontario Place or build new compatible structures that embrace Ontario Place's original design principles; namely a pattern of programmed and unprogrammed spaces occupied by imaginative and exploratory architecture.

We recommend that further site intensification be guided by these high-level principles:

1. Prioritize adaptive reuse of existing structures in Ontario Place;
2. Intensify the landscape at established nodes of activity (e.g. the Entrance by the North Marina) with imaginative and compatible new structures;
3. Maintain views to the megastructures from the shore;
4. Allow the design of new structures to be informed by the established palette of forms (e.g. exploratory architecture, bridges and gangways, undulating landforms, lagoons, etc.); and
5. Reinforce the Ontario Place experience (e.g. pedestrian focus, contrast of natural and built environments, connection with Lake Ontario, etc.)

DESIGN YEAR

The Design Year is the last year for which the facility being planned will be sufficient. This is important as critical facility needs, particularly exhibit item storage and administrative, must be designed to accommodate future growth to that time, not opening day. The Design Year is typically 15-20 years from the project planning window, as anything beyond that cannot reasonably anticipate changes in collection development policies, mandate etc.

DESIGN OBJECT

The Design Object is the largest artifact, specimen or work of art that will be frequently moved on a regular basis and accommodated not only in galleries and storage rooms, but also in corridors, elevators and loading areas in the collection and exhibit zones – anywhere that collection items may be moved, displayed, studied or treated. It is not necessarily the largest object that will ever be moved.

- The Design Object (3D) is assumed at 8'-0" (W) x 8'-0" (D) x 8'-0" (H) with an anticipated maximum weight of 10,000 lbs.
- It is assumed that the largest 2D object will be 8'-0" (W) x 8'-0" (L) x 3'-0" (H).

The OSC should confirm this size assumption prior to the design stage. Design teams need to be aware of this dimension and should make the necessary design accommodations.

NET AND GROSS AREA

Space programming includes two key measurements, 1) identification of net square footage (the usable programmable space required for functions or activities) and 2) determination of a gross square footage multiplier (represented as a percentage of the net area) leading to a total building area.

For planning purposes, a grossing factor of 30% (0.3 x net floor area sq.ft) to 50% (0.5 x net floor area sq.ft.) is normally recommended for a new building depending on function. In the case of science centres, where there is a large amount of back of house areas, exhibit support areas and administration spaces, the grossing factor can be reasonably assumed to be in the middle/high end of the spectrum. As such a grossing factor of 45% (0.45 x net floor area sq.ft.) for the new building has been assumed.

It should be noted that this is only an estimate (assumption) for programming purposes and may vary depending on existing conditions and the eventual design.

The following table shows a rough breakdown of what gross square footage represents within the total building envelope in new construction.

Component	% of Net Area
Wall Thickness and Structure	5% - 10%
Horizontal Circulation	10% - 15%
Vertical Circulation	5% - 10%
Engineering and Washroom Spaces	10-15%
Typical Grossing Factor	30% - 50%

3. MISSION AND VISION

Through an internal process, the OSC defined and documented compelling and bold mission and vision statements (Source: The New Ontario Science Centre @ Ontario Place Vision Document, November 2020). Building on the foundation of providing highly engaging and interactive visitor experiences for over 50 years, the OSC has worked to reconsider its purpose, goals, aspirations, and inspirations and reconsider its important place in the province as an agency of the Government.

The following mission, vision and purpose statements communicate the OSC's commitment to leadership in STEM learning (Science Technology Engineering and Math), to continue to serve as a premier Ontario tourism destination, to advance their commitments to anti-racism, inclusion, and diversity, and to advancing indigenous ways of knowing, accessibility, and environmental sustainability. They are provided here for reference to future architects of record as they move into the design process.

MISSION

To inspire passion for the human adventure of discovery.

VISION

A more curious, creative, and resilient world.

PURPOSE STATEMENTS

We believe science, technology, and innovation will help us shape a better future for society and our planet. We provide opportunities to explore, learn, and collaborate. We make a positive and ensuring impact on the lives of individuals and communities.

4. FUNCTIONAL NARRATIVES

INTRODUCTION

This section describes the high-level functional requirements of the programmed spaces required to achieve the operational needs for the OSC at Ontario Place. It is organized according to major Functional Elements - groups of spaces that work together to house and facilitate specific activities or functions, which also follows same in the Space Allocation Table. Some functional areas consist of dedicated spaces mainly used by a single department while others, such as exhibition halls, require the efforts of personnel from several departments to achieve their full functionality.

This section also provides a high-level notation of critical adjacencies and functional relationships with other spaces. While a general location is identified – new building or Pods- It does not specify the floor level, as this is reserved for the design stage. Preferred locations are suggested but are not mandatory and should be confirmed during subsequent design stages.

Technical specifications, such as mechanical or lighting systems, or detailed FF&E requirements are not included in this report as they will be determined with the project architect and engineering teams in the Design stage.

The following functional narratives are organized as per the major functional categories within the zoned space table. Narratives and their key adjacencies are provided for MAJOR spaces and functions. MINOR, or generic spaces that do not have any unique functional requirements are not included. Refer to the space list for additional functional notes.

The functional categories are:

- Engagement Space (Exhibits/Programs)
- Office Space
- Meeting Space
- Building Support
- Storage
- Visitor Care Space
- Visitor Care Space Support

ENGAGEMENT SPACE (EXHIBITS & PROGRAMS)

This section describes a broad category of exhibit, program, lab, and workshop spaces. It includes space where large groups of people can gather to experience science-based exhibits, demonstrations, maker activities and presentations in the Cinesphere. These spaces are highly flexible and are envisioned as being capable of hosting a variety of different activities.

EXHIBIT HALLS

This section details the requirements for the permanent and temporary exhibit halls. **Permanent Exhibit Halls** A large, column free (where feasible) space designed to support a range of interpretive installations, including potentially oversize items or items suspended from the structure above. Exhibit hall design should assume subdivision of space to accommodate different exhibits and interpretive modes. A clear ceiling height of 24 ft to the lighting grid is required. Niche areas of lower ceiling height or mezzanines may also be included to permit smaller items or activities related to the exhibit. Specialty lighting will be required with adjustable track lighting with zoned capability as a base building minimum. Noise/sound isolation is required between exhibit halls and adjacent spaces.

- Preferred Location: Exhibit Hall (#1 / Kidspark) - New Building; Exhibit Hall (#2) - Pods
- Critical Access and Adjacencies: Atrium Lobby; Adult / Accessible Changing Room; Loading and Service Areas
- **Temporary Exhibit Hall:** A large, column free (where feasible) space designed to support a range of changing and temporary interpretive installations, including potentially oversize items or items suspended from the structure above. Temporary exhibit hall design should assume an equal subdivision of space to accommodate rental events when not used for exhibits. A clear ceiling height of 24 ft to the lighting grid is required. Niche area (est. 3,000 sq.ft.) of higher ceiling height at 30 ft is required to permit larger items or activities related to the exhibit. Specialty lighting will be required with adjustable track lighting with zoned capability as a base building minimum. It will also be a requirement for the Temporary Exhibit Hall to be environmental conditioned with isolated humidity and temperature controls to allow for the presentation of exhibitions that require such controls. Access to outdoors and a separate entrance is preferred to enable after-hours events and programming.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Atrium Lobby; Loading and Service Areas]

Note: It is recommended that all exhibit halls meet the ASHRAE standards for a Class B environment. Conditions should be, at a minimum 70° F +/- 9° F (5°C) and 50% RH +/- 10%. Confirmation of these recommendations is the responsibility of the client team and project architect / engineer during the design stage.

WORKSHOPS AND MAKER SPACES

The spaces in this category focus specifically on the needs of the workshops and maker programs. These spaces (with select exceptions) can be co-located together to form a tight cluster of functional elements and have a proximity relationship with one another. They may also be designed to be interconnected to form one larger space. These spaces are typically not accessible to the general public, for unreserved walk-in activities and therefore need to be gated for crowd control. All workshop spaces require access to running water.

- **Workshop Labs (Wet and Dry):** These labs are for visiting students in groups of up to 35 including educators, to complete a variety of scientific experiments, research and science-based activities. Labs should be co-located together and may be conjoined with other labs for larger group activities. Natural light is preferred. Built-in storage is required. Furniture layout (individual desks or group research stations) to be determined during design stage. May require special ventilation including fume hoods or fire suppression systems.
 - Preferred Location: New Building and Pods
 - Critical Access and Adjacencies: Collocated with other Labs
- A standalone space dedicated to the “escape room” experience. Does not need to be connected to other labs and can be located elsewhere. Technical and interpretive details to be determined during the design stage. May require special ventilation.
 - Preferred Location: Main Building
 - Critical Access and Adjacencies: Proximity to other Workshop Labs preferred
- **Maker Space:** This hands-on space supports maker activities, crafts, 2D and 3D objects. Room to support a full class of 30 students, ages 10 and above. Primary access is via main lobby but after-hours or weekend access via a separate entrance is also preferred. Outdoor access is also required via roll up door. A clear ceiling height of at least 18-20 feet is required along with attention to acoustics to minimize overall sound transmission is desirable.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Atrium Lobby (not a necessity); Student, Camp and Group Intake; Change Room / Lockers (Dedicated Camps and Makerspaces); Exterior Access (for after hours use), Prototyping Lab (Maker)
- **Change Room / Lockers:** Dedicated change and locker storage space for maker space users. Makerspace will require approximately 30-40 individual lockers, in a combination of sizes. Lockers will be self serve and not be supervised by security staff.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Makerspace

DEMONSTRATION SPACES

The spaces in this category focus specifically on the needs of the prototyping and demonstration programs. These spaces have specific proximity functional relationships as noted below.

- **Science Demonstration Hall (#1):** A large, open air, column free (preferred), flat-floor hall for live, hourly science demonstrations. For public use with capacity that may vary from for up to 200 visitors at any given time. Flexible/moveable stage is required. May include permanent or retractable tiered seating and standing configuration. A clear ceiling height of at least 18-20 feet is required. Will require special ventilation and fire suppression systems. Also requires infrastructure – electrical and structural - to mount LED screens to show demonstrations to audiences.
 - Preferred Location: Pods
 - Critical Access and Adjacencies: Pods
- **Science Demonstration Hall (#2):** Like SDH (#1) but smaller in size, a large, open air, column free (preferred), flat-floor hall for live, hourly science demonstrations. For public use with capacity of up to 150 visitors at any given time. A flexible/moveable stage is required. May include permanent or retractable tiered seating and standing configuration. A clear ceiling height of at least 18-20 feet is required. May require special ventilation and fire suppression systems. Also requires infrastructure – electrical and structural – to mount LED screens to show demonstrations to audiences.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Permanent Exhibit Hall, Educator Prep Room and Storage Secure Chemical Storage and Prep
- **Prototyping Lab (Maker):** A workshop-based space for the design, testing and fabrication of exhibits and related items. For staff use only; no public access however visitor visibility (virtual field trips or camps) is acceptable. Equipment to include laser cutters, saws, CNC machinery etc.; specific equipment needs to be determined. A clear ceiling height of at least 18-20 feet is required with glazing for full viewing. Will require special ventilation and fire suppression systems.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Permanent Exhibit Hall
- **Prototyping Lab (Research Live):** Space for research partners to provide visitors with the opportunity to participate in real research. Previous projects include “Spit for Science” from Sick Kids, handwriting analysis from the University of Guelph and many others. Requires space where partners can set up components of their study (tables, chairs for filling in questionnaires, a place where people can interface with the public, and sometimes a space that can be made somewhat private if someone is providing a sample or the questionnaire is done verbally.) Specific equipment to be confirmed but may include individual research desks, group meeting areas, refrigeration, water and secure storage millwork. Standard ceiling height requirements. May require special ventilation and fire suppression systems.

- Preferred Location: New Building
- Critical Access and Adjacencies: Permanent Exhibit Hall; Staff Office; Storage
- **Educator Prep Prop Room / Storage (SDH):** A small, dedicated preparation and storage room for educators and staff using the Science Demonstration Space. Standard millwork including counter surface with sink, lockable cabinets, and open shelving. Occasional chairs and worktable also required.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Science Demonstration Hall (#2), other workshop/lab spaces in the new building as well as Pods.
- **Secure Chemical Storage and Prep (SDH):** Safe and secure storage room for related chemicals and solutions required for the Science Demonstration program. Rooms should meet all required finishes and safety / security protocols per all applicable building codes. May require special ventilation or fire suppression systems.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Science Demonstration Hall (#2)
- **Sound Stage / Studio:** Small sound studio to support virtual programming for external broadcast. For staff use only; no public access however visitor visibility (virtual field trips or camps) is acceptable. Will require audio and lighting control; specific equipment and FF&E details to be confirmed by a specialty consultant. Additional support spaces include Production, Sound and Editing Room and dedicated storage.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Administrative Area or workshop

EDUCATION (SCIENCE SCHOOL)

The spaces in this category focus specifically on the needs of the science school education program. These spaces form a tight cluster of functional elements and have a proximity relationship with one another. These spaces are typically not accessible to the public or for unreserved walk-in activities. Specific size of classrooms will adhere to the Ministry of Education guidelines.

- **Science School Classroom #1 (Wet):** A flexible "wet" meeting and teaching space for groups of 25-30 Grade 12 level students for interactive activities including hands-on demonstrations, experiments, research, and group work. Can also be used for summer camps, staff training, smaller workshops, or other events on weekends. Natural light is preferred. Should be paired with Dry classroom for operational efficiency. Built-in storage is required. Furniture layout to be determined during design stage. May require special ventilation including fume hoods.
- **Science School Classroom #2 (Dry):** A flexible "dry" meeting and teaching space for groups of 25-30 Grade 12 level students for interactive activities including teaching demonstrations, research, and group work. May also include digital terminals. Can also be used for summer camps, staff training, smaller workshops, or other events on weekends. Natural light is preferred. Should be paired with

Wet classroom for operational efficiency. Built-in storage is required. Furniture layout to be determined during design stage.

- **Secure Chemical Storage:** Safe and secure storage room for related chemicals and solutions (liquid nitrogen) required to the science school program. A back-of-house location is acceptable although proximity to the science classrooms is preferable. Students may access these rooms with special access passes only. Rooms should meet all required finishes and safety / security protocols per all applicable building codes. May require special ventilation or fire suppression systems.
- **Specimen Storage Cold:** Safe and secure “cool / cold” storage room for fragile and environmentally sensitive materials including biological specimens in jars, required for the science school program. A back-of-house location is acceptable although proximity to the science classrooms is preferable. Students may access these rooms with special access passes only. Rooms should meet all required finishes and safety / security protocols per all applicable building codes. May include a chest freezer.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Paired Wet and Dry Classrooms, Chemical and Cold Storage

MEGASTRUCTURES

- **Cinesphere:** The program assumes that the existing Cinesphere will remain in use as a projection-based venue for both mission-driven and non-mission-driven movies, features, and streaming of alternative/new content such as educational programs (including real time interactions with scientists in space or remote areas of the world). It is understood that the existing infrastructure (seats and screen) have been upgraded and will remain. Technical upgrades should be confirmed by a specialty consultant.
 - Preferred Location: Existing
 - Critical Access and Adjacencies: Atrium Lobby; Pods; ideally separate entrance to allow for ticket sales/shows to happen outside of operating hours
- **Pods:** The program assumes that the existing Pod structures – five linked modular structures - - will be fully refurbished and used all year round. The Pods will be compliant with all required accessibility standards. The Pods will be used for a variety of programs including exhibitions and could also be used for food service

- **Bridges:** The existing bridges that link the Lakeshore lands with the Pods and Cinesphere will be included as circulation for OSC visitors. It is assumed that these bridges will be refurbished to current standards (lighting etc.) for visitor comfort and safety including being fully enclosed (heated and cooled) for all-season use. It is also assumed that the bridges will contribute to the interpretive experience through a variety of techniques, including potentially digital displays, graphics, or sound. Interpretive content to be finalized at a later date.

OFFICE SPACE

This section describes the functional components that are generally categorized as office and administrative functions required for the OSC operations. Sub sections for OSC leadership and staff, and non-OSC staff are also provided. *(Note: Administrative allocations are an assumption and will comply the OPS Enterprise Office Workplace Standard in the design phase).*

ADMINISTRATIVE - OSC

This section details the requirements of the OSC administrative leadership, staff, and related workspaces. Support staff and external staff are detailed in the following section.

- **Reception and Waiting:** Small reception area to receive visitors and guests to the Administration suite. Full time receptionist position to be confirmed. Standard millwork requirements.
- **Traditional Workspaces – CEO and Senior Leadership:** Private offices for 30 people of standard furniture configuration. CEO office to accommodate additional occasional furniture. Requires finishes, lighting, telephone, and data service to higher office standard.
- **Traditional Workspaces - Admin Support:** Open, anchored workstations for 20 people. Systems furniture in flexible configurations based on operational need. Provide drop-in or hoteling capability for staff who spend most of their time working in the exhibit halls or other locations.
- **Open Alternative Workspaces (Frontline Staff):** Informal, open meeting spaces for up to 40 people. Flexible furniture, hotelling workstations, moveable tables, occasional chairs, and sofa. Standard millwork configuration.
- **Secure Hard Copy Records / File Storage:** File storage centralized with offices. Open shelving.
- **Open Alternative Workspaces (Volunteers):** Informal, open meeting spaces for up to 40 people. Flexible furniture, hotelling workstations, moveable tables, occasional chairs, and sofa. Standard millwork configuration.
- **Open Alternative Workspaces (Student Employees):** Informal, open meeting spaces for up to 40 people. Flexible furniture, hotelling workstations, moveable tables, occasional chairs, and sofa. Standard millwork configuration.
 - Preferred Location: All of the Above - New Building
 - Critical Access and Adjacencies: Administrative Suite

ADMINISTRATIVE - SUPPORT

This section details the requirements of the OSC support and external staff.

- **Private Offices:** Private offices of standard configuration are recommended. Requires finishes, lighting, telephone and data service to office standard. Includes offices for Food Services, Site Managers, Electronics Team and IT Teams.
- **IT Testing and Training Room:** Dedicated room for virtual environment testing and training. Specific equipment and millwork requirements to be confirmed.
 - Preferred Location: All of the Above - New Building
 - Critical Access and Adjacencies: Administrative Suite

MEETING SPACE

Meeting spaces are considered rooms or areas where various staff and volunteers can hold formal or informal meeting, work sessions or training. The location of these spaces should be explored during the design phase to ensure optimal functional relationships for staff and volunteers.

- **Open Alternative Workspaces(X3):** Informal, individual meeting spaces for 4-6 people.

Closed Alternative Workspaces: A large 30-seat, high quality meeting space, with state of art network connectivity, video conferencing and high-level presentation facilities for internal use. Millwork to enable meeting amenities such as coffee or lunch service.

- **Closed Alternative Workspaces:** Meeting room to accommodate up to 20 people. Network connectivity with video conference capability. Upper and lower cabinetry, small counter surface.
- **Infrastructure Ontario / Services Staff Meeting Room:** Meeting room to accommodate up to 20 people. Network connectivity with video conference capability. Upper and lower cabinetry, small counter surface.
 - Preferred Location: All of the Above - New Building
 - Critical Access and Adjacencies: Administrative Suite

BUILDING SUPPORT

This section summarizes a range of building and staff support spaces, including engagement spaces, exhibit preparation, shipping and receiving and other service needs.

EXHIBIT HALLS SUPPORT AREAS

This section details the requirements of the support spaces specifically for the Kidspark exhibit hall.

- **Kidspark Supplies Storage:** A dedicated supply storage room for the Kidspark exhibit hall. For staff use only, access should be directly from the exhibit hall to facilitate ease of access for supplies and frequently used materials. Specific storage requirements (counter, millwork, open shelving) should be confirmed during the design stage.
- **Kidspark Dedicated Laundry Room:** The nature of the Kidspark program and the age group of its users requires a dedicated laundry room. For staff use only, access is via back of house routes and should be in proximity to the exhibit hall. Standard laundry machines (not commercial) are required. Type and quantity should be confirmed during the design stage.

- Preferred Location: New Building
- Critical Access and Adjacencies: Kidspark Exhibit Hall
- **Exhibit Maintenance Open Work Area:** Primary function will be light work such as mount making and repairing exhibition furniture, etc. Worktables, counter, storage shelves, racks and cabinets required. For staff use only via back of house routes. Equipment needs to be confirmed. A large overhead door may be required to enable movement of oversize items. May require special ventilation or fire suppression.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Exhibit Halls; Building Support; Shipping / Receiving
- **Enclosed Exhibit Loading Bay:** An enclosed truck loading bay to support 2 x 53-foot semi transport and trailers is required. This is intended to support the receiving of any items on loan. The truck bay should be able to fully enclose the vehicle with secure exterior and interior overhead doors for security and environmental purposes. A dock leveler for smaller deliveries from other vehicles should also be provided.
- **Shipping / Receiving / Crating / Uncrating Area:** An enclosed dedicated area for secure shipping and receiving of exhibit items with level loading dock. Also included is a crating and uncrating area for packing and unpacking of exhibit items. Minimal finishes required. Staff access only.
- **Clean Workshop / Exhibition Prep:** A support space for the final preparation of items that will be exhibited. Activities such as mounting, or framing may take place here. It needs to be a clean space for the safety and preservation of exhibit items handled in this space. Staff access only. May include oversize door and roll-up door type for larger crates. Worktables, counter surface, upper and lower millwork all required.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Shipping Receiving; All of the Above

Note: It is recommended that the above exhibit support areas meet the ASHRAE standards for a Class B environment. Conditions should be, at a minimum 70° F +/- 9° F (5°C) and 50% RH +/- 10%. Confirmation of these recommendations is the responsibility of the client team and project architect / engineer during the design stage.

GENERAL BUILDING SUPPORT

This section details the requirements of the significant, non-typical back-of-house building and facility support areas.

- **Laundry Room (Industrial):** Large laundry space to service the full OSC programs. Staff use only. May require special electrical supply and ventilation to support industrial size equipment. Quantity of equipment to be determined. No special finishes required.
 - Preferred Location: New Building

- Critical Access and Adjacencies: Shipping Receiving
- **Food Services: Commercial Kitchen:** Fully outfitted commercial style kitchen to service the cafeteria and other food service venues at the OSC. Will require special power supply and ventilation. Specific equipment needs to be confirmed by a specialty food service consultant.
 - Preferred Location: Pods
 - Critical Access and Adjacencies: Dry Storage / Consumables; Cold Storage; Equipment Storage; Catering Staging Area
- **Staff Lactation Room:** Private space where a nursing mother can use a breast pump. Occasional chairs. Standard millwork configuration.
- **Staff Lounge / Kitchenette / Lunchroom:** Space for staff to meet, take breaks and eat lunch. Hourly/part-time/floor staff to use before and after their shifts. Bag/purse storage for staff/students without workstations and common closet for coats and boots. Fridge, sink, hook-ups for coffee machine. Accommodation for approximately 30-35 people.

STORAGE

This category outlines spaces dedicated for storage of exhibit related items.

- **Crate Storage:** Secure space for the storage of exhibition crates while on loan. Minimal finishes required. Staff access only. May include oversize door and roll-up door type for larger crates.
- **Temporary Exhibits (Transit) Storage Area:** Required to hold exhibits in crates on loan from other institutions which will be displayed or are awaiting onward shipment. Minimal finishes required. Staff access only. May include oversize door and roll-up door type for larger crates.
- **Isolation / Quarantine:** A dedicated storage room for any items that require disinfestation or separation from other collections while risk factors are mitigated. Climate controlled, this room may include inert nitrogen gas treatment facilities or a chest freezer. FF&E requirements to be determined.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Shipping Receiving; Exhibit Prep

Note: It is recommended that the above exhibit support areas meet the ASHRAE standards for a Class B environment. Conditions should be, at a minimum 70° F +/- 9° F (5°C) and 50% RH +/- 10%. Confirmation of these recommendations is the responsibility of the client team and project architect / engineer during the design stage.

VISITOR CARE SPACE (VISITOR CARE SUPPORT)

The spaces in this category focus on the major front of house visitor services areas including the primary points of building entry for visitors and groups, retail and food service functions and other visitor support functions.

- **Lobby/Atrium “Wow Experience”:** This space should be designed to create a sense of arrival. It should be an awe-inspiring, high ceiling point of entry which will provide a setting for some form of visually stimulating experience to excite and engage visitors. It also adds to the visitor experience by orienting the visitor and leading to the exhibition spaces and other attractions in the complex. For comfort, seating should be planned as part of the lobby design and any other rest areas. Stanchions and temporary signage may also need to be accessed quickly by visitor service staff. A ceiling height of at least 30 feet is required along with attention to acoustics to minimize overall sound transmission is desirable. Visual connection to student and group intake are also required. The lobby could also serve as a space for rentals and third-party events after regular hours of operation.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Student, Camp and Group Intake; Cloakroom; Lockers; Strollers and Wheelchair Storage; Gift Shop; First Aid and Care Rooms; Maker Space
- **Visitor Services / Admissions / Memberships:** The OSC will charge admission to its exhibit halls and program spaces and will require a generous, dedicated point-of-purchase area for these services. Queue management is vital in this area as large groups including families with children and strollers should be anticipated. Visibility within the main lobby is critical, as is an efficient movement path from this area to other amenities (restrooms, coats, and lockers). It is recommended that design teams anticipate the anticipated volume of visitors and map out the path of travel and queuing options to ensure proper functionality without overlaps. Adjacent support areas include a dedicated admission office with cash room and supplies storage.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Student, Camp and Group Intake; Cloakroom; Lockers; Strollers and Wheelchair Storage; Gift Shop; First Aid and Care Rooms; Maker Space
- **Student, Camp and Group Intake / Marshalling:** The OSC will need to receive and accommodate more than 800 and up to 2,500 students at peak arrival and departure times for its public programs, education and summer and March break camps and various other student and group activities. This user group requires a separate and dedicated point of entry directly accessible from dedicated bus or vehicle drop-off areas. Design should be durable and able to withstand heavy traffic from large groups. Stanchions and temporary signage may also need to be accessed quickly by visitor service staff. Digital signage/wayfinding that can be easily updated would greatly enhance the visitor experience. Attention to acoustics to minimize overall sound transmission is desirable. This area can also serve as a rental space (birthday parties etc.). Efficient access to catering and food services is required. Visual connection with main lobby also required.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Atrium Lobby; Cloakroom; Lockers; First Aid and Care Rooms; Maker Space; Workshop Labs

- **Public "Brown Bag" Lunch Area:** Provision for large groups of students, or families to have lunch (non-cafeteria purchases) should be made. This area should be combined with the group intake area and may be designed as one large area. As with the other group-based areas, finishes should be durable and able to withstand high volumes of traffic. Attention to acoustics to minimize overall sound transmission is desirable. This space should be an open area, with good visibility in either fixed or flexible seating (to be confirmed during the design phase).
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Student, Camp and Group Intake; Cloakroom; Lockers; Strollers and Wheelchair Storage; First Aid and Care Rooms
- **Cloakroom / Lockers:** It is important to make provisions for storage of personal items for visitors. The OSC will require approximately 500-600 individual lockers, in a combination of sizes. Lockers will be self serve and not be supervised by security staff. Majority of the lockers should be consolidated near the atrium lobby or group intake area; additional lockers may be distributed to other areas as needed.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Atrium Lobby; Strollers and Wheelchair Storage; Student, Camp and Group Intake; Distributed as needed
- **Retail / Gift Shop:** The OSC plans to develop a highly visible retail / gift shop as a major revenue source. The shop will feature a wide range of science-based items, branded merchandise and related goods – books and toys, posters, reproductions, and items catering to the needs and interests of children who visit. The main shop will be open longer than regular hours so that visitors can stay to visit and make purchases after visiting the OSC. As such, ground floor / street level access and visibility from the atrium lobby is required as well, it should its own entrance to the street to allow non-ticketed visitors access to the shop The retail function will also include small retail kiosks (est. x4) distributed at key locations throughout the complex. Locations to be determined during the design stage. Some retail stock and inventory space may be located elsewhere. Final design and fit out of the shop will be completed during the design stage.
 - Preferred Location: New Building, Pods
 - Critical Access and Adjacencies: Atrium Lobby; Distributed as needed
- **Cafeteria and Seating (Main and Satellite):** Food services in the OSC is also provided via a formal cafeteria. The cafeteria will consist of a primary location in the Pods, and a satellite location in the new building. Food consumed in these locations is for purchase only, with sit down style, moveable seating, envisioned for the main cafeteria and *grab-n-go* in the main building. These areas will not be used for "brown bag" lunch consumption as this is accommodated in the student intake space above. Seating for approximately 500 people should be provided in either fixed or flexible seating (to be confirmed during the design phase). As with the other group-based areas, finishes should be durable and able to withstand high volumes of traffic. Attention to acoustics to minimize overall sound transmission is desirable. Final fit out of the cafeteria should be completed by a specialized food service consultant.
 - Preferred Location: Pods, New Building

- Critical Access and Adjacencies: Atrium Lobby; Restrooms
- **First Aid / Sick Room / Visitor Care Room:** The physical and spiritual health and wellness of OSC visitors and staff is a critical element. A series of two first aid rooms are programmed and should be included in both the new building and the pods. The final fit out of these spaces should be per standard requirements. In addition, the visitor care room is a quiet space designed to accommodate three (3) families for prayer or reflection. Finishes should include comfortable seating and be calming in nature.
 - Preferred Location: New Building, Pods
 - Critical Access and Adjacencies: Atrium Lobby

OUTDOOR SPACES

This section details the requirements of the exterior / outdoor spaces and activities. As the areas listed are not within the building envelope, they are not counted as part of the total net or gross building area. Nevertheless, their functions are important relative to meeting the operational goals of the OSC.

- **Adventure Playground:** A year-round, outdoor, ticketed activity and adventure area for up to 30 children, aged 8-13. Activities include outdoor maker events, climbing equipment, and hands-on activities. Final equipment to be determined by specialty consultant. Some amount of the play area may be free (To be determined). Could also include reuse of existing marina piers/docks if not being used by Marina in the future. Location can vary and may include at-grade or on a rooftop terrace although it should have a direct connection to the maker spaces. All safety protocols and measures should be met.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Outdoor; Dedicated Storage (Adventure Playground); Maker Spaces
- **Rooftop Observation Experience (Observatory):** An outdoor rooftop space for mission-driven programs (Star Parties, Solar Observations) as well as social gatherings and rental events. All safety protocols and measures should be met. May also include telescopes for star gazing activities (To be determined).
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Outdoor
- **Entry Plaza / Outdoor Activity (Non-ticketed):** The experience of the OSC begins on arrival and must include spaces that extend well beyond the physical limits of the building. The entry plaza should have a direct relationship with the new front door, parking and drop-off areas, and any peripheral outdoor event spaces (for up to 250 people), and even visually to the Pods and Cinesphere beyond. It must be open and inviting and provide a range of visitor amenities, such as information and wayfinding, lighting, covered seating, initial interpretive content, and potentially kiosks for ticket purchase. Must also accommodate mobility-challenged visitors and meet all accessibility codes. The plaza may also include large objects on display so design teams should note the potential for point loading at specific areas.

- Preferred Location: New Building
- Critical Access and Adjacencies: Outdoor; Main Entry; Car / Taxi / Valet Drop-off; School Bus Queuing
- **School Bus Queuing:** The OSC site must be able to accommodate a large volume of school bus visits performing drop off and pick up for school groups and camps. The site must be designed to permit right-side disembarking in proximity to the student, camp and group intake area, and should allow for parking for up to 30 busses during operating hours. Bus parking may be provided off-site.
 - Preferred Location: New Building
 - Critical Access and Adjacencies: Outdoor; Student, Camp and Group Intake
- **Exterior Service Loading Area:** A trash disposal and recycling area is required, additional to and separate from the exhibit receiving area. The service yard provides a secure entry area for vehicles of contractors and suppliers, with access to the building via the loading dock. Security access and control, lighting and video / audio communication may be required.
 - Preferred Location: New Building, Pods
 - Critical Access and Adjacencies: Outdoor; Loading Dock

5. SPACE PROGRAM

INTRODUCTION

This section includes the space allocation table outlining the individual spaces and corresponding net areas required for the New Building and the Pods. The list is organized into primary facility zones, as described below, and secondary functional categories. The net areas for each space leads to a facility total net area. Detailed functional notes are outlined in the previous section.

SPACE ALLOCATION SUMMARY

The total net area (the summation of all individual spaces) is **175,580** net sq.ft. and is summarized as follows under the key functional categories:

Functional Category	Net Area (sf)
Engagement Space (Exhibits/Programs)	109,550
Office Space	12,150
Meeting Space	2,650
Building Support	11,125
Storage	10,155
Visitor Care Space	26,050
Visitor Care Space Support	3,900
Total Net Area (New Building and Pods)	175,580

The new OSC will be housed in a combination of new structure/building, and the adaptively reused Ontario Place Pods, Cinesphere and connecting Bridges. OSC determined which functions will be in the Pods and which to be assigned in the new building. As a result, of the total 175,580 net sq.ft. OSC requires, 40,500 net sq.ft. be in the Pods, and 135,080 net sq.ft. for the new building. The Cinesphere will remain as a 614-seat projection-based venue for both mission-driven and non-mission-driven movies, features, and other OSC programming.

Because the Pods are fixed spaces, there will be portion of the OSC activities that will occur in the Pods and others in the new building. The total net area of the Pods is fixed at 40,500 sq.ft. (based on Partisan drawings provided by IO and Altus Building Condition Assessment report 2019). There are five Pods, each one at approximately 8,000 net sq.ft.

To determine the net area for the new building, the total net area of the Pods (40,500 sq.ft.) was subtracted from the total net requirement for OSC (175,580 sq.ft.) resulting in a net area for the new building of **135,080 sq.ft.**

In the section above, we have outlined the range of grossing factors for a new building anywhere from 30%-50%. We have assumed a 45% grossing factor for the OSC new building. Applying the 45% grossing factor to net area of the new building results in a Gross Floor Area of **198,000 sq.ft.** for the new building.

We have assumed the Pods to have no grossing factor as they are essentially single volume, open space. The total Gross Floor Area for the Pods is assumed at **40,500 sq.ft.**

Two existing bridges (Bridges #9 and #10) connect the Pods and Cinesphere to the mainland. Bridge #10 connects the north end of Ontario Place at Lakeshore Boulevard (the site of the OSC new building) to the north end of Pod #2 and the Cinesphere. Bridge #9 connects the east side of Pod #5 to the east island of Ontario Place. Because the bridges are considered circulation, they are included in the overall Gross Floor Area. The Gross Floor Area for bridges #9 and #10 is **17,500 sq.ft.** (based on Partisan drawings provided by IO) and Altus Building Condition Assessment report 2019).

The Gross Floor Area of the Cinesphere is estimated at **19,700 sq.ft.** (based on a partial set of original drawings)

Breakdown of Gross Floor Area for the new OSC complex is as follows. (By comparison, the current Ontario Science Centre is 568,000 gross sq.ft.)

New OSC at Ontario Place	Gross Floor Area (sq.ft.)
New Mainland Building	198,000
Pods	40,500
Bridges (9 and 10)	17,500
Cinesphere	19,700
Total:	275,700

Note: Gross floor areas provided to Lord by Infrastructure Ontario. Pods net and gross area are assumed to be the same amount.

SPACE ALLOCATION TABLE

The following table lists the net area program for OSC including New Building and the Pods.

Item	Functional Category	Space Name	Net Area (sf)	Preferred Location
A		Building Entry and Visitor Amenities	26,650	
A.1	Visitor Care Space	Atrium / Lobby "Wow Experience"	6,000	New Building
A.2	Visitor Care Space	Student, Camp and Group Intake / Marshalling	5,000	New Building
A.3	Visitor Care Space	Cloakroom / Lockers	1,000	New Building
A.4	Visitor Care Space	Public "Brown Bag" Lunch Area	Included in A.2	New Building
A.5	Visitor Care Space	Ticketing Kiosks	Included in A.1	New Building
A.6	Visitor Care Space	Visitor Services / Admissions / Memberships	1,000	New Building
A.7	Visitor Care Space Support	Admissions Office / Cash Room	100	New Building
A.8	Visitor Care Space	Retail / Gift Shop	2,500	New Building
A.9	Visitor Care Space Support	Gift Shop Office / Merchandise Storage	500	New Building
A.10	Visitor Care Space	Retail Kiosks - Distributed (x4)	Distributed	New Building and Pods
A.11	Visitor Care Space	Cafeteria and Seating - Main	8,000	Pods
A.12	Visitor Care Space	Cafeteria and Seating - Satellite	1,000	New Building
A.13	Visitor Care Space Support	Cafeteria Office / Cash Room	100	Pods
A.14	Visitor Care Space Support	Strollers and Wheelchair Storage	400	New Building
A.15	Storage	Miscellaneous Lobby Storage	200	New Building
A.16	Visitor Care Space	First Aid / Sick Room 1	350	New Building
A.17	Visitor Care Space	First Aid / Sick Room 2	100	Pods
A.18	Visitor Care Space	Visitor Care Room	400	New Building
A.19	Visitor Care Space	Gender Neutral / Family Restrooms	GFA	Distributed
A		Education (Science School)	2,600	
A.20	Engagement Space (Exhibits/Programs)	Science School Classroom #1 WET	1,000	New Building
A.21	Engagement Space (Exhibits/Programs)	Science School Classroom #2 DRY	1,000	New Building
A.22	Storage	Secure Chemical Storage	100	New Building
A.23	Storage	Specimen Storage Cold	100	New Building
A.24	Engagement Space (Exhibits/Programs)	Student Lounge/Lockers/Kitchenette	400	New Building
A.25	Visitor Care Space	Gender Neutral / Family Restrooms	GFA	New Building
A		Engagement Spaces (Exhibit/Program TBD)	12,500	
A.26	Engagement Space (Exhibits/Programs)	Workshop (Lab) #1 - Wet Lab	1,250	Pods
A.27	Engagement Space (Exhibits/Programs)	Workshop (Lab) #2 - Wet Lab	1,250	New Building
A.28	Engagement Space (Exhibits/Programs)	Workshop (Lab) #3	1,250	Pods
A.29	Engagement Space (Exhibits/Programs)	Workshop (Lab) #4	1,500	New Building
A.30	Engagement Space (Exhibits/Programs)	Workshop (Lab) #5	1,500	New Building
A.31	Engagement Space (Exhibits/Programs)	Workshop (Lab) #6 - Escape Room	2,000	Pods
A.32	Storage	Workshops: Dedicated Storage	300	New Building
A.33	Engagement Space (Exhibits/Programs)	Maker Space	2,500	New Building
A.34	Engagement Space (Exhibits/Programs)	Change Room / Lockers (Camps and Maker Spaces)	500	New Building
A.35	Storage	Maker Space: Dedicated Storage	450	New Building
A.36	Visitor Care Space	Gender Neutral / Family Restrooms	GFA	Distributed

Item	Functional Category	Space Name	Net Area (sf)	Preferred Location
A		Engagement Spaces (Exhibit/Program TBD)	8,880	
A.37	Engagement Space (Exhibits/Programs)	Prototyping Lab - Maker	2,500	New Building
A.38	Engagement Space (Exhibits/Programs)	Prototyping Lab - "Research Live"	1,000	New Building
A.39	Engagement Space (Exhibits/Programs)	Prototyping Lab - Staff Office	100	New Building
A.40	Storage	Prototyping Lab - Storage	400	New Building
A.41	Engagement Space (Exhibits/Programs)	Science Demonstration Space 1	2,800	Pods
A.42	Engagement Space (Exhibits/Programs)	Science Demonstration Space 2	1,000	New Building
A.43	Storage	Educator Prep Prop Room / Storage (SDH)	300	New Building
A.44	Storage	Secure Chemical Storage and Prep (SDH)	200	New Building
A.45	Building Support	Sound Stage / Studio	400	New Building
A.46	Building Support	Production, Sound and Editing Room	100	New Building
A.47	Storage	Production Studio - Storage Room	80	New Building
A		Engagement Spaces (Exhibit/Program TBD)	0	
A.48	Engagement Space (Exhibits/Programs)	Planetarium	0	TBD. Future "add on"
A.49	Engagement Space (Exhibits/Programs)	Cinesphere (including interior circulation)	0	Cinesphere
A.50	Engagement Space (Exhibits/Programs)	Gender Neutral / Family Restrooms	GFA	Distributed
B		Engagement Space (Exhibition)	88,000	
B.1	Engagement Space (Exhibits/Programs)	Permanent Exhibit Hall 1	51,000	New Building
B.2	Engagement Space (Exhibits/Programs)	Permanent Exhibit Hall 2	22,000	Pods
B.3	Engagement Space (Exhibits/Programs)	Temporary Exhibit Halls	15,000	New Building
B.4	Engagement Space (Exhibits/Programs)	Gender Neutral / Family Restrooms	GFA	Distributed
C		Exhibit Support Spaces	11,400	
C.1	Visitor Care Space	Adult / Accessible Changing Room	700	New Building
C.2	Storage	Kidspark: Supplies Storage	600	New Building
C.3	Building Support	Kidspark: Dedicated Laundry Room	200	New Building
C.4	Visitor Care Space	Kidspark: Dedicated Restrooms	GFA	New Building
C.5	Building Support	Exhibit Maintenance Open Work Area	800	New Building
C.6	Building Support	Enclosed Collection Loading Bay	1,600	New Building
C.7	Building Support	Shipping / Receiving	3,000	New Building
C.8	Building Support	Crating / Uncrating Area	800	New Building
C.9	Office Space	Shipping / Receiving Security Station incl. Offices	500	New Building
C.10	Storage	Isolation / Quarantine	100	New Building
C.11	Storage	Crate Storage	800	New Building
C.12	Storage	Temporary Exhibits (Transit) Storage Area	800	New Building
C.13	Building Support	Clean Workshop / Exhibition Prep.	1,500	New Building

Item	Functional Category	Space Name	Net Area (sf)	Preferred Location
D		Administrative - OSC	14,000	
D.1	Office Space	Reception and Waiting	250	New Building
D.2	Office Space	Coat Closet	50	New Building
D.3	Office Space	Office CEO	250	New Building
D.4	Office Space	Offices: OSC Senior Leadership and Staff	3,600	New Building
D.5	Office Space	Open Workstations: Admin Support	1,300	New Building
D.6	Office Space	Bullpen - Open Work Area (Frontline Staff)	2,000	New Building
D.7	Meeting Space	Flex / Work "Huddle" Room #1	350	New Building
D.8	Meeting Space	Flex / Work "Huddle" Room #2	350	New Building
D.9	Meeting Space	Flex / Work "Huddle" Room #3	350	New Building
D.10	Storage	Printer / Photocopy / Supplies	250	New Building
D.11	Storage	Secure Hard Copy Records / File Storage	100	New Building
D.12	Meeting Space	Board / Committee Meeting Room	800	New Building
D.13	Meeting Space	Internal Management / Staff Meeting Room	450	New Building
D.14	Building Support	Staff Lactation Room	300	New Building
D.15	Building Support	Staff Lounge / Kitchenette / Lunchroom	400	New Building
D.16	Office Space	Bullpen - Open Work Area (Volunteers)	1,200	New Building
D.17	Office Space	Bullpen - Open Work Area (Student Employees)	2,000	New Building
D.18	Office Space	Gender Neutral Restrooms	GFA	Distributed
D		Administrative - Support	1,750	
D.19	Office Space	Offices - Food Services	200	New Building
D.20	Office Space	Offices - Site Managers	200	New Building
D.21	Office Space	Offices - Electronics Team	300	New Building
D.22	Office Space	Offices - IT Team	300	New Building
D.23	Building Support	IT Testing and Training Room	400	New Building
D.24	Meeting Space	Infrastructure Ontario / Services Staff Meeting Room	350	New Building
D.25	Building Support	Staff Lockers and Showers	GFA	New Building

Item	Functional Category	Space Name	Net Area (sf)	Preferred Location
D		Building Support	9,800	
D.26	Building Support	Staff / Maintenance Entry	GFA	New Building
D.27	Building Support	Building Maintenance Work Area	250	New Building
D.28	Building Support	Graphics and Design Studio (incl. Storage)	600	New Building
D.29	Storage	Exhibit Case / Prop Storage	1,200	New Building
D.30	Storage	Exhibit Lighting / Electrical Storage	400	New Building
D.31	Storage	Electronics Workshop and Storage	500	New Building
D.32	Building Support	IT Server Room	125	New Building
D.33	Storage	IT Asset Storage Room	100	New Building
D.34	Building Support	BAS Room	150	New Building
D.35	Storage	AV Storage Room	150	New Building
D.36	Storage	AV Closets (Distributed)	GFA	New Building
D.37	Building Support	Laundry Room - Industrial	250	New Building
D.38	Visitor Care Space Support	Food Services: Commercial Kitchen	2,500	Pods
D.39	Storage	Food Services: Dry Storage / Consumables	250	New Building
D.40	Storage	Food Services: Cold Storage	200	New Building
D.41	Storage	Food Services: Equipment Storage	350	New Building
D.42	Visitor Care Space Support	Food Services: Catering Staging Area	300	New Building
D.43	Storage	General Building / Equipment and Tool Storage	800	New Building
D.44	Storage	Table and Chair Storage (General)	700	New Building
D.45	Building Support	Garbage and Recycling Room / Compactor	250	New Building
D.46	Storage	General Building / Misc Storage	175	New Building
D.47	Storage	Chemical / Hazardous Storage and Disposal	100	New Building
D.48	Storage	Custodial Centre / Storage	450	New Building
D.49	Storage	Custodial Closets	GFA	New Building
D.50	Building Support	Freight / Service Elevator	GFA	New Building
D.51	Building Support	Gender Neutral Restrooms	GFA	Distributed
E		Exterior	Not Counted in Building Net Area	
E.1	Exterior	Adventure Playground (Ticketed)	0	Exterior
E.2	Exterior	Dedicated Storage (Adventure Playground)	0	Exterior
E.3	Exterior	Rootop Observation Experience	0	Exterior
E.4	Exterior	Green Roof	0	Exterior
E.5	Exterior	Exterior Lockers - Covered	0	Exterior
E.6	Exterior	Outdoor Café Seating	0	Exterior
E.7	Exterior	Entry Plaza / Outdoor Activity (Non Ticketed)	0	Exterior
E.8	Exterior	Car / Taxi / Valet Drop-off	0	TBD
E.9	Exterior	School Bus Queuing / Parking	0	TBD
E.10	Exterior	Bicycle Parking	0	TBD
E.11	Exterior	Guest Parking	0	TBD
E.12	Exterior	Service Parking	0	TBD
E.13	Exterior	Exterior Service Loading Area	0	TBD
E.14	Exterior	Exterior Refuse Bins	0	TBD
NET AREA SUB TOTAL (New Building and Pods)			175,580	

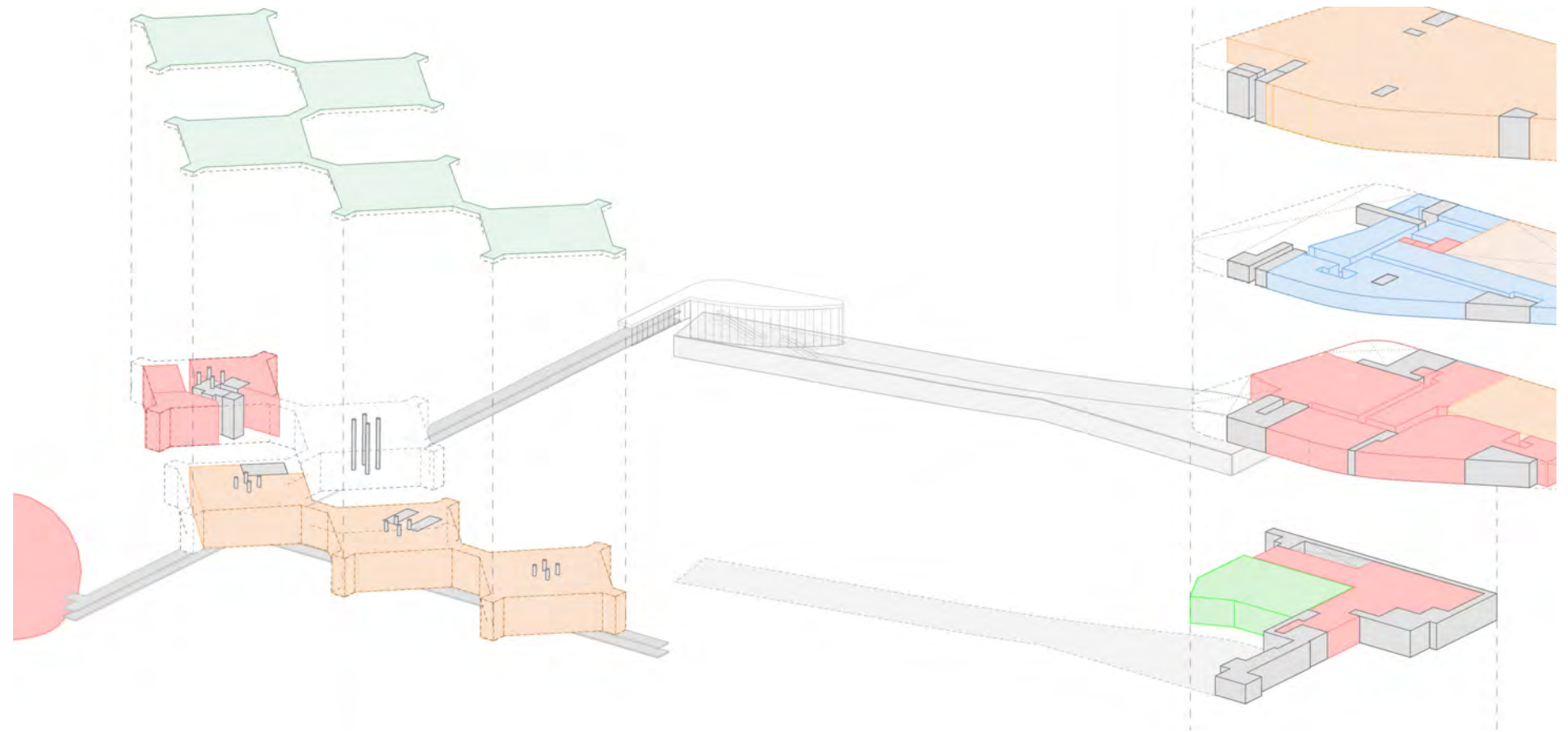
6. ADJACENCY DIAGRAMS

INTRODUCTION

The relationship between spaces is critical to maintaining efficiency and best practice. The following adjacency and circulation diagrams visually communicate the appropriate interactions among those areas identified in the space program. These diagrams illustrate:

- Access: Entrance to and egress for visitors and collections
- Adjacency: The sequence of primary and support spaces within functional areas
- Circulation: The preliminary routes of travel for visitors and staff (front of house), collections, staff and supplies (back of house)

While these diagrams are illustrative, the individual spaces are drawn proportionately to each other based on total net area. They should not be read as an architectural floor plan, but rather as a recommended circulation flow diagram to guide subsequent design and overall layout.

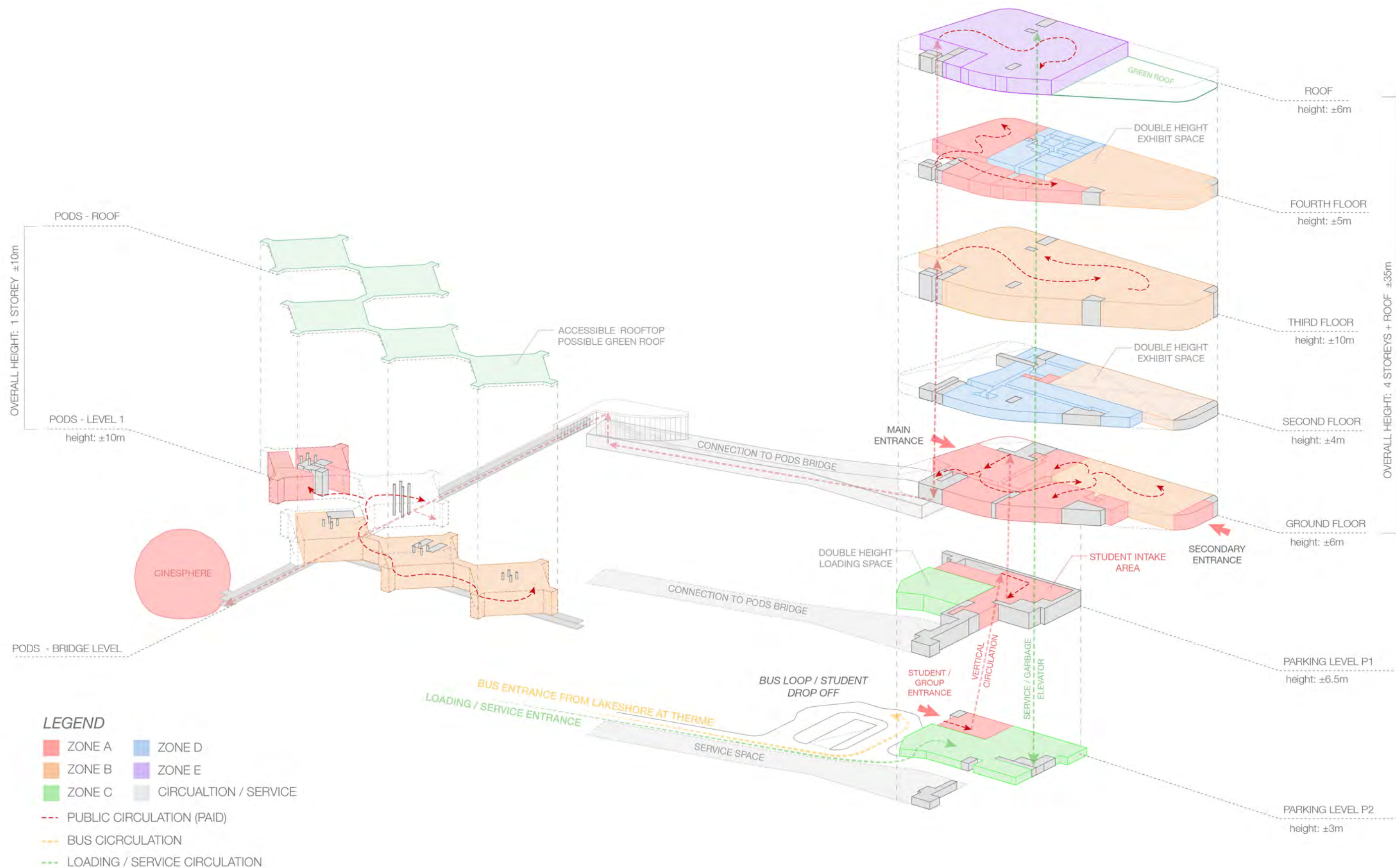


Ontario Science Centre at Ontario Place Program Test Fit

19 January 2023

BDP.
Quadrangle

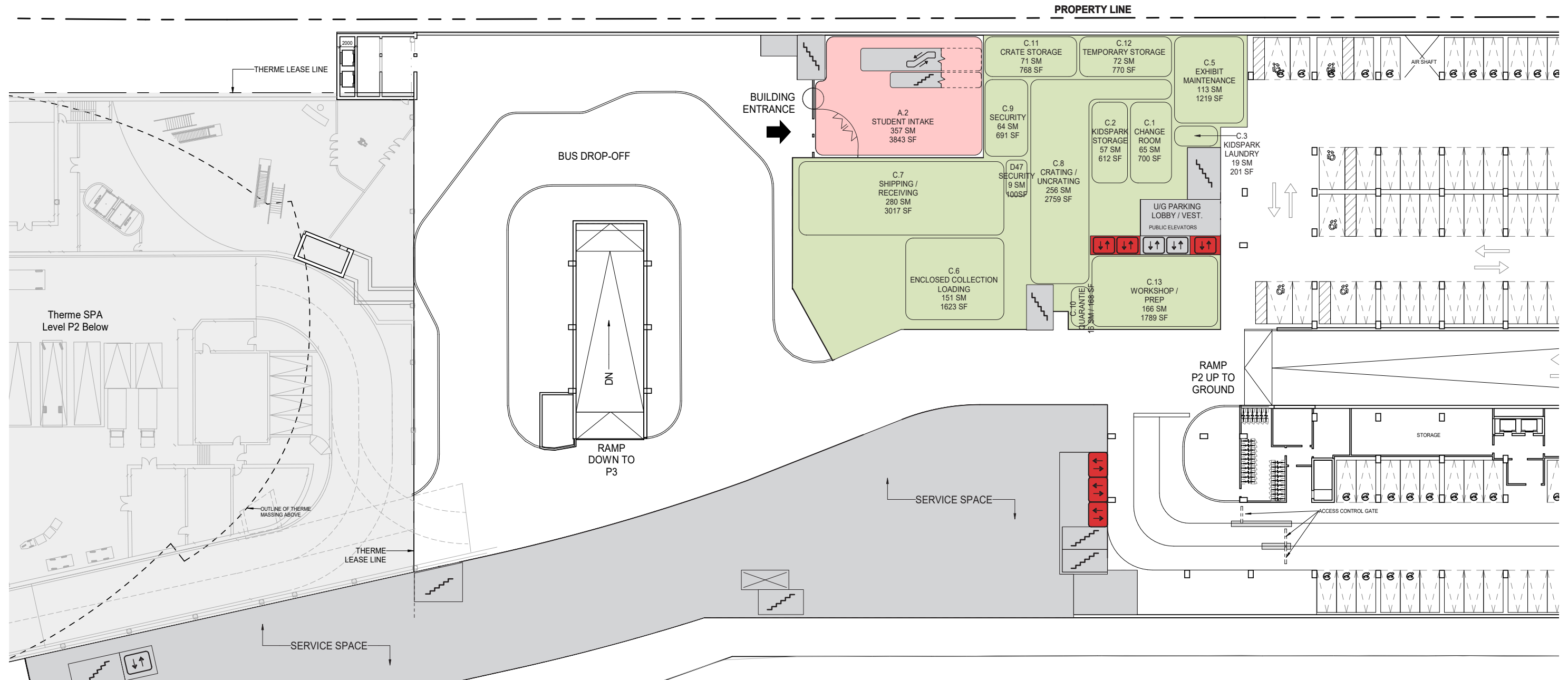
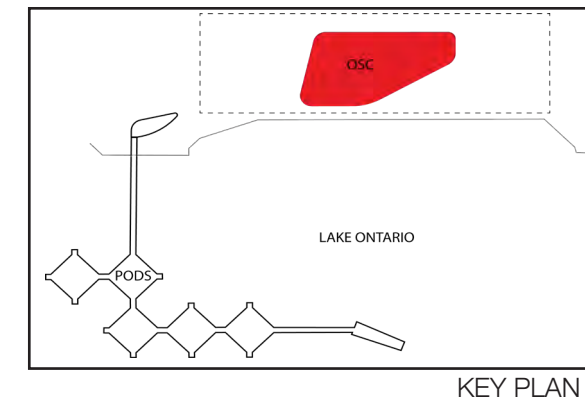
t 416 598 1240
www.bdpquadrangle.com
Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100
Toronto, ON M5V 0S8



Axo Diagram

Legend:

- Zone A
- Zone D
- Zone B
- Zone E
- Zone C
- Circulation / Service

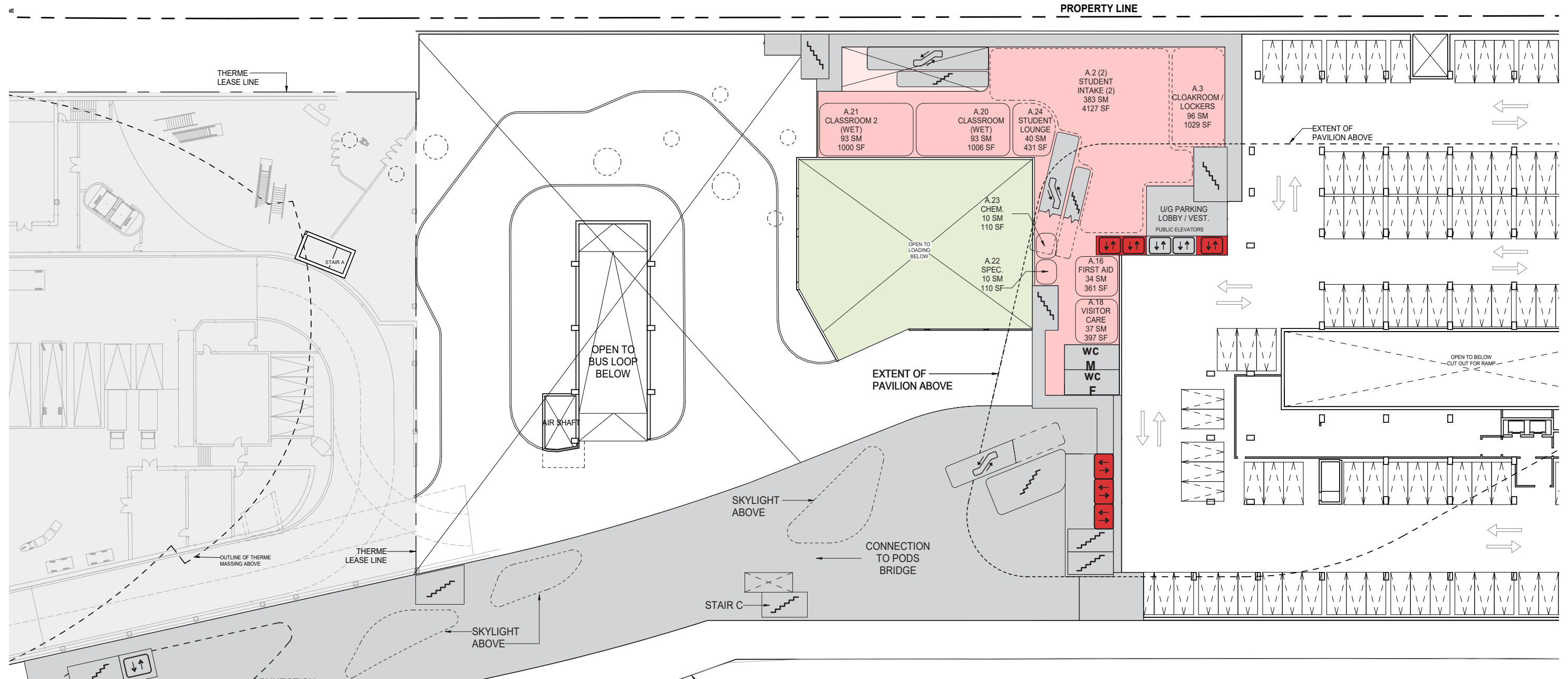
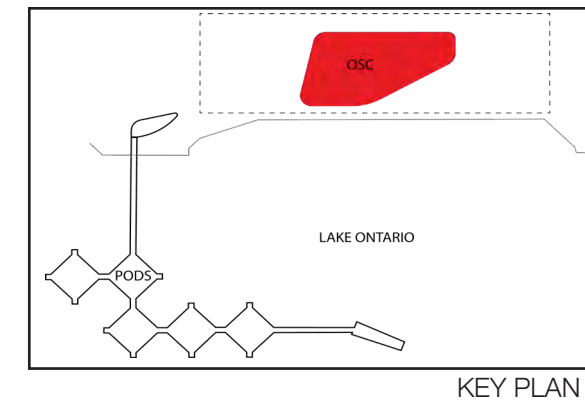


Parking Level P2



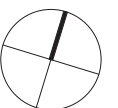
Legend:

- Zone A
- Zone D
- Zone B
- Zone E
- Zone C
- Circulation / Service



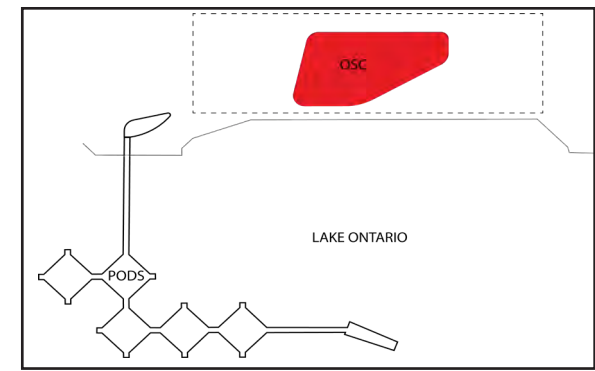
Note: Only stairs that are exclusively used for egress from OSC spaces are included in the GBA and GFA below grade.

Parking Level P1

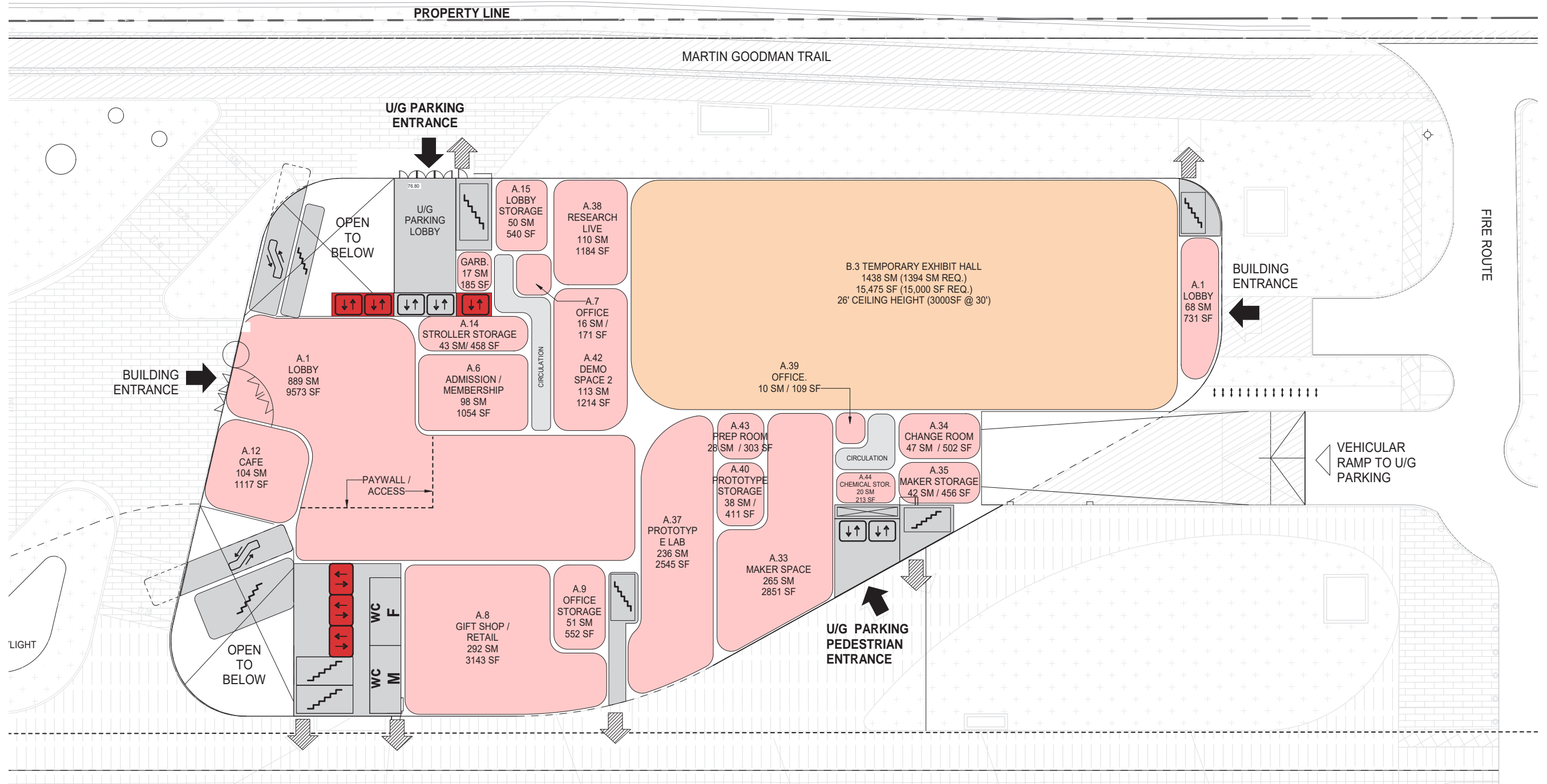


Legend:

- Zone A
- Zone D
- Zone B
- Zone E
- Zone C
- Circulation / Service



LAKE SHORE BOULEVARD WEST

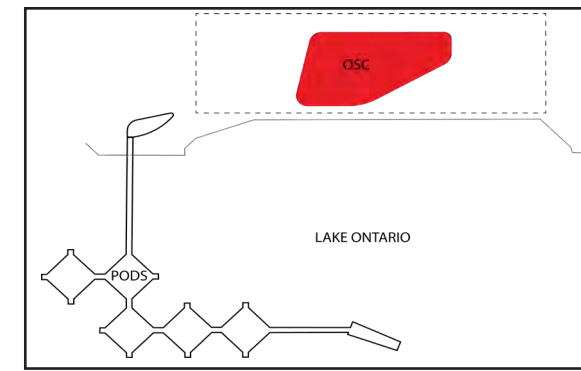


Ground Floor

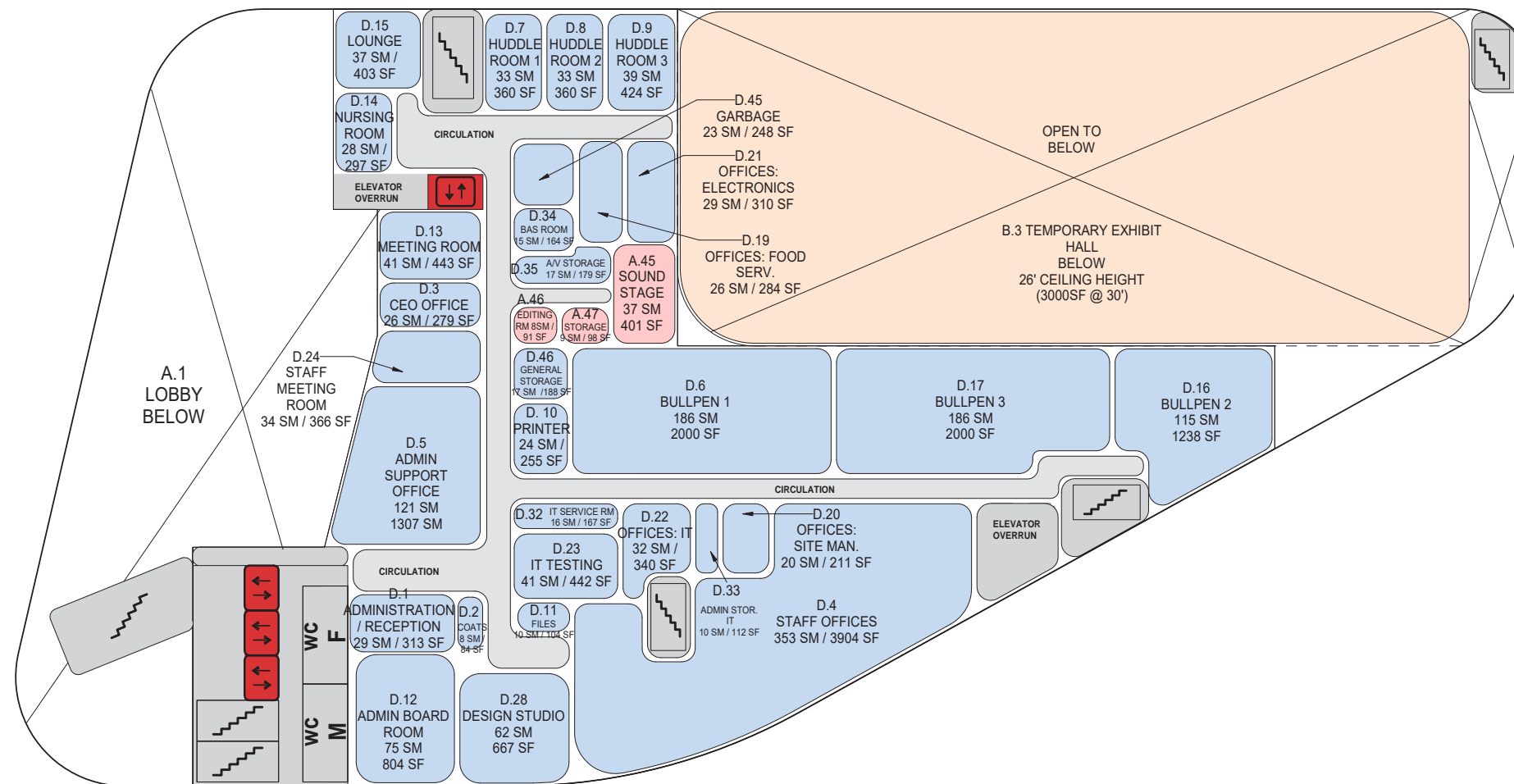


Legend:

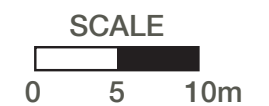
- Zone A
- Zone D
- Zone B
- Zone E
- Zone C
- Circulation / Service



KEY PLAN

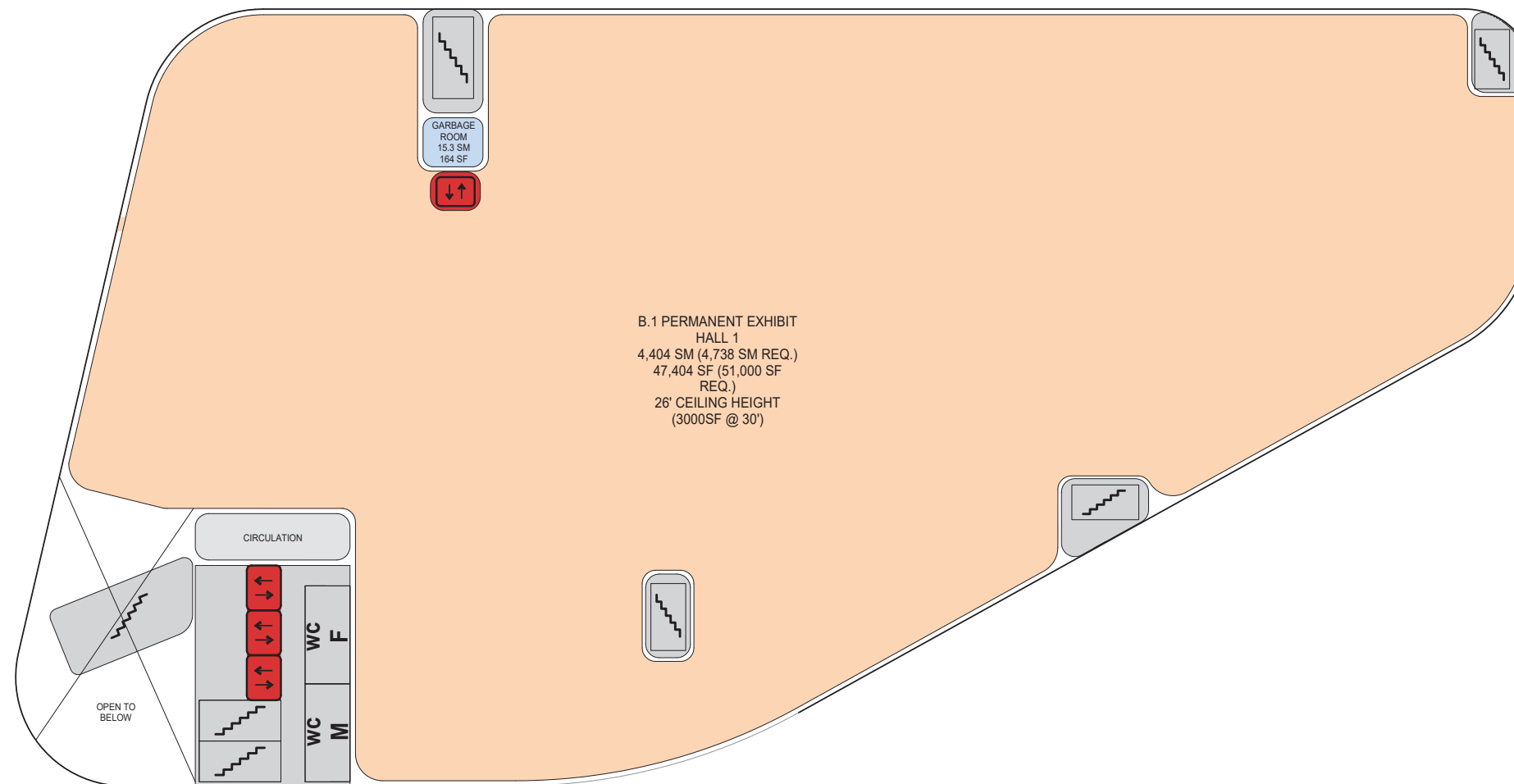
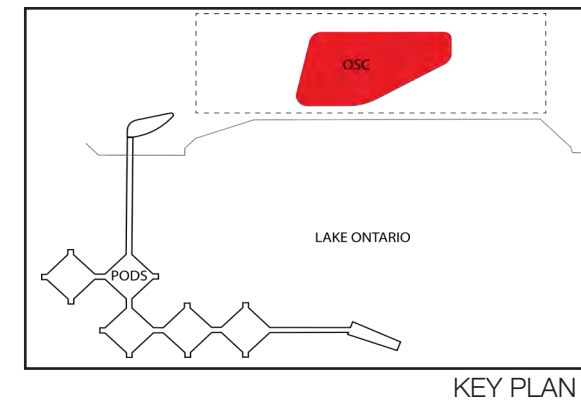


Second Floor



Legend:

- Zone A
- Zone B
- Zone C
- Zone D
- Zone E
- Circulation / Service

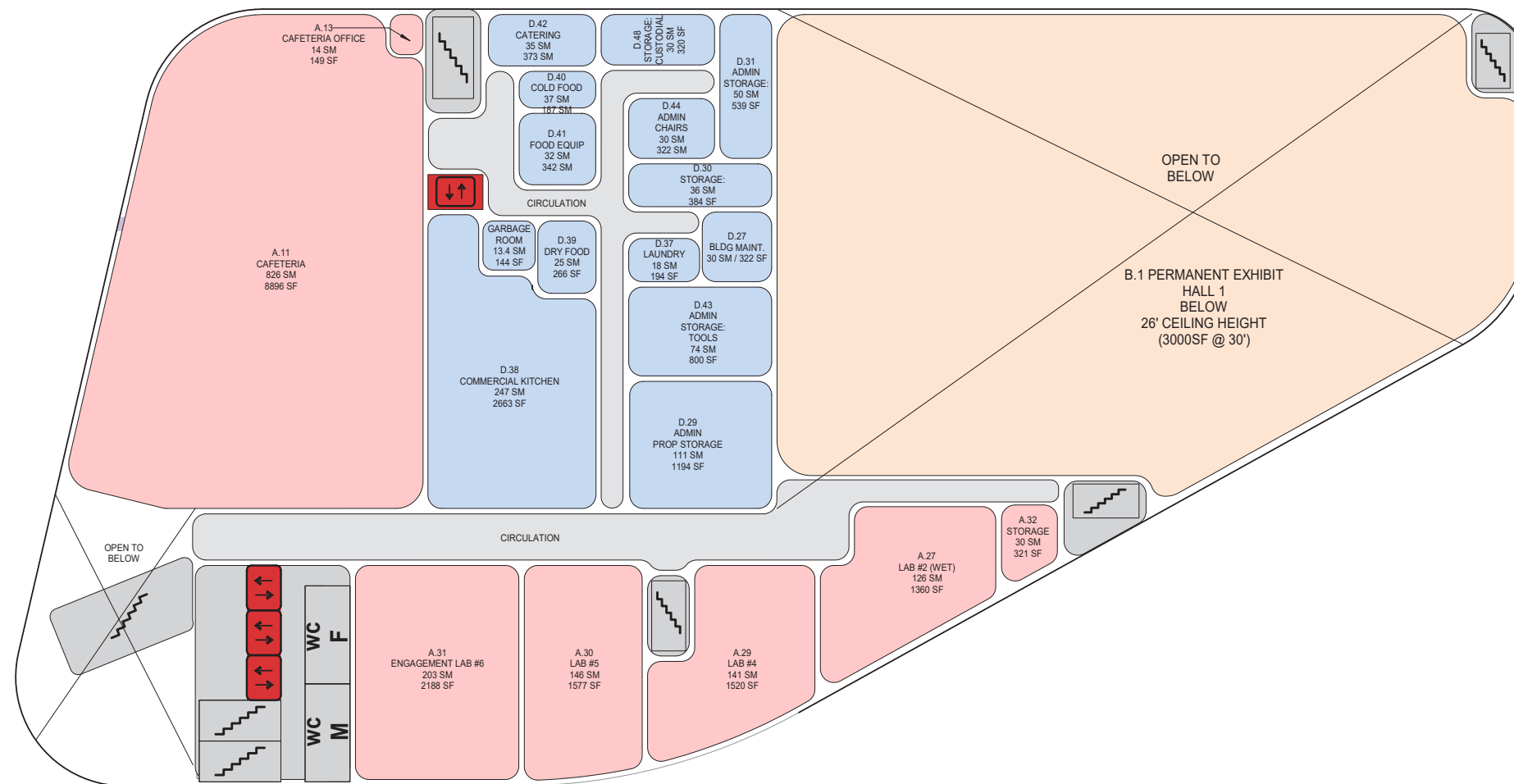
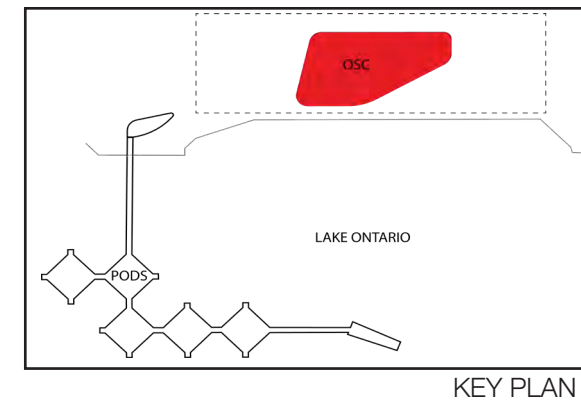


Third Floor



Legend:

- Zone A
- Zone D
- Zone B
- Zone E
- Zone C
- Circulation / Service

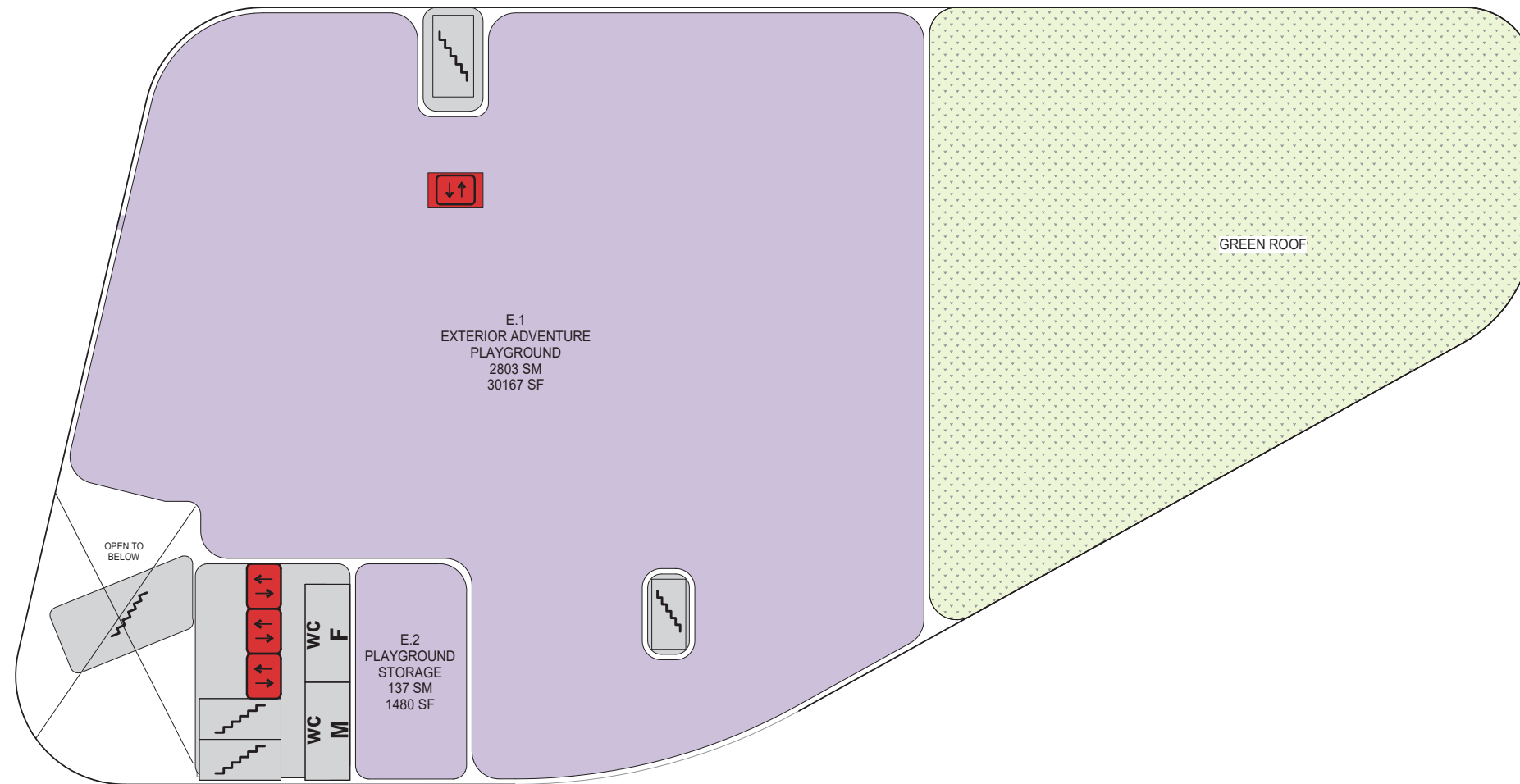
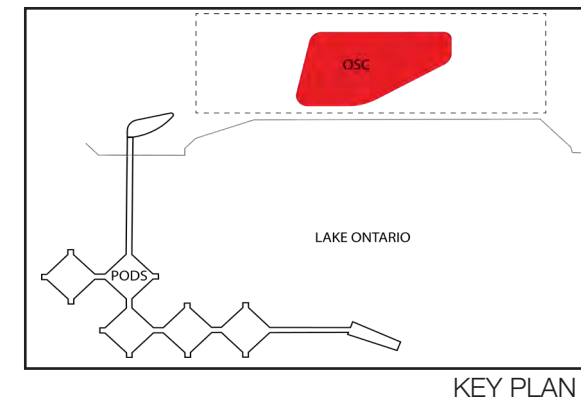


Fourth Floor

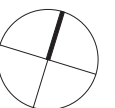
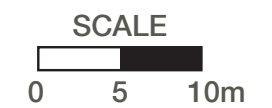


Legend:

- Zone A
- Zone B
- Zone C
- Zone D
- Zone E
- Circulation / Service

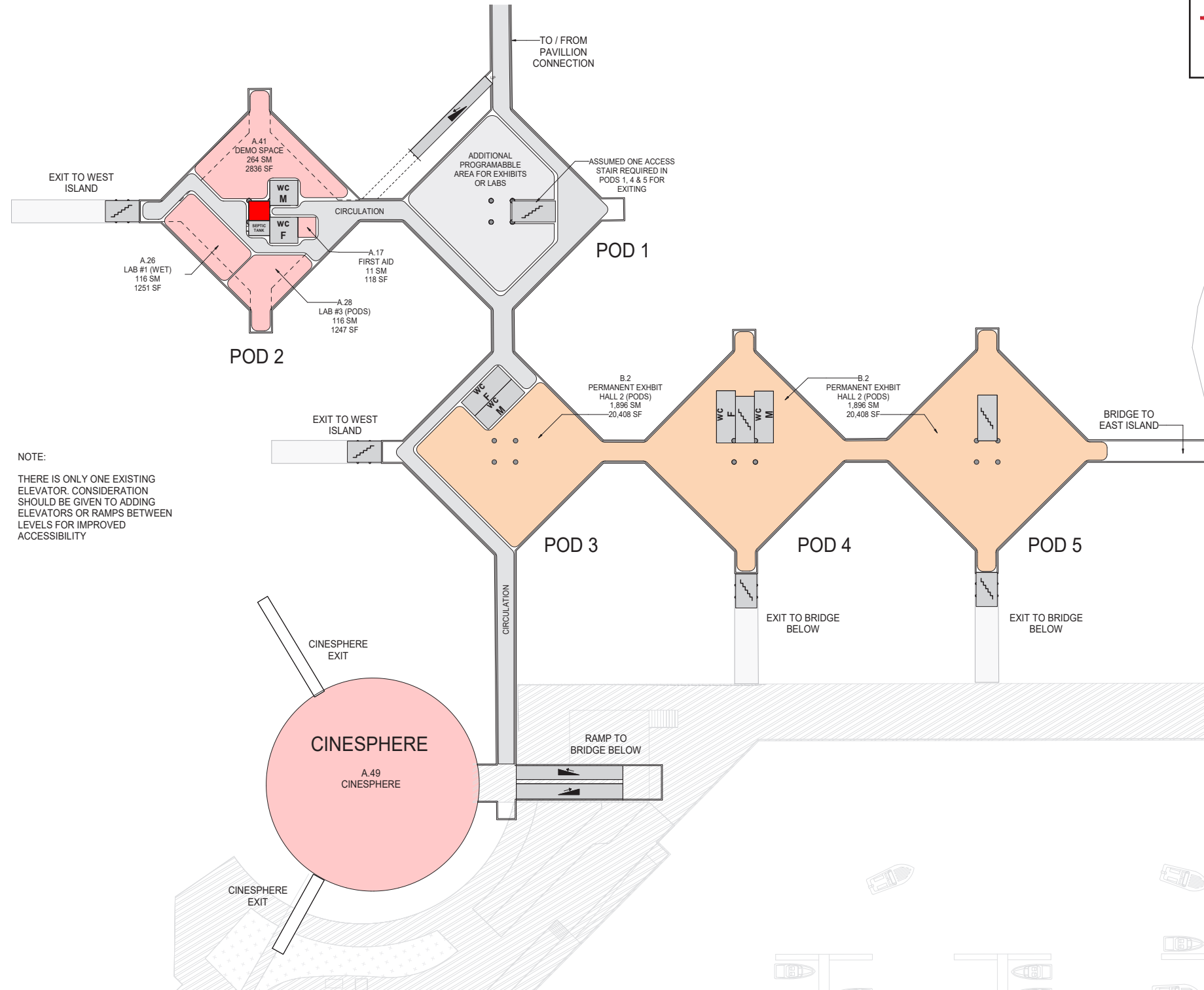
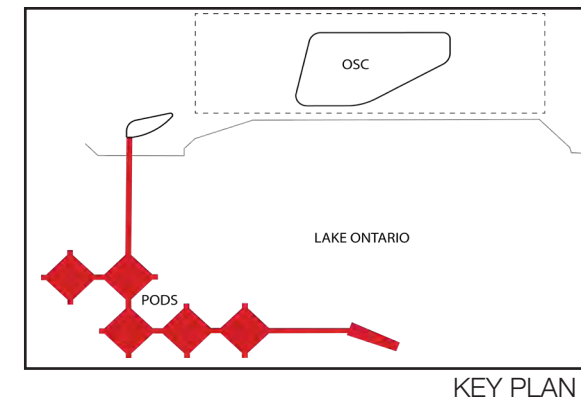


Roof Level



Legend:

- Zone A
- Zone B
- Zone C
- Zone D
- Zone E
- Circulation / Service

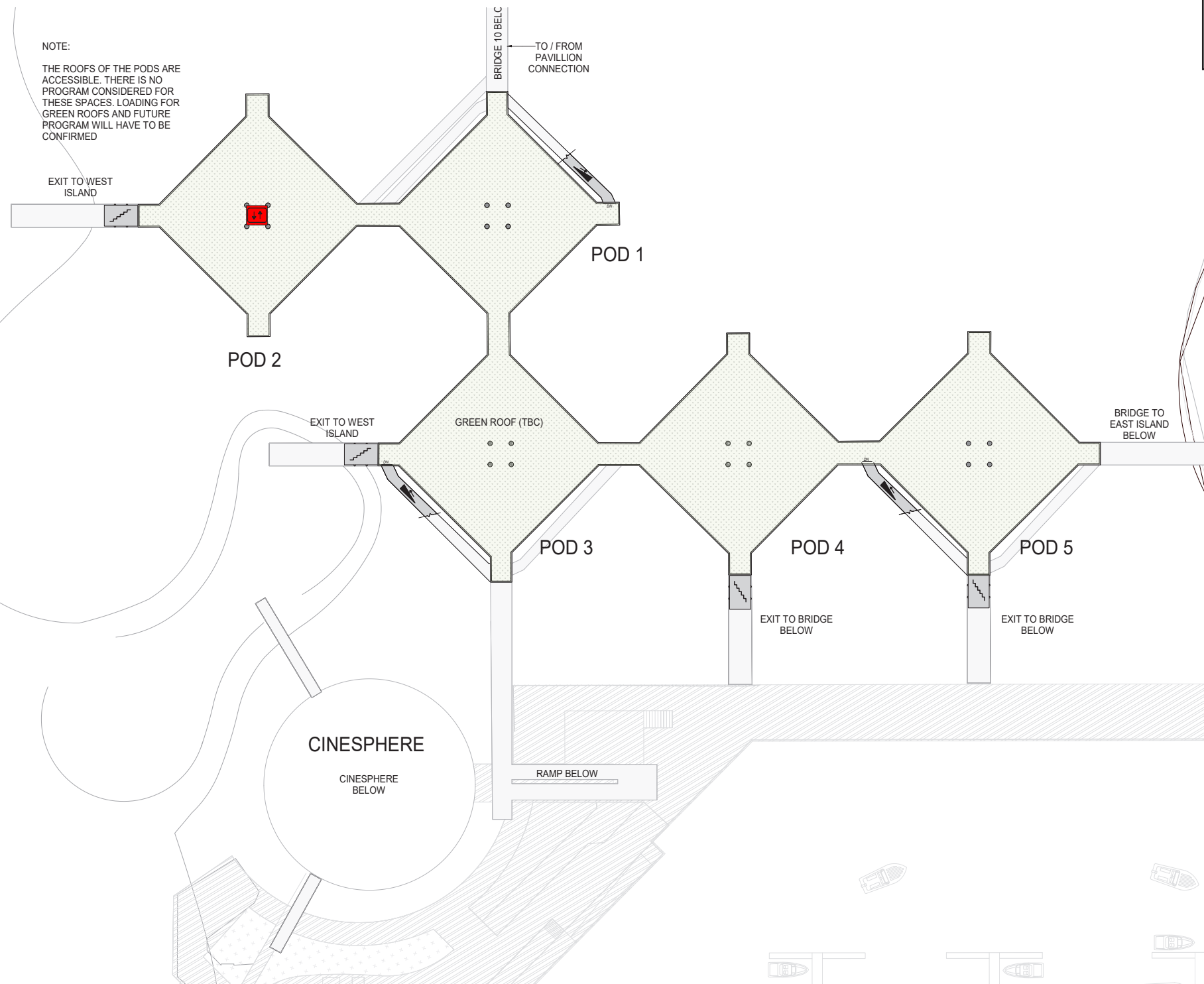
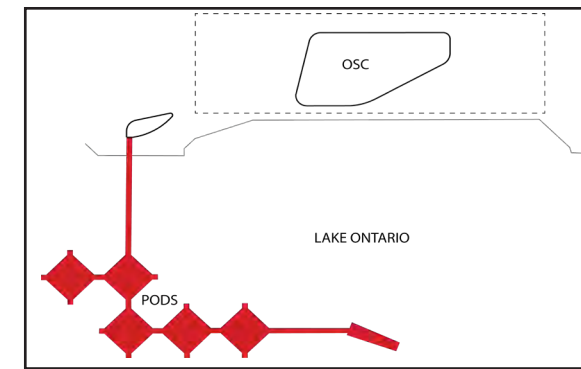


Pods Level 1

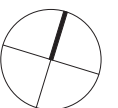


Legend:

- Zone A
- Zone B
- Zone C
- Zone D
- Zone E
- Circulation / Service



Pods Roof



Floor	GBA Gross Building Area (no exclusions)		GFA Exemptions (sm)	GFA	
	sm	sf		sm	sf
Roof					
Roof	0.0	0.0	0.0	0.0	0.0
Pavillion Program Spaces	3,031.0	32,625.1	0.0	3,031.0	32,625.1
M&E	0.0	0.0	0.0	0.0	0.0
Stairs	139.6	1,503.1	139.6	0.0	0.0
Elevators	35.1	377.8	35.1	0.0	0.0
Garbage Room	19.9	214.4	19.9	0.0	0.0
ROOF SUB-TOTAL	3,225.6	34,720.4	194.7	3,031.0	32,625.1
Floor 4					
Fourth Floor	0.0	0.0	0.0	0.0	0.0
Pavillion Program Spaces	2,717.8	29,254.7	0.0	2,717.8	29,254.7
M&E	0.0	0.0	0.0	0.0	0.0
Stairs	139.6	1,503.1	139.6	0.0	0.0
Elevators	35.1	377.8	35.1	0.0	0.0
Garbage Room	13.4	144.4	13.4	0.0	0.0
FLOOR 4 SUB-TOTAL	2,906.0	31,280.0	188.2	2,717.8	29,254.7
Floor 3					
Third Floor	0.0	0.0	0.0	0.0	0.0
Pavillion Program Spaces	4,488.2	48,310.5	0.0	4,488.2	48,310.5
M&E	0.0	0.0	0.0	0.0	0.0
Stairs	139.6	1,503.1	139.6	0.0	0.0
Elevators	35.1	378.0	35.1	0.0	0.0
Garbage Room	19.9	214.4	19.9	0.0	0.0
FLOOR 3 SUB-TOTAL	4,682.9	50,406.0	194.7	4,488.2	48,310.5
Floor 2					
Second Floor	0.0	0.0	0.0	0.0	0.0
Pavillion Program Spaces	2,193.1	23,605.9	0.0	2,193.1	23,605.9
M&E	60.9	655.6	60.9	0.0	0.0
Stairs	139.6	1,502.6	139.6	0.0	0.0
Elevators	35.1	378.0	35.1	0.0	0.0
Garbage Room	23.0	247.5	23.0	0.0	0.0
FLOOR 2 SUB-TOTAL	2,451.7	26,389.6	258.6	2,193.1	23,605.9
GROUND FLOOR					
Ground Floor	0.0	0.0	0.0	0.0	0.0
Pavillion Program Spaces	4,016.4	43,232.3	0.0	4,016.4	43,232.3
M&E	6.2	66.6	6.2	0.0	0.0
Stairs	158.1	1,701.3	158.1	0.0	0.0
Elevator Lobbies	106.9	1,150.3	0.0	106.9	1,150.3
Elevators	84.7	911.9	84.7	0.0	0.0
Garbage Room	17.2	185.1	17.2	0.0	0.0
GROUND FLOOR SUB-TOTAL	4,389.4	47,247.5	266.2	4,123.3	44,382.6
PAVILLION BUILDING TOTAL					
	17,655.6	190,043.6	1,102.3	16,553.4	178,178.8

Floor	GBA Gross Building Area (no exclusions)		GFA Exemptions (sm)	GFA	
	sm	sf		sm	sf
Parking Level P1					
Parking Garage	0.0	0.0	0.0	0.0	0.0
Pavillion Program Spaces	970.5	10,446.8	0.0	970.5	10,446.8
Vestibules	19.9	214.4	0.0	19.9	214.4
M&E	0.0	0.0	0.0	0.0	0.0
Stairs	0.0	0.0	0.0	0.0	0.0
Elevator Lobbies	41.3	444.4	0.0	41.3	444.4
Elevators	43.2	464.6	43.2	0.0	0.0
Open to Loading Area	730.6	7,863.6	730.6	0.0	0.0
Washrooms	47.5	511.5	47.5	0.0	0.0
Air shafts & Storage	0.0	0.0	0.0	0.0	0.0
P1 SUB-TOTAL	1,853.0	19,945.3	821.2	1,031.7	11,105.5
Parking Level P2					
Parking Garage	0.0	0.0	0.0	0.0	0.0
Pavillion Program Spaces	1,316.3	14,169.1	0.0	1,316.3	14,169.1
Vestibules	54.9	590.9	0.0	54.9	590.9
M&E	0.0	0.0	0.0	0.0	0.0
Stairs	0.0	0.0	0.0	0.0	0.0
Elevator Lobbies	51.3	552.2	0.0	51.3	552.2
Elevators	41.3	444.5	41.3	0.0	0.0
Loading Area	723.7	7,790.0	723.7	0.0	0.0
Bus Loop	0.0	0.0	0.0	0.0	0.0
Air shafts & Storage	0.0	0.0	0.0	0.0	0.0
P2 SUB-TOTAL	2,187.6	23,546.7	765.0	1,422.5	15,312.2
PAVILLION UNDERGROUND AREA TOTAL					
	4,040.5	43,492.0	1,586.3	2,454.3	26,417.7

PODS LEVEL 1					
Ground Floor	0.0	0.0		0.0	0.0
Pavillion Program Spaces	3,896.2	41,938.3	0.0	3,896.2	41,938.3
M&E	0.0	0.0	0.0	0.0	0.0
Stairs	175.4	1,888.2	175.4	0.0	0.0
Elevator Lobbies	0.0	0.0	0.0	0.0	0.0
Elevators	12.4	133.9	12.4	0.0	0.0
Garbage Room	0.0	0.0	0.0	0.0	0.0
PODS LEVEL 1 SUB-TOTAL	4,084.1	43,960.3	187.9	3,896.2	41,938.3
PODS TOTAL					
	4,084.1	43,960.3	187.9	3,896.2	41,938.3

*Assumes Pods Bridge and Exterior Ramps are not included in GBA

Requested Net OSC Program Area

<p style="text-align: center;">Total Net Program Area Requested by Lord Cultural Resources:</p> <p style="text-align: center;">± 16,312 sm ± 175,580 sf</p>

Note: Net program area does not include circulation space.

Provided Gross OSC Program Area

<p style="text-align: center;">Gross Area Provided for OSC Program:</p> <p style="text-align: center;">Total Gross Building Area Provided:</p> <p style="text-align: center;">± 25,780.2 sm ± 277,495 sf</p> <p style="text-align: center;">Total Gross Floor Area Provided:</p> <p style="text-align: center;">± 22,904 sm ± 246,535 sf</p>
--

Note: Gross area includes all circulation and support space required for operation of the requested net program area.

Statistics GBA / GFA Summary				
TOTALS		sm	sf	
		Total Above Grade GBA	17,655.6	190,043.6
		Total OSC Below Grade GBA	4,040.5	43,492.0
		Total Pods GBA	4,084.1	43,960.3
		Total OSC Program GBA	25,780.2	277,495.9 *
		<i>* Not Including U/G Pods Connection</i>		
		Total Above Grade GFA	16,553.4	178,178.8
		Total OSC Below Grade GFA	2,454.3	26,417.7
		Total Pods GFA	3,896.2	41,938.3
		Total OSC Program GFA	22,903.8	246,534.8 *
	<i>* Not Including U/G Pods Connection</i>			

Assumptions and Exclusions:

GBA:

No By-law definition has been provided. For this project, Gross Building Area shall mean; the aggregate area of each floor measured from the exterior side of the exterior walls. Excludes only balconies, open to below areas as noted, and terraces. Includes all shafts, stairs, loading areas, below grade parking, and mechanical penthouses.

GFA:

as per By-law 569-2013, Gross Floor Area shall mean; the sum of the total area of each floor level of a building, above and below the ground, measured from the exterior of the main wall of each floor level.

30.5.40.40(1) Gross Floor Area Calculations for a Non-residential Building in a Commercial Zone Category

In the Commercial Zone category the gross floor area of a non-residential building is reduced by the area in the building used for:

- (A) required parking, loading and bicycle parking below-ground;
- (B) required loading spaces at the ground level and required bicycle parking spaces at or above-ground;
- (C) storage rooms, washrooms, electrical, utility, mechanical and ventilation rooms in the basement;
- (D) shower and change facilities and bicycle maintenance facilities required by this By-law for required bicycle parking spaces; [By-law: 839-2022]
- (E) elevator shafts;
- (F) mechanical penthouse; and
- (G) exit stairwells in the building.

NRGFA (Non Residential Gross Floor Area) as per By-law 569-2013 has been interpreted to exclude;

A Room or enclosed area, including its enclosing walls above or below grade that is used for heating, cooling, ventilation, CACF, mechanical or electrical equipment; required Loading facilities, moving rooms, service corridors, or Garbage rooms.

Statistics Summary

			OSC PROGRAM REQUIREMENTS		BDPQ PROVIDED				
Zone	Functional Category	Space Name	Net Area Required(sf)	Net Area Required(sm)	Net Area Provided(sf)	Net Area Provided(sm)	Preferred Location	Location on Drawings	Critical Adjacencies
A		Building Entry and Visitor Amenities	26,650	2,476	36,259	3,369			
A.1	Visitor Care Space	Atrium / Lobby "Wow Experience"	6,000	557	10,304	957	New Building	Ground Floor	A.2, A.3
A.2	Visitor Care Space	Student, Camp and Group Intake / Marshalling	5,000	465	7,970	740	New Building	P1 & P2 Level	A.1
A.3	Visitor Care Space	Cloakroom / Lockers	1,000	93	1,029	96	New Building	P1 Level	A.2
A.4	Visitor Care Space	Public "Brown Bag" Lunch Area	Included in A.2	Included in A.2	-	-	New Building	P1 and P2 Level	A.2
A.5	Visitor Care Space	Ticketing Kiosks	Included in A.1	Included in A.1	-	-	New Building	Ground Floor	A.1
A.6	Visitor Care Space	Visitor Services / Admissions / Memberships	1,000	93	1,054	98	New Building	Ground Floor	A.1
A.7	Visitor Care Space Support	Admissions Office / Cash Room	100	9	171	16	New Building	Ground Floor	A.6
A.8	Visitor Care Space	Retail / Gift Shop	2,500	232	3,143	292	New Building	Ground Floor	A.1
A.9	Visitor Care Space Support	Gift Shop Office / Merchandise Storage	500	46	552	51	New Building	Ground Floor	A.8
A.10	Visitor Care Space	Retail Kiosks - Distributed (x4)	Distributed	Distributed	-	0	New Building and Pods	New Building and Pods	Distributed
A.11	Visitor Care Space	Cafeteria and Seating - Main	8,000	743	8,896	826	New Building	Level 4	One Pod (possibly mezzanine)
A.12	Visitor Care Space	Cafeteria and Seating - Satellite	1,000	93	1,117	104	New Building	Ground Floor	A.1
A.13	Visitor Care Space Support	Cafeteria Office / Cash Room	100	9	149	14	Pods	Pods Level 1	A.11
A.14	Visitor Care Space Support	Strollers and Wheelchair Storage	400	37	458	43	New Building	Ground Floor	A.3
A.15	Storage	Miscellaneous Lobby Storage	200	19	540	50	New Building	Ground Floor	A.1
A.16	Visitor Care Space	First Aid / Sick Room 1	350	33	361	34	New Building	P1 Level	A.1
A.17	Visitor Care Space	First Aid / Sick Room 2	100	9	118	11	Pods	Pods Level 1	Pods
A.18	Visitor Care Space	Visitor Care Room	400	37	397	37	New Building	P1 Level	A.1
A.19	Visitor Care Space	Gender Neutral / Family Restrooms	GFA	GFA	-	-	Distributed	Distributed	
A		Education (Science School)	2,600	242	2,657	247			
A.20	Engagement Space (Exhibits/Programs)	Science School Classroom #1 WET	1,000	93	1,006	93	New Building	P1 Level	A.21
A.21	Engagement Space (Exhibits/Programs)	Science School Classroom #2 DRY	1,000	93	1,000	93	New Building	P1 Level	A.20
A.22	Storage	Secure Chemical Storage	100	9	110	10	New Building	P1 Level	A.20
A.23	Storage	Specimen Storage Cold	100	9	110	10	New Building	P1 Level	A.20
A.24	Engagement Space (Exhibits/Programs)	Student Lounge/Lockers/Kitchenette	400	37	431	40	New Building	P1 Level	A.20, A.21
A.25	Visitor Care Space	Gender Neutral / Family Restrooms	GFA	GFA			New Building	New Building	
A		Engagement Spaces (Exhibit/Program TBD)	12,500	1,161	13,271	1,233			
A.26	Engagement Space (Exhibits/Programs)	Workshop (Lab) #1 - Wet Lab	1,250	116	1,251	116	Pods	Pods Level 1	A.28

			OSC PROGRAM REQUIREMENTS		BDPQ PROVIDED				
Zone	Functional Category	Space Name	Net Area Required(sf)	Net Area Required(sm)	Net Area Provided(sf)	Net Area Provided(sm)	Preferred Location	Location on Drawings	Critical Adjacencies
A.27	Engagement Space (Exhibits/Programs)	Workshop (Lab) #2 - Wet Lab	1,250	116	1,356	126	New Building	Level 4	A.29,A.30
A.28	Engagement Space (Exhibits/Programs)	Workshop (Lab) #3	1,250	116	1,247	116	Pods	Pods Level 1	A.26
A.29	Engagement Space (Exhibits/Programs)	Workshop (Lab) #4	1,500	139	1,520	141	New Building	Level 4	A.27, A30
A.30	Engagement Space (Exhibits/Programs)	Workshop (Lab) #5	1,500	139	1,577	147	New Building	Level 4	A.29, A.27
A.31	Engagement Space (Exhibits/Programs)	Workshop (Lab) #6 - Escape Room	2,000	186	2,188	203	New Building	Level 4	A.30
A.32	Storage	Workshops: Dedicated Storage	300	28	323	30	New Building	Level 4	
A.33	Engagement Space (Exhibits/Programs)	Maker Space	2,500	232	2,851	265	New Building	Ground Floor	A.1,A.2, B.1
A.34	Engagement Space (Exhibits/Programs)	Change Room / Lockers (Camps and Maker Spaces)	500	46	502	47	New Building	Ground Floor	A.33
A.35	Storage	Maker Space: Dedicated Storage	450	42	456	42	New Building	Ground Floor	A.33
A.36	Visitor Care Space	Gender Neutral / Family Restrooms	GFA	GFA			Distributed	Distributed	
A		Engagement Spaces (Exhibit/Program TBD)	8,880	825	9,405	874			
A.37	Engagement Space (Exhibits/Programs)	Prototyping Lab - Maker	2,500	232	2,545	236	New Building	Ground Floor	A.33
A.38	Engagement Space (Exhibits/Programs)	Prototyping Lab - "Research Live"	1,000	93	1,184	110	New Building	Ground Floor	B.1
A.39	Engagement Space (Exhibits/Programs)	Prototyping Lab - Staff Office	100	9	109	10	New Building	Ground Floor	B.1
A.40	Storage	Prototyping Lab - Storage	400	37	411	38	New Building	Ground Floor	B.1
A.41	Engagement Space (Exhibits/Programs)	Science Demonstration Space 1	2,800	260	2,836	263	Pods	Pods Level 1	B.1
A.42	Engagement Space (Exhibits/Programs)	Science Demonstration Space 2	1,000	93	1,214	113	New Building	Ground Floor	B.1
A.43	Storage	Educator Prep Prop Room / Storage (SDH)	300	28	303	28	New Building	Ground Floor	A.43
A.44	Storage	Secure Chemical Storage and Prep (SDH)	200	19	213	20	New Building	Ground Floor	A.43
A.45	Building Support	Sound Stage / Studio	400	37	401	37	New Building	Level 2	Administrative area
A.46	Building Support	Production, Sound and Editing Room	100	9	91	8	New Building	Level 2	A.46
A.47	Storage	Production Studio - Storage Room	80	7	98	9	New Building	Level 2	A.46
A		Engagement Spaces (Exhibit/Program TBD)	0	0	0	0			
A.48	Engagement Space (Exhibits/Programs)	Planetarium	0	0			TBD. Future "add on"	TBD. Future "add on"	A.1
A.49	Engagement Space (Exhibits/Programs)	Cinesphere (including interior circulation)	0	0			Cinesphere	Cinesphere	
A.50	Engagement Space (Exhibits/Programs)	Gender Neutral / Family Restrooms	GFA	GFA			Distributed	Distributed	
B		Engagement Space (Exhibition)	88,000	8,175	83,287	7,738			
B.1	Engagement Space (Exhibits/Programs)	Permanent Exhibit Hall 1	51,000	4,738	47,404	4,404	New Building	Level 3	B.3, E.1, A.41

OSC Program

			OSC PROGRAM REQUIREMENTS		BDPQ PROVIDED				
Zone	Functional Category	Space Name	Net Area Required(sf)	Net Area Required(sm)	Net Area Provided(sf)	Net Area Provided(sm)	Preferred Location	Location on Drawings	Critical Adjacencies
B.2	Engagement Space (Exhibits/Programs)	Permanent Exhibit Hall 2	22,000	2,044	20,408	1,896	Pods	Pods Level 1	Pods
B.3	Engagement Space (Exhibits/Programs)	Temporary Exhibit Halls	15,000	1,394	15,475	1,438	New Building	Ground floor	B.1, E.1
B.4	Engagement Space (Exhibits/Programs)	Gender Neutral / Family Restrooms	GFA	GFA	0		Distributed	Distributed	
C		Exhibit Support Spaces	11,400	1,059	14,317	1,330			
C.1	Visitor Care Space	Adult / Accessible Changing Room	700	65	700	65	New Building	P2 Level	B.1
C.2	Storage	Kidspark: Supplies Storage	600	56	612	57	New Building	P2 Level	B.1
C.3	Building Support	Kidspark: Dedicated Laundry Room	200	19	201	19	New Building	P2 Level	B.1
C.4	Visitor Care Space	Kidspark: Dedicated Restrooms	GFA	GFA			New Building	New Building	B.1
C.5	Building Support	Exhibit Maintenance Open Work Area	800	74	1,219	113	New Building	P2 Level	B.1
C.6	Building Support	Enclosed Collection Loading Bay	1,600	149	1,623	151	New Building	P2 Level	C.6
C.7	Building Support	Shipping / Receiving	3,000	279	3,017	280	New Building	P2 Level	C.6
C.8	Building Support	Crating / Uncrating Area	800	74	2,759	256	New Building	P2 Level	C.6
C.9	Office Space	Shipping / Receiving Security Station incl. Offices	500	46	691	64	New Building	P2 Level	C.6
C.10	Storage	Isolation / Quarantine	100	9	168	16	New Building	P2 Level	C.6
C.11	Storage	Crate Storage	800	74	768	71	New Building	P2 Level	C.6
C.12	Storage	Temporary Exhibits (Transit) Storage Area	800	74	770	72	New Building	P2 Level	C.6
C.13	Building Support	Clean Workshop / Exhibition Prep.	1,500	139	1,789	166	New Building	P2 Level	C.6
D		Administrative - OSC	14,000	1,301	14,401	1,338			
D.1	Office Space	Reception and Waiting	250	23	277	26	New Building	Level 2	Administrative area
D.2	Office Space	Coat Closet	50	5	65	6	New Building	Level 2	Administrative area
D.3	Office Space	Office CEO	250	23	279	26	New Building	Level 2	Administrative area
D.4	Office Space	Offices: OSC Senior Leadership and Staff	3,600	334	3,804	353	New Building	Level 2	Administrative area
D.5	Office Space	Open Workstations: Admin Support	1,300	121	1,307	121	New Building	Level 2	Administrative area
D.6	Office Space	Bullpen - Open Work Area (Frontline Staff)	2,000	186	2,000	186	New Building	Level 2	Administrative area
D.7	Meeting Space	Flex / Work "Huddle" Room #1	350	33	360	33	New Building	Level 2	Administrative area
D.8	Meeting Space	Flex / Work "Huddle" Room #2	350	33	360	33	New Building	Level 2	Administrative area
D.9	Meeting Space	Flex / Work "Huddle" Room #3	350	33	424	39	New Building	Level 2	Administrative area
D.10	Storage	Printer / Photocopy / Supplies	250	23	255	24	New Building	Level 2	Administrative area
D.11	Storage	Secure Hard Copy Records / File Storage	100	9	78	7	New Building	Level 2	Administrative area
D.12	Meeting Space	Board / Committee Meeting Room	800	74	849	79	New Building	Level 2	Administrative area
D.13	Meeting Space	Internal Management / Staff Meeting Room	450	42	443	41	New Building	Level 2	Administrative area
D.14	Building Support	Staff Lactation Room	300	28	297	28	New Building	Level 2	Administrative area

OSC Program

			OSC PROGRAM REQUIREMENTS		BDPQ PROVIDED				
Zone	Functional Category	Space Name	Net Area Required(sf)	Net Area Required(sm)	Net Area Provided(sf)	Net Area Provided(sm)	Preferred Location	Location on Drawings	Critical Adjacencies
D.15	Building Support	Staff Lounge / Kitchenette / Lunchroom	400	37	403	37	New Building	Level 2	Administrative area
D.16	Office Space	Bullpen - Open Work Area (Volunteers)	1,200	111	1,200	111	New Building	Level 2	Administrative area
D.17	Office Space	Bullpen - Open Work Area (Student Employees)	2,000	186	2,000	186	New Building	Level 2	Administrative area
D.18	Office Space	Gender Neutral Restrooms	GFA	GFA			Distributed	Distributed	Administrative area
D		Administrative - Support	1,750	163	1,953	181			
D.19	Office Space	Offices - Food Services	200	19	284	26	New Building	Level 2	Administrative area
D.20	Office Space	Offices - Site Managers	200	19	211	20	New Building	Level 2	Administrative area
D.21	Office Space	Offices - Electronics Team	300	28	310	29	New Building	Level 2	Administrative area
D.22	Office Space	Offices - IT Team	300	28	340	32	New Building	Level 2	Administrative area
D.23	Building Support	IT Testing and Training Room	400	37	442	41	New Building	Level 2	Administrative area
D.24	Meeting Space	Infrastructure Ontario / Services Staff Meeting Room	350	33	366	34	New Building	Level 2	Administrative area
D.25	Building Support	Staff Lockers and Showers	GFA	GFA			New Building	New Building	Administrative area
D		Building Support	9,800	910	9,954	925			
D.26	Building Support	Staff / Maintenance Entry	GFA	GFA			New Building	New Building	E.12
D.27	Building Support	Building Maintenance Work Area	250	23	322	30	New Building	Level 4	D.43
D.28	Building Support	Graphics and Design Studio (incl. Storage)	600	56	890	83	New Building	Level 2	
D.29	Storage	Exhibit Case / Prop Storage	1,200	111	1,194	111	New Building	Level 4	C.6
D.30	Storage	Exhibit Lighting / Electrical Storage	400	37	384	36	New Building	Level 4	D.30,D31
D.31	Storage	Electronics Workshop and Storage	500	46	539	50	New Building	Level 4	D.30,D31
D.32	Building Support	IT Server Room	125	12	167	16	New Building	Level 2	D.32, D.33, D.34
D.33	Storage	IT Asset Storage Room	100	9	112	10	New Building	Level 2	D.32, D.33, D.34
D.34	Building Support	BAS Room	150	14	164	15	New Building	Level 2	D.32, D.33, D.34
D.35	Storage	AV Storage Room	150	14	179	17	New Building	Level 2	D.32, D.33, D.35
D.36	Storage	AV Closets (Distributed)	GFA	GFA	GFA	GFA	New Building	New Building	Distributed
D.37	Building Support	Laundry Room - Industrial	250	23	194	18	New Building	Level 4	D.37, D.38
D.38	Visitor Care Space Support	Food Services: Commercial Kitchen	2,500	232	2,663	247	New Building	Level 4	D.37, D.38
D.39	Storage	Food Services: Dry Storage / Consumables	250	23	266	25	New Building	Level 4	D.38
D.40	Storage	Food Services: Cold Storage	200	19	187	17	New Building	Level 4	D.38
D.41	Storage	Food Services: Equipment Storage	350	33	342	32	New Building	Level 4	D.38
D.42	Visitor Care Space Support	Food Services: Catering Staging Area	300	28	373	35	New Building	Level 4	D.38
D.43	Storage	General Building / Equipment and Tool Storage	800	74	800	74	New Building	Level 4	D.27
D.44	Storage	Table and Chair Storage (General)	700	65	322	30	New Building	Level 4	
D.45	Building Support	Garbage and Recycling Room / Compactor	250	23	248	23	New Building	Level 2	

			OSC PROGRAM REQUIREMENTS		BDPQ PROVIDED					
Zone	Functional Category	Space Name	Net Area Required(sf)	Net Area Required(sm)	Net Area Provided(sf)	Net Area Provided(sm)	Preferred Location	Location on Drawings	Critical Adjacencies	
D.46	Storage	General Building / Misc Storage	175	16	188	17	New Building	Level 2		
D.47	Storage	Chemical / Hazardous Storage and Disposal	100	9	100	9	New Building	Level 4		
D.48	Storage	Custodial Centre / Storage	450	42	320	30	New Building	Level 4		
D.49	Storage	Custodial Closets	GFA	GFA	GFA	GFA	New Building	New Building	Distributed	
D.50	Building Support	Freight / Service Elevator	GFA	GFA	GFA	GFA	New Building	New Building		
D.51	Building Support	Gender Neutral Restrooms	GFA	GFA	GFA	GFA	Distributed	Distributed		
E		Exterior	Not Counted in Building Net Area							
E.1	Exterior	Adventure Playground (Ticketed)	30,000	2,787	30882	2869	Exterior	Level 4	A.33	
E.2	Exterior	Dedicated Storage (Adventure Playground)	1,500	139	1615	150	Exterior	Level 4	A.33	
E.3	Exterior	Rootop Observation Experience	0	0			Exterior	Exterior	A.48	
E.4	Exterior	Green Roof	TBD	TBD			Exterior	Exterior		
E.5	Exterior	Exterior Lockers - Covered	0	0			Exterior	Exterior	E.7	
E.6	Exterior	Outdoor Café Seating	0	0			Exterior	Exterior	E.7	
E.7	Exterior	Entry Plaza / Outdoor Activity (Non Ticketed)	0	0			Exterior	Exterior	A.1	
E.8	Exterior	Car / Taxi / Valet Drop-off	0	0			Exterior	Exterior	A.1	
E.9	Exterior	School Bus Queuing / Parking	0	0			Exterior	Exterior	A.1	
E.10	Exterior	Bicycle Parking	0	0			Exterior	Exterior	A.1	
E.11	Exterior	Guest Parking	0	0			Exterior	Exterior		
E.12	Exterior	Service Parking	0	0			Exterior	Exterior	D.26	
E.13	Exterior	Exterior Service Loading Area	0	0			Exterior	Exterior		
E.14	Exterior	Exterior Refuse Bins	0	0			Exterior	Exterior		
NET AREA SUB TOTAL (New Building and Pods)			175,580	16,312	185,505	17,234				

OSC Program Area Summary

Summary Totals Per Functional Category	OSC PROGRAM REQUIREMENTS		BDPQ PROVIDED	
	Net Area (sf)	Net Area (sm)	Net Area Provided (sf)	Net Area Provided (sm)
Engagement Space (Exhibits/Programs)	109,550	10,178	106,105	9,857
Office Space	12,150	1,129	11,568	1,186
Meeting Space	2,650	246	2,802	260
Building Support	11,125	1,034	14,227	1,322
Storage	10,155	943	10,148	943
Visitor Care Space	26,050	2,420	35,089	3,260
Visitor Care Space Support	3,900	362	4,366	406
Total Net Area	175,580	16,312	184,305	17,234

Summary Totals by Location	Net Area (sf)	Net Area (sf)	Net Area (sf)	Net Area (sf)
New Building	135,580	12,596	139,804	13,540
Pods	40,000	3,716	45,701	3,694
Cinesphere	0	0	0	0
Total Net Area	175,580	16,312	185,505	17,234

- Program Spaces and Areas as per OSC Draft Space List provided by Lord Cultural Resources / Dated 02-Dec-22
- Ontario Place Pods, Cinesphere and Bridge Information taken from Pods Drawings A011 to A016, A101 to A103, A301, A500 to A506, A508, A510 to A513 and A516

Appendix L
Ontario Science Centre Site Land Value Analysis

Confidential and Privileged Advice to Government

3.1.1 Table Lands Option 1

This option explores the development of the table lands based on a transit oriented communities approach which provides opportunities to build vibrant, higher-density, mixed use communities that are connected to transit stations. This option illustrates range of 30- to 45-storey mixed-use buildings along Don Mills Road, with the highest buildings located adjacent to the proposed transit stations.

This option retains the existing Ontario Science Centre Building (Building A – 770 Don Mills Road) and the associated drop off area. The existing building may be retrofitted and/or re-purposed for cultural, institutional, or other non-residential uses.

Non-residential uses may refer to commercial, retail, office or employment uses.

STREETS – This option proposes a series of new streets (18.5m ROW) that extends the proposed road network south from the CreateTO development to align with Rochefort Drive. The existing road network adjacent to the OSC building will be retained.

BUILT FORM – This option proposes a series of high-rise buildings along Don Mills Road. Buildings range from 30- to 45-storeys, with the highest buildings located adjacent to the proposed Flemingdon Park Station, transitioning down from 45-, 40- and 30-storeys and back up-to 35- and 40-storeys towards Eglinton Avenue. The proposed heights and densities transition down towards the existing Ontario Science Centre Building to contribute to a varied skyline and complement the cultural significance and landmark attributes of the Ontario Science Centre Building. Towers are oriented along Don Mills Road with 6-storey podiums serving as the interface to the valley lands.

LAND USE - All buildings include some retail uses at-grade (approximately 25% of the ground-floor) and residential uses above. Furthermore, the building adjacent to Flemingdon Park Station, also proposes non-residential uses within the podium levels of the building.

PARKING - It is assumed that any parking required would be located below-grade, however there may be opportunities to provide parking above-grade, with the proper screening and design. While the subject lands are identified within Parking Zone A in the recently-revised city-wide parking standards, the parking calculations in this report have utilized provisions of Parking Zone B to capture the regional nature of the subject lands' future redevelopment. Similar to the existing Ontario Science Centre, future institutional uses on the subject lands are anticipated to draw visitors from beyond the city limits, therefore requiring a higher rate of parking.

DENSITY – The overall density for this option is 4.27 FSI.

PARKS AND OPEN SPACE – The existing park/ front lawn is proposed to serve as a key focal point within the lands, connecting the northern and southern portions of the site, and serving as the arrival point or gateway to the OSC building and connections to the valley. A series of mid-block connections are also envisioned between buildings to enhance pedestrian porosity and to connect any proposed publicly accessible open spaces (or courtyards).

DEVELOPMENT SUMMARY

TOTAL DEVELOPMENT AREA: 51,370 sm
(12.69ac)

TOTAL UNITS: 1,882 units

TOTAL GFA: 219,536 sm

Total Residential GFA: 188,166 sm

Total Non-Residential GFA: 14,785 sm

Total Commercial/Retail GFA: 2,949 sm

Total Institutional (Existing) GFA: 13,636 sm

Total Institutional (New) GFA: 0 sm

TOTAL PARKING: 136 spaces**

***for institutional uses only*

VALUATION SUMMARY (ERNST YOUNG)

The option was valued on an Order-of-Magnitude basis based on a high-level, comparable land sales research. The option allocates 2,057,162 SF of mixed-use multifamily (with surface-level retail), which is valued at a market-derived benchmark of \$160 PSF. In addition, a non-residential component consisting of 159,146 SF was valued at a market benchmark for comparable commercial office developments of \$80 PSF. The values were summed to a total value of \$341,878,000.

VALUATION ASSUMPTIONS - For illustrative purposes, an Order-of-Magnitude cost estimate was considered to account for:

1. Adaptive reuse of the existing OSC welcome pavilion; and,
2. Replacement parking.

Deductions for the average hard and soft costs of providing an estimated 136 surface parking spots netted an OSC value estimate of \$337,588,114. Further deductions for OSC retrofitting costs for the adaptive re-use of the original OSC building netted an average value creation estimate of \$283,769,881.

VALUE INDICATION:

\$283,770,000

Please refer to the Ernst Young OSC Valuation Summary for more details.

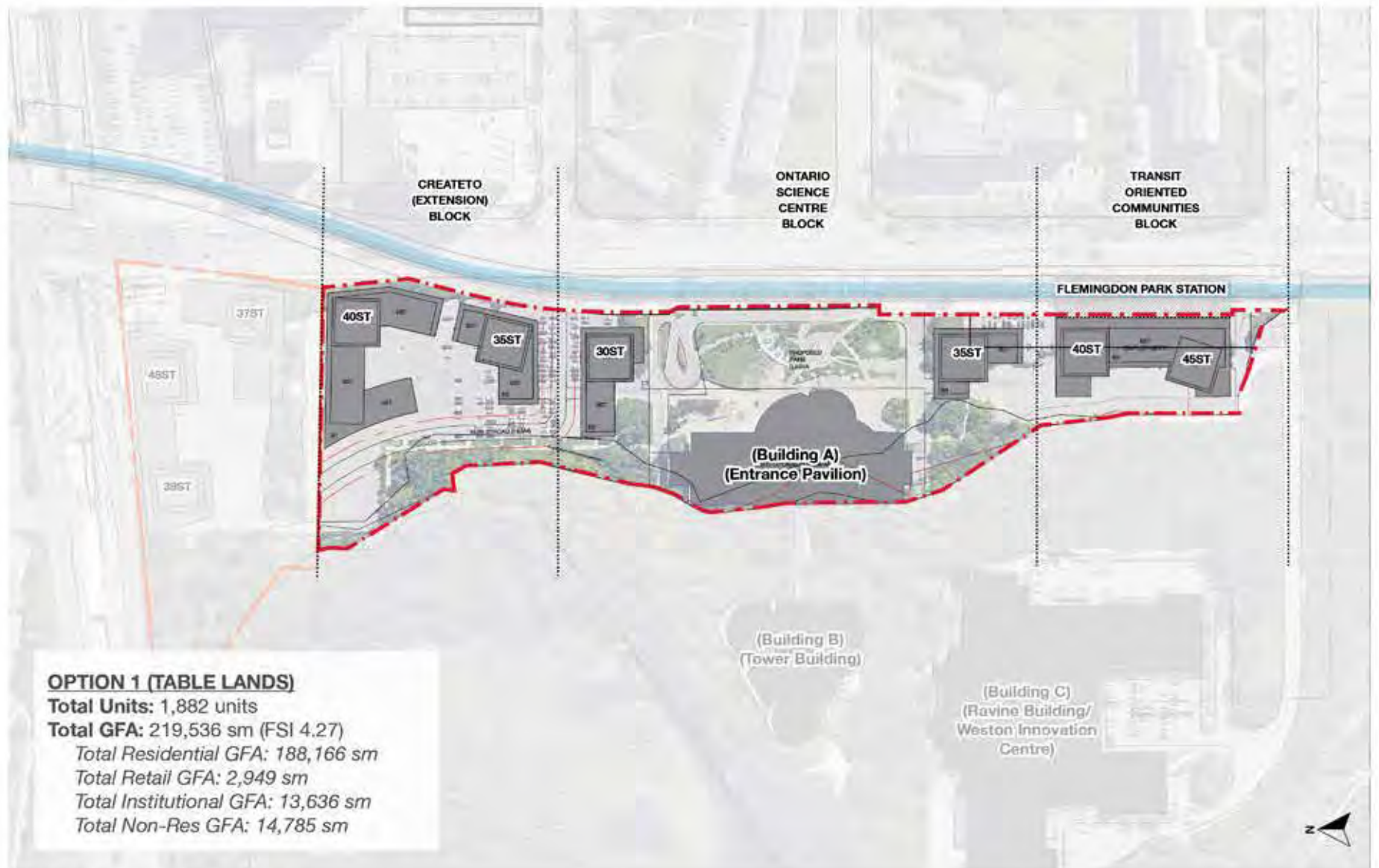


FIGURE 14: Table Lands Option 1 (Retain)



FIGURE 15: Table Lands Option 1 (Retain) - View Looking Northwest

3.1.2 Table Lands Option 2

This option explores the development of the table lands based on a transit oriented communities approach which provides opportunities to build vibrant, higher-density, mixed use communities that are connected to transit stations.

This option illustrates range of 30- to 45-storey mixed-use buildings along Don Mills Road, with the highest buildings located adjacent to the proposed transit stations. In addition to exploring the development of the table lands, this option proposes to restore the original OSC facade by demolishing the existing IMAX portion of and adding an 8-storey addition on top of the retained portions of the building (Building A – 770 Don Mills Road). The existing building may be retrofitted, re-purposed, and added onto for cultural, institutional or other non-residential uses, with additional non-residential GFA provided through the new addition. Non-residential uses may include commercial, office, retail or employment uses.

STREETS – This option proposes a series of new streets (18.5m ROW) that extends the proposed road network south from the CreateTO development to align with Rochefort Drive. The existing road network adjacent to the OSC building will be retained.

BUILT FORM –The proposed heights and densities transition down towards the Ontario Science Centre Building (existing/addition) to contribute to a varied skyline and complement the cultural significance and landmark attributes of the Ontario Science Centre Building. Towers are oriented along Don Mills Road with 6-storey podiums serving as the interface to the valley lands. Specifically, this option proposes a series of high-rise buildings that range from 30 to 45-storeys, with the highest buildings located adjacent to the proposed Flemingdon Park Station, transitioning down from 45-, 40- and 35-storeys and back up-to 30-, 35- and 40-storeys towards Eglinton Avenue.

The existing OSC building has a very elongated and horizontal profile. The addition shall be designed in a way that complements the existing profile of the building while defining it as a landmark within the site and area. The proposed addition will increase the building height to 10-storeys (2-storey existing + 8-storey addition). The shape and form of non-residential floor plates are larger than typical residential floor plates, at approximately 1,500sm, keeping the building low and more elongated. The size, height and form of the building is also aligned with several local and international precedents that inspired the building addition, such as the Ribbon Building Proposal in the Distillery District, the Richmond Peter Building, and the St. Thomas Street Addition in Toronto, Ontario.

LAND USE - This option proposes to demolish the existing IMAX portion of the OSC building, keeping to its original form, and building a new addition (non-residential) on-top. All buildings include some retail uses at-grade (approximately 25% of the ground-floor) and residential uses above. Furthermore, the building adjacent to Flemingdon Park Station, also proposes non-residential uses within the podium levels of the building.

PARKING - It is assumed that any parking required would be located below-grade, however there may be opportunities to provide parking above-grade, where proper screening and design. While the subject lands are identified within Parking Zone A in the recently-revised city-wide parking standards, the parking calculations in this report have utilized provisions of Parking Zone B to capture the regional nature of the subject lands' future redevelopment. Similar to the existing Ontario Science Centre, future institutional uses on the subject lands are anticipated to draw visitors from beyond the city limits, therefore requiring a higher rate of parking.

DENSITY – The overall density for this option is 4.47 FSI.

PARKS AND OPEN SPACE – The existing park/ front lawn is envision to serve as a key focal point within the lands, connecting the northern and southern portions of the site, and serving as the arrival point or gateway to the OSC building and connections to the valley. A series of mid-block connections are also envisioned between buildings to enhance pedestrian porosity and to connect any proposed publicly accessible open spaces (or courtyards). With the partial demolition of the IMAX portion of the OSC building, there will also be some opportunities to re-imagine and redesign the new space adjacent to the building.

DEVELOPMENT SUMMARY

TOTAL DEVELOPMENT AREA: 51,370 sm
(12.69ac)

TOTAL UNITS: 1,931 units

TOTAL GFA: 229,696 sm
Total Residential GFA: 193,066 sm
Total Non-Residential GFA: 21,885 sm
Total Commercial/Retail GFA: 2,949 sm
Total Institutional (Existing) GFA: 11,796 sm

TOTAL PARKING: 118 spaces**
***for institutional uses only*

VALUE INDICATION:
\$305,669,000 (Option 2)

Please refer to the Ernst Young OSC Valuation Summary for more details

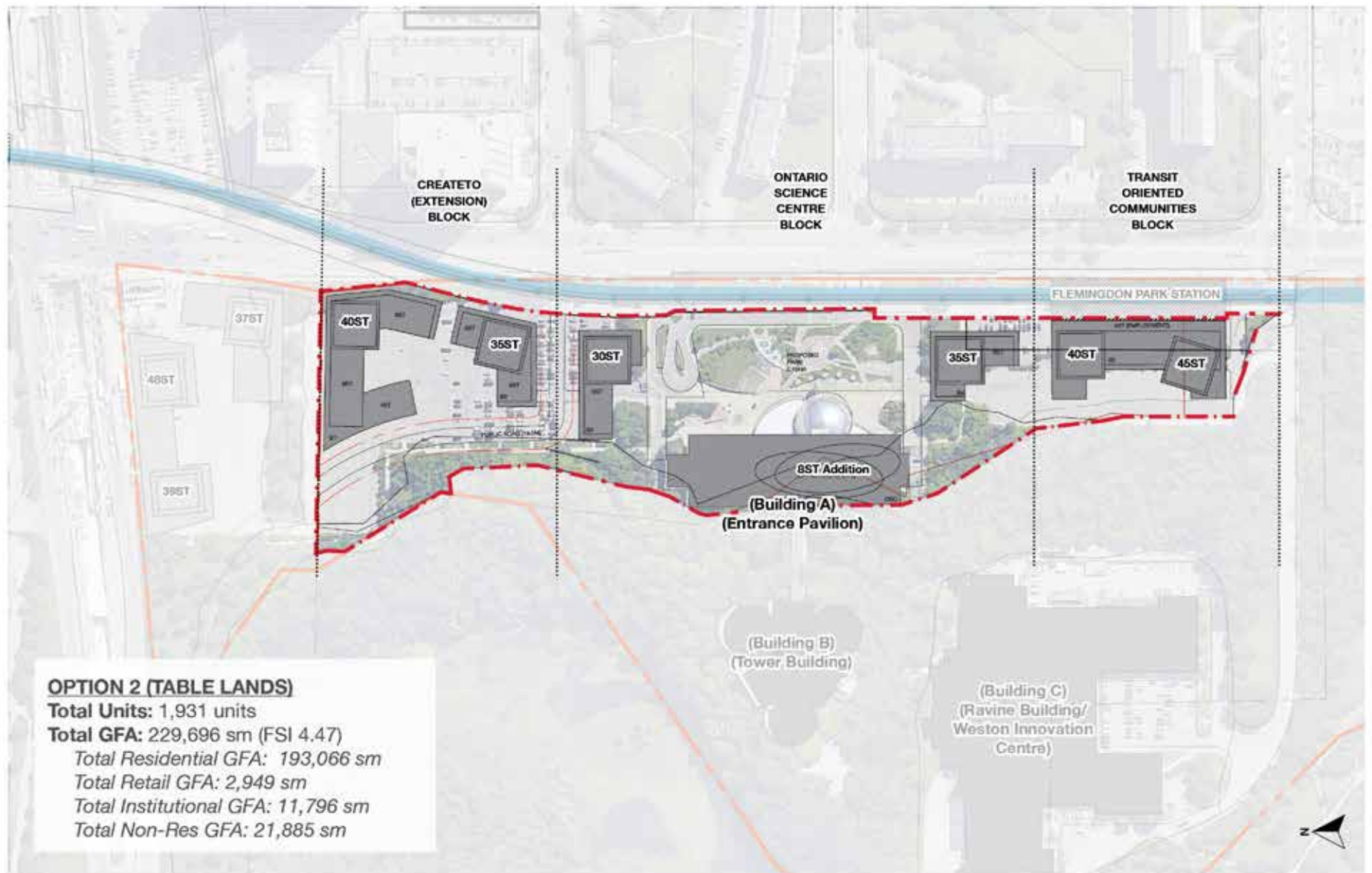


FIGURE 17: Table Lands Option 2 (Retain/Addition)



FIGURE 18: Table Lands Option 2 (Retain/Addition) - View Looking Northwest

3.1.4 Valuation - Bench Marks (EY)

ASSUMPTIONS: Research was conducted by EY on comparable development land sales for alternative uses. Sales data was used to derive various land use value benchmarks per buildable square feet of space (Figure 1), sourced from Altus as well as an internal database. The summarized benchmarks reflect a high-level market estimate, with minimal adjustments made for site-specific attributes. As a caveat, some additional assumptions warranted in the comparable unit value benchmarks derived are:

- / For Senior’s Housing benchmarks, variations in both the type and/or allocation of care delivered will have an impact on the underlying land values, such as long-term care facilities (LTCs) and Assisted/Independent living facilities.
- / For Affordable Housing benchmarks, variations in the income level for mixed-income properties limit the reliability of a blended market average rate (e.g., 80% market vs. 100% affordable).
- / To better estimate the value of the site under different contemplated uses, EY would recommend that a pro forma is developed, where timing and use allocation may be manipulated to inform estimates of value. The analysis would further benefit in permitting a sensitivity analysis to evaluate yield capitalization assumptions.

In our analysis of comparable unit value benchmarks for the Valley Land component (Section 3.2), a subjective discount of 25% was applied to Commercial Office and Senior’s Housing benchmarks (Figure 2). The discount, derived from primary EY research and secondary data sources, was applied on account of the Valley Land’s impaired accessibility characteristics, and the heritage preservation designation. These factors are estimated to present additional volatility and risk towards proposed developments to the Weston building relative to other development land transactions and warrant a decrease in the unit value benchmarks for proposed uses. As such, an adjusted benchmark of \$60 for Commercial Office and \$89 for Senior’s Housing appears to be better supported for Valley Land development projects.

It should be noted this order-of-magnitude estimate of land value is based on the hypothetical assumed ‘end state’ whereby all transit infrastructure is in place and operational.

Figure 1: Comparable Benchmarks

Land Use	
High-Rise Condominium	\$160
High-Rise Rental	\$140
Commercial Office	\$80
Senior's Housing	\$118
Affordable Housing	\$75

Source: RealNet & EY Research



Figure 2: Comparable Unit Value Benchmarks

	Commercial Office	Senior's Housing
Value Benchmark	\$80	\$118
EY Subjective Discount		
- Impaired access	-25%	-25%
- Heritage preservation		
Adj. Benchmark	\$60	\$89



3.1.5 Valuation - Summary (EY)

The valuation analysis assumed the Subject's Highest & Best Use as a high-density condominium tower, typically with street-facing retail at the base of the towers. To ensure comparability to proposed developments on the Subject site, data was compiled from comparable high-density residential land sales in the northeast Toronto, with the majority situated in proximity to future the Crosstown and/or existing transit service. A time adjustment, calculated to be approximately 4.75% per annum, was supported by a paired sales analysis for a comparably large, mixed-use site in the Leaside sub-market on Eglinton Avenue. The top-line values illustrated (Figure 3) reflect an Order-of-Magnitude value assessment based on a conceptual site design parameter and are subject to further adjustments outlined below.

Secondly, all options presented a non-residential component, estimated to be employment/office space, contributing to the overall mixed-use development. Likewise, Order-of-Magnitude value assessments based on the site design parameters are outlined below (Figure 4).

Lastly, the component values are assumed to determine the gross total value for each option (Figure 6). Adjustments to the combined component value, the sum of the multi-residential and office developments value, are indicated by the following deductions:

1. A deduction for replacement parking, consisting of 136 surface-level stalls or 30,000 square feet based on 200 square feet per stall with an efficiency/gross up of +10%. The average total hard costs and soft costs for the construction of the parking facilities was sourced from the Altus 2022 Cost Guide for the Greater Toronto Area.
2. A deduction for partial/full retrofitting costs of the existing OSC building for Option 1 and Option 2 for new uses as institutional/community space. Retrofitting costs were estimated based on a range of fit-out costs from cost guides and comparable retrofitted projects and were deducted as non-marketable space to be incorporated in the development.
3. A deduction for partial/full demolition costs of the existing OSC building for Option 2 and Option 3. Demolition costs were estimated based on a range of demolition and razing costs from cost guides.

4. A deduction for new community space for Option 3, indicated to be for the construction of a new 4-storey institutional podium. New improvement costs were sourced from the Altus 2022 Cost Guides for the Greater Toronto Area for assumed museum/gallery space as a placeholder for institutional space.

Of note, further analysis would be required by EY to account for the site's planning status (e.g., MZO), the prospect for affordable housing and/or the site's end use (e.g., purpose-built rental). Should additional information surface, EY would incorporate into its determination of the site's valuation.

3.2.1 Valley Lands Option 1

This option proposes to retain Building C (Ravine/Weston Innovation Building) and an additional level (of similar footprint) above the retained portions of the building (Building C – Ravine Lands) and a two-level parking structure in place of the existing surface parking lot. The existing building may be retrofitted, re-purposed, with new cultural, institutional or non-residential/office/employment uses, provided above.

LAND USE SUMMARY

TOTAL AREA: 31,000 sm (7.66 ac)

TOTAL GFA: 40,065 sm (1.29 FSI)

Total Institutional (Existing) GFA: 25,405 sm

Total Institutional (New) GFA: 14,660 sm

Total Parking Structure GFA: 12,700 sm

** Three (3) levels*

TOTAL PARKING: 392 spaces**

***for institutional uses only*

VALUATION SUMMARY (ERNST YOUNG)

The option assumes the non-market transfer of the existing Weston Building facility from one government entity to another, relying on an estimated depreciated capital cost (or “book value”) rather than the market value for the value of the improved property. The value indication rests on the presumption that no capital offset would be required for the other existing improvements, and that the additional density is permitted yet provides no commercial value.

VALUATION ASSUMPTIONS

- / The replacement cost, calculated based on 174,828 square feet of existing space, was valued at a replacement cost of \$709 PSF based on the Altus 2022 Cost Guide. Based on the Subject building’s effective age of 53 years, the Marshall & Swift Depreciation Rate of 80% was used to depreciate the existing improvements. This resulted in a discounted capital cost indication of \$24,796,000 (or approximately \$142/PSF).
- / OSC’s 2020 Annual Report identifies nearly \$11 million (\$10,622,000) of leasehold improvements/capital assets on their balance sheet. It is unclear on how this figure is allocated across the OSC, so the amount would be considered a minimum ‘value’ in the context of a non-profit/intergovernmental transfer.
- / Replacement parking was calculated for a proposed parking facility of 392 spots, deducted from the value indication.

Therefore, the average non-profit value indication for this option is the average of the DCC indication for existing space, and the book value for leasehold improvements from the OSC’s financial statements.

VALUE INDICATION:

\$5,660,000 (or \$32 PSF)

Please refer to the Ernst Young OSC Valuation Summary for more details

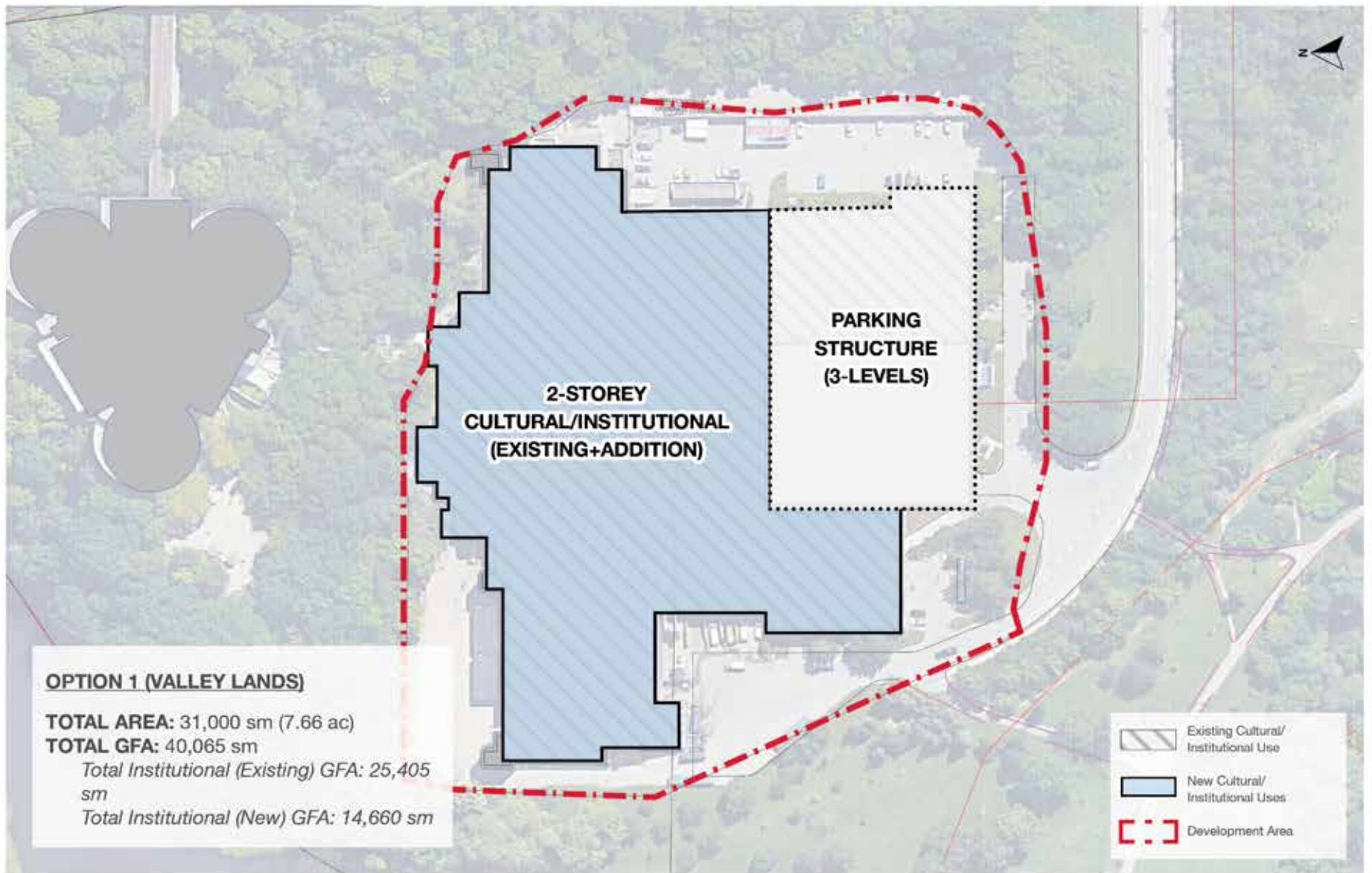


FIGURE 27: Valley Lands Land Use Option 1

3.2.2 Valley Lands Option 2

This option proposes to retain Building C (Ravine/Weston Innovation Building) and adds three additional levels of non-residential/office/employment uses above the eastern portion and one additional level of non-residential/office/employment above the western portion of the retained building (Building C – Ravine Lands). A two-level parking structure is located in place of the existing surface parking lot. The existing building may be retrofitted, re-purposed, with the new cultural, institutional or non-residential uses, provided above.

LAND USE SUMMARY

TOTAL AREA: 31,000 sm (7.66 ac)

TOTAL GFA: 42,805 sm (1.38 FSI)

Total Institutional (Existing) GFA: 25,405 sm

Total Institutional (New) GFA: 0 sm

*Total Employment/Non-Res/Office (New)
GFA: 17,400 sm*

Total Parking Structure GFA: 12,700 sm

** Three (3) levels*

TOTAL PARKING: 367 spaces**

***for institutional uses only*

VALUATION SUMMARY (ERNST YOUNG)

The option assumes that the existing Weston Building facility would be adapted into an office/innovation node. An adjusted unit value benchmark of \$60, having applied a -25% discount, is used to arrive an indicative market value (Figure 2). EY would typically use building condition information for the existing improvements to better understand project complexity and potential cost implications but has applied a unit value benchmark for conceptual purposes on the presumption that no capital offset would be required for existing improvements and that additional density will be permitted

VALUATION ASSUMPTIONS:

- / The discounted capital cost of existing improvements, as calculated in Option 1, is equal to \$17,709,000 (\$101 PSF).
- / Additional density for non-residential/employment space, estimated to be 187,224 SF and valued at a rate of \$60 PSF, results in a value indication of \$11,233,400 for the employment component.
- / Replacement parking was calculated for a proposed parking facility of 392 spots, deducted from the value indication.

VALUE INDICATION:

\$16,610,000 (or \$95 PSF)

Please refer to the Ernst Young OSC Valuation Summary for more details

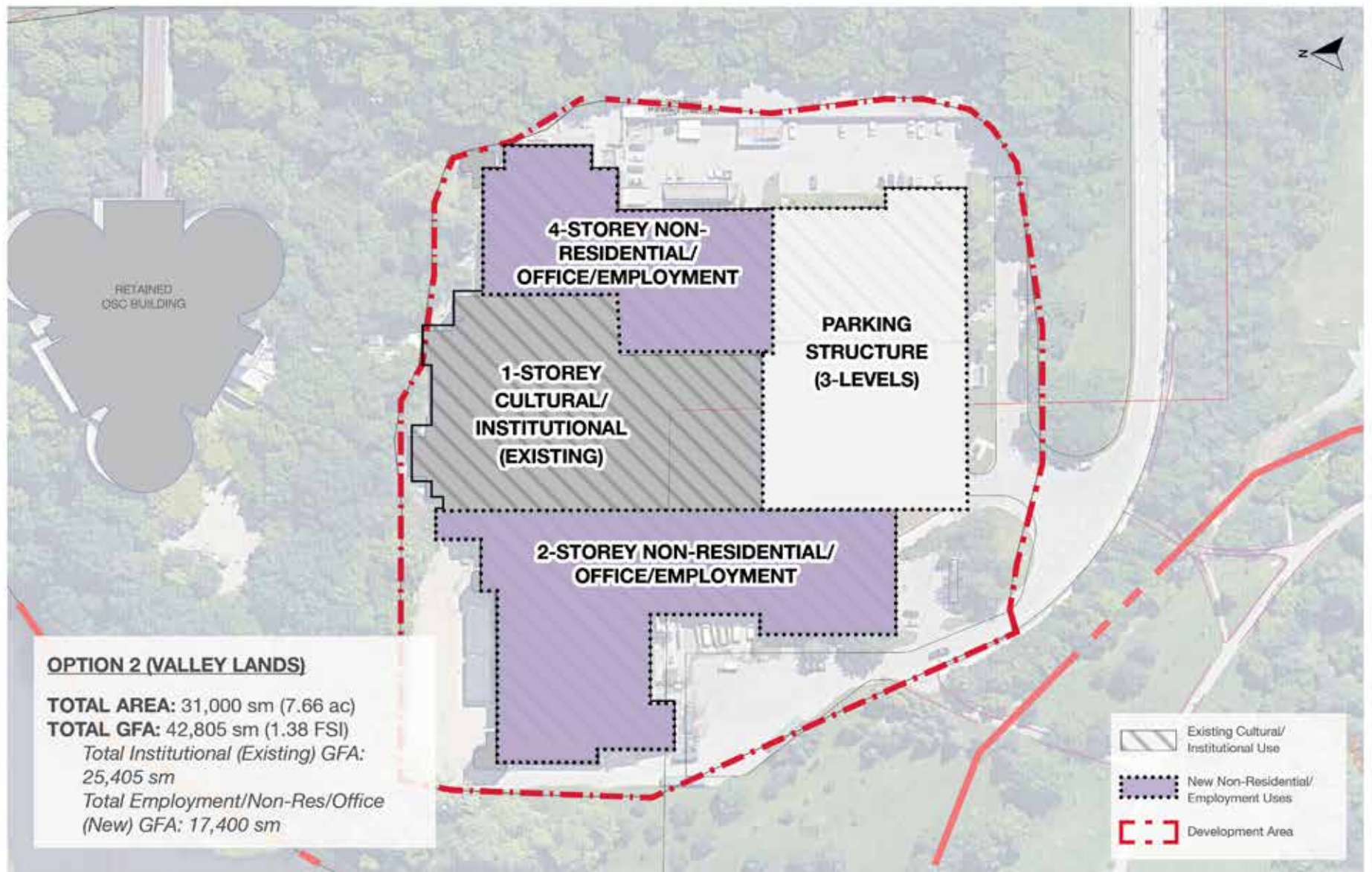


FIGURE 28: Valley Lands Land Use Option 2

3.2.3 Valley Lands Option 3

This option proposes the re-adaptation of the existing Building C (Ravine/Weston Innovation Building) into a mixed-use hub with one level of cultural/institutional uses and three additional levels of non-residential/office/employment and three additional levels of long-term care uses, provided above. On the southern portion, one level of cultural institutional uses are proposed above a two-level parking structure. The proposed uses do not exceed the existing building footprint of Building C.

LAND USE SUMMARY

TOTAL AREA: 31,000 sm (7.66 ac)

TOTAL GFA: 52,425 sm (1.69 FSI)

Total Institutional (Existing) GFA: 0 sm

Total Institutional (New) GFA: 12,925 sm

Total Employment/Non-Res/Office (New) GFA: 23,000 sm

Total Long-term Care (New) GFA: 16,500 sm

Total Parking Structure GFA: 8,776 sm

** Two (2) levels*

TOTAL PARKING: 251 spaces**

***for institutional uses only*

VALUATION SUMMARY (ERNST YOUNG)

The option assumes that the existing Weston Building facility would be adapted into mixed-use hub. An adjusted unit value benchmark of \$78 for proposed office space and \$89 for proposed Long-Term Care space, having applied a -25% discount to both, was used to arrive an indicative market value. EY would typically use building condition information for the existing improvements to better understand project complexity and potential cost implications but has applied a unit value benchmark for conceptual purposes on the presumption that no capital offset would be required for existing improvements and that additional density will be permitted.

VALUATION ASSUMPTIONS:

- / The discounted capital cost of existing improvements, as calculated in Option 1, is equal to \$17,709,000 (\$101 PSF).
- / Additional density for non-residential/employment space, estimated to be 247,480 SF and valued at a rate of \$60 PSF, results in a value indication of \$14,848,000 for the employment component.
- / Additional density for Long-Term Care space, estimated to be 177,540 SF and valued at a rate of \$89 PSF, results in a value indication of \$15,717,290 for the LTC component
- / Replacement parking was calculated for a proposed parking facility of 267 spots, deducted from the value indication.

VALUE INDICATION:

\$39,860,000

Please refer to the Ernst Young OSC Valuation Summary for more details

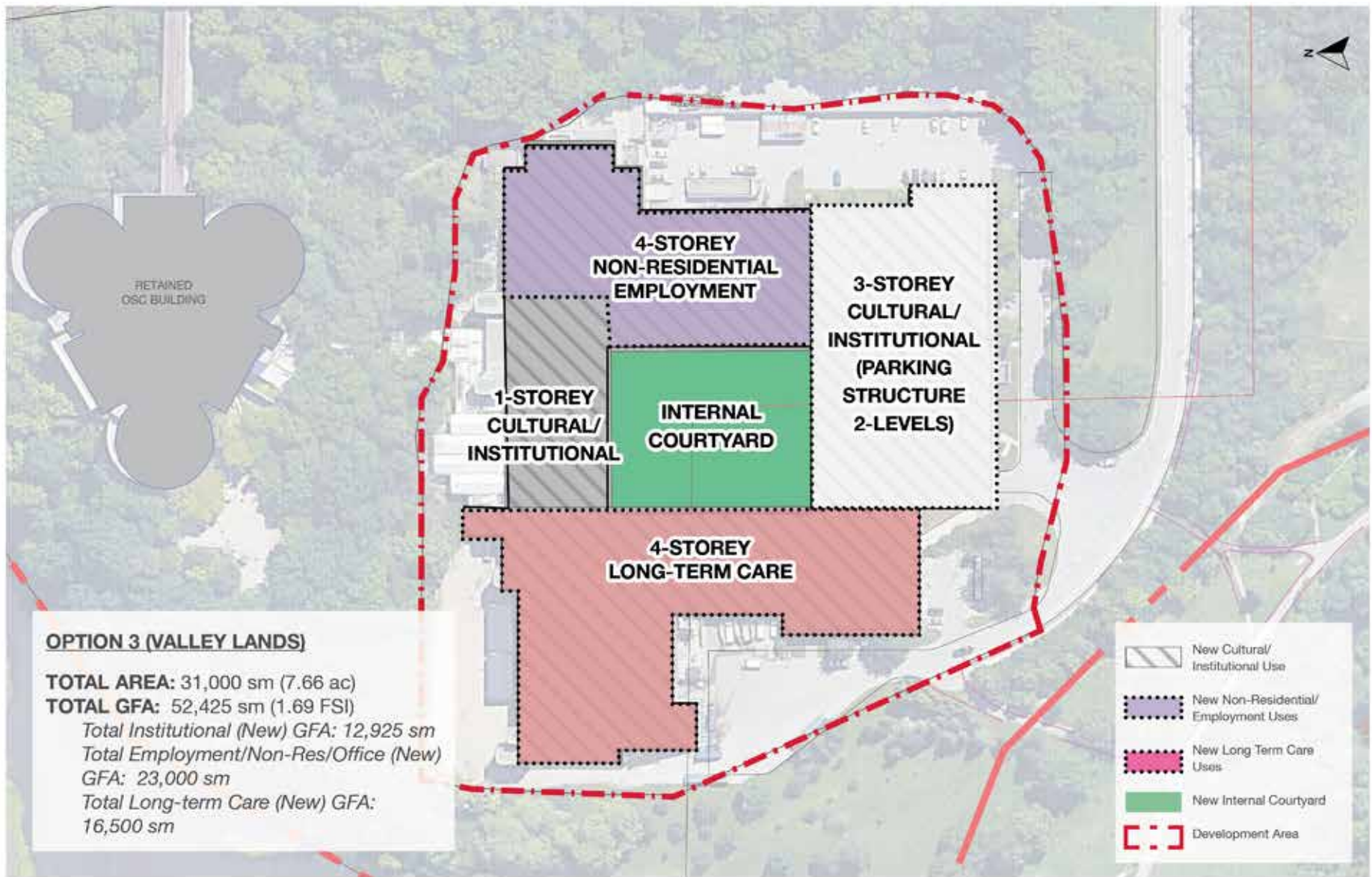


FIGURE 29: Valley Lands Land Use Option 3

Appendix M
Class D Cost Estimate: Relocate Option

Confidential and Privileged Advice to Government

Ontario Science Centre (OSC) Relocation

Class D Estimate (Rev.1)



Prepared for:
Infrastructure Ontario (IO)

Prepared by:

A.W. HOOKER®
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February 3, 2023

February 3, 2023

Infrastructure Ontario
1 Dundas Street West, Suite 2000
Toronto, ON M5G 1Z3

Attn: Rachael McLeod, Senior Project Manager, Project Delivery

Re: Ontario Science Centre (OSC) Relocation Class D Estimate (Rev.1)

Dear Rachael,

Please find enclosed our Class D Estimate (Rev.1) for the above project. The estimate is based on design information provided by Infrastructure Ontario (IO) received on January 04, 2023.

This version of the estimate incorporates comments received during the meeting held on January 24, 2023 and comments received on January 26, 2023.

This estimate is meant to reflect the fair market value for the construction of this project; it is not intended to be the prediction of the lowest bid and should be representative of the median bid amount received in a competitive bidding scenario.

We recommend that the owner and/or the design team carefully review the cost estimate report, including line item descriptions, unit price clarifications, exclusions, inclusions and assumptions, contingencies, escalation, and mark-ups. This is to ensure that the design intent is captured within the content of the report.

Please refer to the preamble of our cost report for all exclusions, assumptions, and information pertaining to the estimate.

Requests for modifications of any apparent errors or omissions to this document must be made to A.W. Hooker Associates Ltd. within ten (10) business days of receipt of this estimate. Otherwise, it will be understood that the contents in this estimate have been concurred with and accepted as final version of the cost report.

We trust our work will assist in the decision making process and look forward to our continued involvement in this important project.

Sincerely,
A.W. Hooker Associates Ltd



Elvan Eryoner, PQS
Associate

Sincerely,
A.W. Hooker Associates Ltd



Stew Kyle, PQS, CET
Partner

Encl. (Class D Estimate (Rev.1) – February 3, 2023)

122240, Ontario Science Centre (OSC) Relocation

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1. Introduction to the Estimate

1.1 Project Description

The new OSC will be housed in a combination of new structure/building, and the adaptively reused Ontario Place Pods Complex (Pods), Cinesphere and connecting Bridges. OSC determined which functions will be located in the Pods and which to be assigned in the new building. As a result, of the total 175,580 net sq.ft. OSC requires, 40,500 net sq.ft. be in the Pods, and 135,080 net sq.ft. for the new building. The Cinesphere (not included in the OSC net area) will remain as a 614-seat projection-based venue for both mission-driven and non-mission-driven movies, features, and other OSC programming.

Space programming includes two key measurements, 1) identification of net square footage (the usable programmable space required for functions or activities and 2) determination of a gross square footage multiplier (represented as a percentage of the net area) leading to a total gross building area.

1.2 Type of Estimate

This Class D Estimate is intended to establish a realistic elemental estimate of the hard construction costs based on the level of design information provided. Detailed quantities have been measured from drawings where possible for the proposed building and associated site development. This estimate reflects our opinion as to the fair market value for the hard construction of this project.

The accuracy of the estimate is based on the documentation provided and design stage is intended to be **+/- 25%**. This accuracy is based on the definition for Estimate Classifications (Class D) outlined in the *Guide to Cost Predictability in Construction prepared by the Joint Federal Government & an Industry Cost Predictability Taskforce. Contingencies are included to offset the accuracy risk, to the extent that the estimated amount represents the current opinion of the likely fair market value at the time of tender.

The intention of the estimate is not to predict the low bid price received; typically based on historical tender results estimates are more likely to be towards the median value of bids received under competitive conditions. This is a deliberate methodology due to the inherent risk in attempting to predict the low bid and numerous factors which can contribute to lower than anticipated tender submissions which are beyond our control.

*Reference: http://www.cca-acc.com/pdfs/en/CCA/Guide_to_Cost_Predictability.pdf

2. Basis of the Estimate

2.1 General Information

From the design information provided, we have measured quantities where possible and applied typical unit rates for each of the specific elements based on the project specifications. Where specific design information has not been provided, unit rates are based on historical cost data for this type of project. In some instances where design information is limited, we have made reasonable assumptions based on our experience with projects of a similar scope and design. Estimates for mechanical and electrical systems are developed based on information prepared by the project engineers, historical projects and experience.

Significant changes to the basis of design will impact the estimate value; this is particularly critical where changes are made after the final estimate prior to tender. We recommend that all major design or scope changes be reviewed for their cost, time and constructability impact prior to incorporation in a finalized tender package.

2.2 Location Cost Base

The location cost base for this estimate is Toronto, Ontario.

2.3 Unit Rates

The unit rates in the preparation of the elemental estimate include labour and material, equipment, and subcontractors overheads and profits. We have assumed the fair wage policy would be in effect. The unit rates for each of the elements are based on typical mid-range costs for the type of design, construction, and materials proposed.

Unit rates in all estimates combine the material, labour, and equipment components for a single unit cost for ease of presentation. This estimate is not a prediction of low bid. Pricing assumes competitive bidding for every aspect of the work.

2.4 Taxes

Harmonized Sales Tax (HST) is excluded from our estimate.

2.5 Construction Schedule

The estimate has been prepared on the assumption that the work will be performed within the timelines of a normal construction schedule. The duration of the schedule would be based on the work being performed during regular daytime work hours. We have assumed the structural components of the building would be constructed in predominantly non-winter months. No allowances have been included for premium time and after hours work associated with an accelerated construction schedule.

2.6 General Requirements and Fees

The General Requirements for the Project Co are included as a percentage of the hard construction cost. This estimate of the prime contractor's site overheads includes site supervision and labour, access to the site, site accommodations, site protection, temporary utilities, clean up, equipment, and other miscellaneous project requirements provided by the Project Co.

The Fee element of the estimate is meant to cover the Project Co's fee to perform the work. The fee would be based on the competitive nature of the bidding process and the market conditions at the time of tender.

2.7 Bonding and Insurance

We have included the median estimated costs for 50% Performance, 50% Labour and Materials, and 10% bid bonds. These are the traditional bonding requirements commonly requested by the owner. The actual final bonding costs will vary depending on the selected contractors' performance history.

The estimate includes an allowance for general liability and builder's risk insurance based on an average cost per \$1,000 of estimated hard construction costs. The actual insurance costs would be subject to the insurance requirements for the project.

2.8 Delivery Model

The estimate reflects Design Build Finance (DBF) model as the base condition, which considers the following statement of inclusion/ exclusions:

- a. Estimate reflects hard construction costs only (including General Requirements & Fees).
- b. Includes Project Co ancillaries, including design and associated consulting team.
- c. Includes Project Co's management team expense and an allowance for risks transferred from Owner's side.
- d. Includes Risk Contingency associated with the DBF Procurement Model
- e. Excludes Life Cycle, Operating and Maintenance costs.

2.9 Specifications

Where detailed and comprehensive specifications are unavailable, we have assumed that no onerous special requirements will be applicable to this project. It was assumed that all materials and equipment could be substituted with an alternative product to avoid sole-sourcing which results in a non-competitive market condition.

2.10 Soft Costs

The estimated soft costs have been included in this estimate.

An itemized list of potential soft costs has been shown on the Master Estimate Summary. These costs include items traditionally funded by the owner and separate from the hard construction costs which would be applicable to the contractor. The soft costs include items such as consultant fees; disbursements; project management fees; independent inspection and testing; third party commissioning; legal fees; permits and development charges; operational and moving expenses; financing and loan fees; owner supplied furnishings, fixtures, and equipment; land acquisition costs; and Harmonized Sales Tax.

3. Contingencies

3.1 Design and Pricing Contingency

A design and pricing contingency of **25% for renovation and 15% for new building** has been included in our estimate. This contingency is meant to cover design and pricing unknowns in the preparation of an estimate to reflect the incomplete nature of the design information provided at the time the estimate is prepared

The contingency where included in our estimate is not meant to cover significant additional program space or quality modifications, but rather to provide some flexibility as the design develops. The design contingency typically decreases as the design progresses and more definition and detail is available to refine the basis of the cost estimate. If the owner anticipates significant changes to the basis of design we recommend additional contingency be retained as a reserve for the scope modifications.

3.2 Escalation Contingency

The estimate includes an allowance for escalation. This allowance of is meant to provide for increases in construction costs due to changes in market conditions between the time of the estimate and the potential construction commencement. For projects with a schedule in excess of 12 months, the contingency is based on a timeframe that takes escalation to the midpoint of the construction phase.

Escalation	
Assumed Tender Date	- Q2 (June) 2025
Escalation % per annum	-
2023	10%
2024	6%
2025	5%
2026	4%
2027	4%
Total % Escalation	- 27.8%

Milestone Dates	Low
Project Initiation Date	
RFQ Open	July 1, 2024
RFQ Close	November 1, 2024
RFP Open	December 1, 2024
RFP Close Technical	June 1, 2025
RFP Close Financial	June 1, 2025
Financial Close/Contract Execution	September 1, 2025
Interim Completion (if applicable)	
Substantial Completion/Performance	September 1, 2028
Final Completion	
N/A	
N/A	
Duration Days	1,096
Months of Construction	36

3.3 Construction Contingency (Post Contract Changes)

A construction contingency of **15% for renovation and 10% for new building** has been included in our estimate. This contingency is meant to cover the potential cost of post contract changes (Change Order) that may occur after the project is tendered.

This contingency excludes any major program or scope requests by the client; these should form part of an overall project management reserve or be reflected in increased funding.

4. General Liability

4.1 Statement of Probable Costs

A.W. Hooker Associates Ltd. (HOOKER) has no control over the cost of labour and materials, the general contractors or any subcontractors' methods of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is based on the experience, qualifications, and best judgment of the professional consultant familiar with the construction industry. HOOKER does not warranty that proposals or actual construction costs will not vary from this or subsequent estimates.

4.2 Ongoing Cost Control

A.W. Hooker Associates Ltd. **recommends** that the owner and/or the design team carefully review the cost estimate report, including line item descriptions, unit price clarifications, exclusions, inclusions and assumptions, contingencies, escalation, and mark-ups. This is to ensure that the design intent is captured within the content of the report. This is especially important at early stage estimates which tend to be based on a lesser level of design completion.

If the project is over budget or there are unresolved budget issues, alternative systems or schemes should ideally be evaluated before proceeding with the design phase. We recommend that cost control be implemented throughout the various stages of the design process to ensure the proposed design remains within the overall budget. It is recommended that the final estimate be produced by HOOKER using Bid Documents to determine overall cost changes, which may have occurred since the preparation of this estimate. The final update estimate will address changes and additions to the documents as well as addenda issued during the bidding process. HOOKER cannot reconcile bid results to any estimate not produced from bid documents including all addenda.

5. Estimate Scope Clarifications

5.1 List of Exclusions

1. Harmonized Sales Tax (HST)
2. Phasing Premium
3. Accelerated construction schedule
4. Building Permit
5. Independent Test and Inspection
6. Foundation, slab on grade and wall below grade to new building as this scope is covered by Others (Underground Parking Garage)
7. Basement level to new building
8. Underwater construction
9. Demolition of existing site elements (included in separate Site Master Plan Estimate)

10. Parking:
 - a. School Bus Queuing/ Parking
 - b. Bicycle Parking
 - c. Guest Parking
 - d. Service Parking (automated access, 1,000 car capacity)
11. Shell Renovation:
 - a. All PODS to be single level (Level 40), existing mezzanine level (Level 50) to be demolished, existing mechanical space mezzanine level (Level 60) to remain
 - b. New cladding (heavy gauge prefinished metal plate panel) to PODs; existing to repair at Cinesphere.
 - c. New curtain wall system to Bridges, existing to repair to PODs and Cinesphere Entrances
 - d. New roofing to existing buildings
 - e. 400 x 1200mm porcelain unilock pavers to remaining
 - f. New guardrail to POD and Bridges roof perimeter
12. Interior demolition of existing buildings (PODs and Bridges)
13. Removal of existing roofing and perimeter guardrail (PODs and Bridges)
14. Removal of existing cladding (PODs and Bridges)
15. Hard and Soft Landscaping (PODs and Bridges)
16. The Cinesphere exterior and interior renovation
17. Outdoor Exhibitory Cost
18. Moving Walk to Bridge#10

5.2 List of Assumptions

Architectural / Structural:

1. Test Fit assumes a 4 story building for the main building, therefore some of the useable space is below grade (2,750m² balance between program and test fit model) and therefore shell costs are covered by others.
2. Shell New Building, assumes:
 - a. Suspended concrete floor structure throughout
 - b. Roof construction includes a mixture of suspended concrete structure and structural steel structure
 - c. High-performance solid exterior envelope, assumed 60% of total envelope area
 - i. heavy gauge prefinished metal plate panel, assumed 50% of solid area
 - ii. masonry veneer walls, assumed 50% of solid area
 - d. Aluminum framed curtain wall system, assumed triple glazed, low e coating, and argon filled, assumed 40% of total envelop area
 - e. Prefinished metal panel to Penthouse Levels, assumed 6.0m high including parapet
 - f. Green roof to 60% roof area as per City of Toronto Green Roof Bylaw
 - g. Feature stair from Ground to 3rd Floor
3. Interior Partitions:
 - a. Education, Workshop and Maker Spaces, Demonstration Spaces, Planetarium and Cinesphere, Event Spaces, Exhibits, assumed mixture of 50% CMU, 40% gypsum board and 10% glazed partitions
 - b. Building Entry and Visitor Amenities, Administrative and Support Spaces, Offices & Support, assumed mixture of 90% gypsum board and 10% glazed partition
 - c. Building Support, assumed equal mixture of CMU and gypsum board partitions
 - d. gross up areas, assumed CMU various sizes
4. Floor Finishes:
 - a. Education, Workshop and Maker Spaces, Demonstration Spaces, Planetarium and Cinesphere, Event Spaces, Exhibits, assumed mixture of resinous flooring, wood flooring, homogeneous heavy-duty vinyl sheet flooring, dissipative vinyl sheet flooring
 - b. Building Entry and Visitor Amenities, Administrative and Support Spaces, Offices & Support, assumed mixture of carpet tile, homogeneous heavy-duty vinyl sheet flooring,
 - c. Building Support, assumed mixture of carpet tile, homogeneous heavy-duty vinyl sheet flooring,
 - d. Gross up areas, assumed mixture of resinous flooring, porcelain tile, homogeneous heavy duty vinyl sheet flooring.

5. Ceiling Finishes:
 - a. Education, Workshop and Maker Spaces, Demonstration Spaces, Planetarium and Cinesphere, Event Spaces, Exhibits, assumed 30% gypsum board ceiling, 40% acoustic tile, 30% feature ceiling similar to wood slat ceiling,
 - b. Building Entry and Visitor Amenities, Administrative and Support Spaces, Offices & Support, assumed 30% gypsum board ceiling, 70% acoustic tile,
 - c. Building Support, assumed 30% gypsum board ceiling, 70% acoustic tile,
 - d. Gross up areas, assumed 30% gypsum board ceiling, 70% acoustic tile.
6. Wall Finishes:
 - a. Education, Workshop and Maker Spaces, Demonstration Spaces, Planetarium and Cinesphere, Event Spaces, Exhibits, assumed mixture of epoxy paint, paint, backsplash tile,
 - b. Building Entry and Visitor Amenities, Administrative and Support Spaces, Offices & Support, assumed mixture of paint, backsplash tile, ceramic tile,
 - c. Building Support, assumed mixture of paint, epoxy paint,
 - d. Gross up areas, assumed mixture of paint, ceramic tile.
7. Window treatments, motorized operation, assumed to 5% of glazed area to new building and PODs, offices only
8. The estimate includes allowances for the Bridge 10 upper deck enclosure (the bridge has to be fully enclosed and heated and cooled), plus an allowance for special lighting, sound has been included for the Bridge to be experiential.
9. Allowance for accessibility upgrade for the existing structures has been included. Scope of work includes 1 freight sized elevator being added to one of the pods (includes access to roof), upgrade of existing ramps from pod 3 (cinesphere ramp) and pod 5 (live nation ramp)
10. Exhibits budget provided by IO;
 - a. Indoor 'Exhibitory Costs' (revised total \$53.2M) – OSC has opted to not program three of the pods on opening day, therefore remove \$16.8M from from the previous allowance of \$70M
 - b. Permanent Exhibition Space (indoor) fabrication, installation, and testing (\$700/SF)

Mechanical:

11. Commercial quality, electronically operated plumbing fixtures installed throughout.
12. Specialty plumbing systems for Wet Labs and Demonstration areas is provided. (specialty plumbing extends beyond the defined lab spaces – OSC wanted greater flexibility so an allowance has been included to extend throughout the engagement space)
13. An allowance has been included for separately controlled mechanical system in temp gallery space for humidity and temperature.
14. Heat pump type water heaters will be utilized from central plant.
15. Wet sprinklers provided throughout. Specialty systems included where required by Functional Narrative.
16. Heat recovery chillers with supplemental electric boilers will be utilized. Lake will be used for condenser water.
17. In-slab heating, perimeter radiation, etc. provided throughout.
18. Air handling units will have energy recovery as required and humidification / filtration to be Class B (Museum environment).
19. Specialty exhaust systems to be provided as per Functional Narrative.
20. Design is assumed to be Net Zero compliant.
21. BAS will be by major controls vendors (equal to JCI, Siemens, Honeywell, etc.)

Electrical:

22. Work will be performed by union labor during regular working hours.
23. Power will be transformed at the building level feeding 347/600V switchboards. 347/600V distribution panels provide power to the major equipment and to the 120/208V transformers that feed the 120/208V lighting and power panels.
24. The Electrical division provides power connections to the mechanical equipment with associated line and load side wiring.
25. Lighting is provided using energy-efficient LED fixtures that accent the buildings and the architectural features of the facility.
26. Lighting control is provided using a central LV control for the entire facility with local occupancy sensors, daylight harvesting, dimming, and local switching as required to facilitate the effective utilization of each area of the facility.
27. Power outlets and receptacles are provided throughout the facility to accommodate the effective utilization of the facility and meet maintenance requirements.
28. A complete CAT 6 structured cabling system is provided to facilitate hard access points for displays and wireless access throughout the facility.
29. Empty raceway infrastructure is provided to facilitate the installation of the production equipment required to effectively utilize each area of the facility.

General:

30. Various assumptions have been made based on the design information available and our experience with projects of a similar nature. Please refer to the specific items within the estimate for the detailed assumptions made.

6. Documentation Received

Drawings and design documentation were provided by Infrastructure Ontario (IO):

Pages	Documentation	Documentation Received
35 pages	OSC.FunctionalProgram.FINAL.December 22_2022	January 5, 2023

7. Gross Floor Area Summary

The following gross floor areas of new and renovation construction are based on program areas provided by Infrastructure Ontario (IO).

7.1 Summary of New and Renovation Area

	Functional Program Area and GFA Summary					
	GFA (SF)			GFA (m2)		
		New building	Reno		New building	Reno
Zone A Public Spaces / Amenities	50,630 SF				4,704 m2	
1.1-N Building Entry and Visitor Amenities - New Building	18,450 SF	26,650 SF	35,130 SF	15,500 SF	1,714 m2	1,440 m2
1.1-R Building Entry and Visitor Amenities - Renovation	8,200 SF				762 m2	
1.2-N Education (Science School) - New Building	2,600 SF	2,600 SF			242 m2	
1.2-R Education (Science School) - Renovation	0 SF				0 m2	
1.3-N Engagement Spaces (Exhibit/Program TBD) - New Building	8,000 SF	12,500 SF			743 m2	
1.3-R Engagement Spaces (Exhibit/Program TBD) - Renovation	4,500 SF				418 m2	
1.4-N Engagement Spaces (Exhibit/Program TBD) - New Building	6,080 SF	8,880 SF			565 m2	
1.4-R Engagement Spaces (Exhibit/Program TBD) - Renovation	2,800 SF				260 m2	
1.5-N Engagement Spaces (Exhibit/Program TBD) - New Building (Planet./Cinesp)	0 SF	0 SF			0 m2	
1.5-R Engagement Spaces (Exhibit/Program TBD) - Renovation (Planet./Cinesp)	0 SF				0 m2	
Zone B Engagement Space (Exhibition)	88,000 SF				8,176 m2	
2.1-N Exhibits - Permanent and Temporary - New Building	66,000 SF	88,000 SF	66,000 SF	22,000 SF	6,132 m2	2,044 m2
2.1-R Exhibits - Permanent and Temporary - Renovation	22,000 SF				2,044 m2	
Zone C Exhibit Support Support	11,400 SF				1,059 m2	
3.1-N Exhibit Support Spaces - New Building	11,400 SF	11,400 SF	11,400 SF	0 SF	1,059 m2	0 m2
3.1-R Exhibit Support Spaces - Renovation	0 SF				0 m2	
Zone D Administrative / Building Support	25,550 SF				2,374 m2	
4.1-N Administrative - OSC - New Building	14,000 SF	14,000 SF	23,050 SF	2,500 SF	1,301 m2	232 m2
4.1-R Administrative - OSC - Renovation	0 SF				0 m2	
4.2-N Administrative - Support - New Building	1,750 SF	1,750 SF			163 m2	
4.2-R Administrative - Support - Renovation	0 SF				0 m2	
4.3-N Building Support - New Building	7,300 SF	9,800 SF			678 m2	
4.3-R Building Support - Renovation	2,500 SF				232 m2	
Zone E Exterior						
5.1 Exterior	0 SF				0 m2	
Total Programmed Net Area	175,580 SF	<i>175,580 SF</i>	135,580 SF	40,000 SF	16,313 m2	12,597 m2
Building Grossing, including:	100,120 SF				9,301 m2	
BG1a Reno-Non Program (Bridges 9 and 10)	17,500 SF				1,626 m2	
BG1b Reno-Program (Cinesphere)	19,700 SF				1,830 m2	
BG1c New-Non Program (New Bridge to POD#5) - Excluded	0 SF				0 m2	
BG2 Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building (198,000SF-135,580SF)	62,420 SF				5,799 m2	
BG3 Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods (40,500SF-40,000SF)	500 SF				46 m2	
Building Grossing Area	100,120 SF		62,420 SF	37,700 SF	9,301 m2	5,799 m2
Gross Building Area	275,700 SF		198,000 SF	77,700 SF	25,614 m2	18,396 m2

Element/Sub-Element			Reno	New	Fit-out - Reno	Fit-out - New	Site	Total
BASE CONSTRUCTION COST			7,218	18,396	7,218	18,396	5,344	25,614
			77,695,000	198,011,000	77,695,000	198,011,000	57,523,000	275,706,000
A	Shell - Renovation		\$14,768,651					\$14,768,651
B	Shell - New Building			\$60,452,121				\$60,452,121
C	Interior Fit-out (Renovation)				\$15,890,765			\$15,890,765
D	Interior Fit-out (New)					\$58,853,963		\$58,853,963
E	Site						\$3,864,500	\$3,864,500
F								\$0
G	SUB-TOTAL		\$14,768,651	\$60,452,121	\$15,890,765	\$58,853,963	\$3,864,500	\$153,830,000
		Cost/m2	\$2,046	\$3,286	\$2,202	\$3,199	\$723	\$6,005.77
		Cost/SF	\$190	\$305	\$205	\$297	\$67	\$558
MARK-UPS & ALLOWANCES								
H	Mark-ups		\$4,292,000	\$17,567,000	\$4,617,000	\$17,102,000	\$1,123,000	\$44,701,000
H1	Phasing Premium	0.0%	\$0	\$0	\$0	\$0	\$0	\$0
H2	General Requirements	17.0%	\$2,511,000	\$10,277,000	\$2,701,000	\$10,005,000	\$657,000	\$26,151,000
H3	Insurance & Bonding	2.5%	\$369,000	\$1,511,000	\$397,000	\$1,471,000	\$97,000	\$3,845,000
H4	Premium (winter/ after hours/ weekend work)	0.0%	\$0	\$0	\$0	\$0	\$0	\$0
H5	Project Co's Fees (OH&P)	8.0%	\$1,412,000	\$5,779,000	\$1,519,000	\$5,626,000	\$369,000	\$14,705,000
I	Allowances	Reno	\$12,899,000	\$47,566,000	\$13,878,000	\$46,308,000	\$3,041,000	\$123,692,000
I1	Design & Pricing Allowance	25.0%	\$4,765,000	\$15,604,000	\$5,127,000	\$15,191,000	\$998,000	\$41,685,000
I2	Escalation Allowance	27.8%	\$6,612,000	\$25,982,000	\$7,114,000	\$25,295,000	\$1,661,000	\$66,664,000
I3	Market Volatility based on current market conditions	5.0%	\$1,522,000	\$5,980,000	\$1,637,000	\$5,822,000	\$382,000	\$15,343,000
TOTAL ESTIMATED CONSTRUCTION COST EXC. HST			\$31,960,000	\$125,585,000	\$34,386,000	\$122,264,000	\$8,029,000	\$322,223,000
		Cost/m2	\$4,428	\$6,827	\$4,764	\$6,646	\$1,502	\$12,580
		Cost/SF	\$411	\$634	\$443	\$617	\$140	\$1,169
J	Soft Costs	Reno	\$135,511,000	\$17,941,000	\$4,912,000	\$17,466,000	\$1,147,000	\$176,977,000
J1	Indoor Exhibitory (Owner's FF&E)		\$53,200,000	Incl	Incl	Incl	Incl	\$53,200,000
J2	Allowance for Soft Costs (Indoor Exhibitory) reduced by \$4.2M (revised total \$13.3M) to account for the reduction in exhibitory costs.	25.0%	\$13,300,000	Incl	Incl	Incl	Incl	\$13,300,000
J3	Allowance for Soft Costs (Construction Cost)	20.0%	\$64,445,000	Incl	Incl	Incl	Incl	\$64,445,000
J4	Owner's Construction Contingency (Change Orders)	15.0%	\$4,566,000	\$17,941,000	\$4,912,000	\$17,466,000	\$1,147,000	\$46,032,000
TOTAL PROJECT COST (EXC. HST)								\$499,200,000

UNIFORMAT SUMMARY - BASE HARD ESTIMATE
ONTARIO SCIENCE CENTRE RELOCATION
 CLASS D ESTIMATE (Rev.1)
 FEBRUARY 03, 2023



Gross Floor Area **25,614** m2

Description Element\Sub-Element	Ratio	Quantity	Unit	Unit Rate	Elemental Cost		\$ per m2 Sub Element	\$ per m2 Element	%
					Sub Element	Element Total			
A SUBSTRUCTURE									
A10 Foundation						\$0		\$0.00	0.0%
A1010 - Standard Foundations	0.11	2,750	m2	\$0.00	\$0		\$0.00		
A1020 - Special Foundations	0.00	0	m2	\$0.00	\$0		\$0.00		
A1030 - Slab on Grade	0.11	2,750	m2	\$0.00	\$0		\$0.00		
A20 Basement Construction						\$0		\$0.00	0.0%
A2010 - Basement Excavation	0.00	0	m3	\$0.00	\$0		\$0.00		
A2020 - Basement Walls	0.00	0	m2	\$0.00	\$0		\$0.00		
B SHELL									
B10 Superstructure						\$15,120,526		\$590.32	9.8%
B1010 - Floor Construction	0.61	15,646	m2	\$527.33	\$8,250,609		\$322.11		
B1020 - Roof Construction	0.21	5,404	m2	\$1,271.27	\$6,869,917		\$268.21		
B20 Exterior Enclosure						\$25,603,773		\$999.60	16.7%
B2010 - Exterior Walls	0.22	5,717	m2	\$3,016.67	\$17,246,796		\$673.33		
B2020 - Exterior Windows	0.16	4,155	m2	\$1,882.38	\$7,821,290		\$305.35		
B2030 - Exterior Doors	0.00	109	m2	\$4,908.73	\$535,687		\$20.91		
B30 Roofing						\$5,250,420		\$204.98	3.4%
B3010 - Roof Coverings	0.20	5,077	m2	\$1,003.57	\$5,095,110		\$198.92		
B3020 - Roof Openings	0.00	52	m2	\$3,000.00	\$155,310		\$6.06		
C INTERIORS									
C10 Interior Construction						\$15,951,126		\$622.75	10.4%
C1010 - Partitions	0.91	23,241	m2	\$223.96	\$5,204,881		\$203.20		
C1020 - Interior Doors	0.01	367	LVS	\$3,853.65	\$1,415,410		\$55.26		
C1030 - Fittings	1.00	25,613	m2	\$364.30	\$9,330,835		\$364.29		
C20 Stairs						\$2,297,032		\$89.68	1.5%
C2010 - Stairs Construction	0.05	1,385	m	\$1,131.37	\$1,566,952		\$61.18		
C2020 - Stairs Finishes	0.02	457	m2	\$1,597.55	\$730,080		\$28.50		
C30 Interior Finishes						\$11,027,964		\$430.54	7.2%
C3010 - Wall Finishes	1.54	39,509	m2	\$42.04	\$1,661,051		\$64.85		
C3020 - Floor Finishes	0.87	22,239	m2	\$268.70	\$5,975,552		\$233.29		
C3030 - Ceiling Finishes	0.87	22,239	m2	\$152.50	\$3,391,360		\$132.40		
D SERVICES									
D10 Conveying						\$4,200,000		\$163.97	2.7%
D1010 - Elevators and Lifts	0.00	3	NO	\$1,270,000.00	\$3,810,000		\$148.75		
D1020 - Escalators and Moving Walks	0.00	2	NO	\$195,000.00	\$390,000		\$15.23		
D1090 - Other Conveying Systems	0.00	0	NO	\$0.00	\$0		\$0.00		
D20 Plumbing						\$7,481,926		\$292.10	4.9%
D2010 - Domestic Water Distribution	1.00	25,614	m2	\$119.90	\$3,071,101		\$119.90		
D2020 - Sanitary Waste	1.00	25,614	m2	\$47.17	\$1,208,143		\$47.17		
D2030 - Building Support Plumbing System	1.00	25,614	m2	\$24.15	\$618,472		\$24.15		
D2040 - General Service Compressed Air System	1.00	25,614	m2	\$7.02	\$179,884		\$7.02		
D2090 - Process Support Plumbing Systems	1.00	25,614	m2	\$93.87	\$2,404,325		\$93.87		
D30 HVAC						\$29,420,030		\$1,148.59	19.1%
D3010 - Facility Fuel System	1.00	25,614	m2	\$13.94	\$357,173		\$13.94		
D3020 - Heat Generating Systems	1.00	25,614	m2	\$229.99	\$5,891,074		\$229.99		
D3030 - Cooling Generating Systems	1.00	25,614	m2	\$229.99	\$5,891,074		\$229.99		
D3040 - Facility HVAC Distribution System	1.00	25,614	m2	\$246.43	\$6,311,967		\$246.43		
D3050 - Ventilation System	1.00	25,614	m2	\$187.68	\$4,807,145		\$187.68		
D3060 - Special Purpose HVAC System	1.00	25,614	m2	\$41.49	\$1,062,771		\$41.49		
D3070 - Systems Testing and Balancing	1.00	25,614	m2	\$19.27	\$493,540		\$19.27		
D3080 - Other HVAC System and Equipment	1.00	25,614	m2	\$179.80	\$4,605,286		\$179.80		
D40 Fire Protection						\$2,259,766		\$88.22	1.5%
D4010 - Fire Suppression	1.00	25,614	m2	\$64.58	\$1,654,216		\$64.58		
D4020 - Fire Protection Specialities	1.00	25,614	m2	\$23.64	\$605,550		\$23.64		
D50 Electrical Systems						\$15,019,371		\$586.37	9.8%
D5010 - Electrical Service and Distribution	1.00	25,614	m2	\$68.62	\$1,757,629		\$68.62		
D5020 - Lighting and Branch Wiring	1.00	25,614	m2	\$360.92	\$9,244,707		\$360.92		
D5030 - Communication and Security	1.00	25,614	m2	\$134.03	\$3,433,099		\$134.03		
D5090 - Other Electrical Systems	1.00	25,614	m2	\$22.80	\$583,937		\$22.80		
D80 Integrated Automation						\$3,228,509		\$126.04	2.1%
D8010 - Integrated Automation System	1.00	25,614	m2	\$126.04	\$3,228,509		\$126.04		

UNIFORMAT SUMMARY - BASE HARD ESTIMATE
ONTARIO SCIENCE CENTRE RELOCATION
 CLASS D ESTIMATE (Rev.1)
 FEBRUARY 03, 2023



Gross Floor Area **25,614** m2

Description Element\Sub-Element	Ratio	Quantity	Unit	Unit Rate	Elemental Cost		\$ per m2 Sub Element	\$ per m2 Element	%
					Sub Element	Element Total			
E EQUIPMENT AND FURNISHING									
E10 Equipment						\$1,042,056		\$40.68	0.7%
E1010 - Commercial Equipment	0.00	0	m2	\$0.00	\$0		\$0.00		
E1020 - Institutional Equipment	1.00	25,614	m2	\$40.68	\$1,042,056		\$40.68		
E1030 - Vehicular Equipment	0.00	0	NO	\$0.00	\$0		\$0.00		
E1090 - Other Equipment	0.00	0	m2	\$0.00	\$0		\$0.00		
E20 Furnishings						\$11,909,484		\$464.96	7.7%
E2010 - Fixed Furnishings	0.01	169	m2	\$236.00	\$39,872		\$1.56		
E2020 - Movable Furnishings	1.00	25,614	m2	\$463.40	\$11,869,612		\$463.40		
F SPECIAL CONSTRUCTION AND DEMOLITION									
F10 Special Construction						\$0		\$0.00	0.0%
F1010 - Special Structures	0.07	1,830	m2	\$0.00	\$0		\$0.00		
F1020 - Integrated Construction	0.00	0	m2	\$0.00	\$0		\$0.00		
F1030 - Special Construction Systems	0.00	0	m2	\$0.00	\$0		\$0.00		
F1040 - Special Facilities	0.00	1	m2	\$0.00	\$0		\$0.00		
F1050 - Special Controls and Instrumentation	0.00	0	m2	\$0.00	\$0		\$0.00		
F20 Selective Building Demolition						\$0		\$0.00	0.0%
F2010 - Building Elements Demolition	0.47	11,937	m2	\$0.00	\$0		\$0.00		
F2020 - Hazardous Components Abatement	0.00	0	m2	\$0.00	\$0		\$0.00		
G BUILDING SITWORK									
G10 Site Preparation						\$1,000,000		\$39.04	0.7%
G1010 - Subsurface Investigation	0.00	0	m2	\$0.00	\$0		\$0.00		
G1020 - Site Clearing	0.00	0	m2	\$0.00	\$0		\$0.00		
G1030 - Site Demolition and Relocations	0.00	0	m2	\$0.00	\$0		\$0.00		
G1040 - Site Earthwork	0.00	0	m2	\$0.00	\$0		\$0.00		
G1050 - Hazardous Waste Remediation	0.00	0	m2	\$0.00	\$0		\$0.00		
G1060 - Site Buildings	1.00	25,614	m2	\$39.04	\$1,000,000		\$39.04		
G20 Site Improvement						\$974,500		\$38.05	0.6%
G2010 - Roadways	0.00	0	m2	\$0.00	\$0		\$0.00		
G2020 - Parking Lots	0.00	0	m2	\$0.00	\$0		\$0.00		
G2030 - Pedestrian Paving	0.00	0	m2	\$0.00	\$0		\$0.00		
G2040 - Site Development	1.00	25,614	m2	\$38.05	\$974,500		\$38.05		
G2050 - Landscaping	0.00	0	m2	\$0.00	\$0		\$0.00		
G30 Site Mechanical Utilities						\$650,000		\$25.38	0.4%
G3010 - Water Supply	1.00	25,614	m2	\$5.86	\$150,000		\$5.86		
G3020 - Sanitary Sewer	1.00	25,614	m2	\$5.86	\$150,000		\$5.86		
G3030 - Storm Sewer	1.00	25,614	m2	\$9.76	\$250,000		\$9.76		
G3040 - Fuel Distribution Systems	1.00	25,614	m2	\$1.95	\$50,000		\$1.95		
G3050 - Special Plumbing Systems	1.00	25,614	m2	\$1.95	\$50,000		\$1.95		
G40 Site Mechanical Utilities						\$1,200,000		\$46.85	0.8%
G4010 - Steam Distribution Systems	0.00	0	m2	\$0.00	\$0		\$0.00		
G4020 - Hydronic Distribution Systems	1.00	25,614	m2	\$46.85	\$1,200,000		\$46.85		
G50 Site Electrical Utilities						\$40,000		\$1.56	0.0%
G5010 - Electrical Distribution	1.00	25,614	m2	\$0.39	\$10,000		\$0.39		
G5020 - Site Lighting	0.00	0	m2	\$0.00	\$0		\$0.00		
G5030 - Site Communication and Security	0.00	0	m2	\$0.00	\$0		\$0.00		
G5090 - Other Site Electrical Utilities	1.00	25,614	m2	\$1.17	\$30,000		\$1.17		
ESTIMATED BASE CONSTRUCTION COST (nearest ,000)						\$153,676,000		\$5,999.71	100.0%

UNIFORMAT SUMMARY - SHELL COST ESTIMATE
ONTARIO SCIENCE CENTRE RELOCATION
 CLASS D ESTIMATE (Rev.1)
 FEBRUARY 03, 2023



Gross Floor Area **25,614** m²

Description Element\Sub-Element	Ratio	Quantity	Unit	Unit Rate	Elemental Cost		\$ per m ² Sub Element	\$ per m ² Element	%
					Sub Element	Element Total			
A SUBSTRUCTURE									
A10 Foundation						\$0		\$0.00	0.0%
A1010 - Standard Foundations	0.11	2,750	m ²	\$0.00	\$0		\$0.00		
A1020 - Special Foundations	0.00	0	m ²	\$0.00	\$0		\$0.00		
A1030 - Slab on Grade	0.11	2,750	m ²	\$0.00	\$0		\$0.00		
A20 Basement Construction						\$0		\$0.00	0.0%
A2010 - Basement Excavation	0.00	0	m ³	\$0.00	\$0		\$0.00		
A2020 - Basement Walls	0.00	0	m ²	\$0.00	\$0		\$0.00		
B SHELL									
B10 Superstructure						\$15,120,526		\$590.32	19.1%
B1010 - Floor Construction	0.61	15,646	m ²	\$527.33	\$8,250,609		\$322.11		
B1020 - Roof Construction	0.21	5,404	m ²	\$1,271.27	\$6,869,917		\$268.21		
B20 Exterior Enclosure						\$25,603,773		\$999.60	32.4%
B2010 - Exterior Walls	0.22	5,717	m ²	\$3,016.67	\$17,246,796		\$673.33		
B2020 - Exterior Windows	0.16	4,155	m ²	\$1,882.38	\$7,821,290		\$305.35		
B2030 - Exterior Doors	0.00	109	m ²	\$4,908.73	\$535,687		\$20.91		
B30 Roofing						\$5,250,420		\$204.98	6.6%
B3010 - Roof Coverings	0.20	5,077	m ²	\$1,003.57	\$5,095,110		\$198.92		
B3020 - Roof Openings	0.00	52	m ²	\$3,000.00	\$155,310		\$6.06		
C INTERIORS									
C10 Interior Construction						\$2,933,890		\$114.54	3.7%
C1010 - Partitions	0.12	3,138	m ²	\$237.00	\$743,651		\$29.03		
C1020 - Interior Doors	0.01	134	LVS	\$4,111.85	\$552,953		\$21.59		
C1030 - Fittings	0.36	9,301	m ²	\$176.03	\$1,637,287		\$63.92		
C20 Stairs						\$2,297,032		\$89.68	2.9%
C2010 - Stairs Construction	0.05	1,385	m	\$1,131.37	\$1,566,952		\$61.18		
C2020 - Stairs Finishes	0.02	457	m ²	\$1,597.55	\$730,080		\$28.50		
C30 Interior Finishes						\$2,150,650		\$83.96	2.7%
C3010 - Wall Finishes	0.21	5,334	m ²	\$33.68	\$179,677		\$7.01		
C3020 - Floor Finishes	0.26	6,724	m ²	\$196.34	\$1,320,186		\$51.54		
C3030 - Ceiling Finishes	0.26	6,724	m ²	\$96.79	\$650,788		\$25.41		
D SERVICES									
D10 Conveying						\$4,200,000		\$163.97	5.3%
D1010 - Elevators and Lifts	0.00	3	NO	\$1,270,000.00	\$3,810,000		\$148.75		
D1020 - Escalators and Moving Walks	0.00	2	NO	\$195,000.00	\$390,000		\$15.23		
D1090 - Other Conveying Systems	0.00	0	NO	\$0.00	\$0		\$0.00		
D20 Plumbing						\$2,565,905		\$100.18	3.2%
D2010 - Domestic Water Distribution	1.00	25,614	m ²	\$40.16	\$1,028,687		\$40.16		
D2020 - Sanitary Drainage	1.00	25,614	m ²	\$16.09	\$412,160		\$16.09		
D2030 - Building Support Plumbing System	1.00	25,614	m ²	\$8.34	\$213,611		\$8.34		
D2040 - General Service Compressed Air	1.00	25,614	m ²	\$2.05	\$52,491		\$2.05		
D2090 - Process Support Plumbing System	1.00	25,614	m ²	\$33.53	\$858,955		\$33.53		
D30 HVAC						\$9,877,016		\$385.61	12.5%
D3010 - Facility Fuel System	1.00	25,614	m ²	\$4.19	\$107,407		\$4.19		
D3020 - Heat Generating Systems	1.00	25,614	m ²	\$77.15	\$1,976,247		\$77.15		
D3030 - Cooling Generating Systems	1.00	25,614	m ²	\$77.15	\$1,976,247		\$77.15		
D3040 - Facility HVAC Distribution System	1.00	25,614	m ²	\$82.10	\$2,102,825		\$82.10		
D3050 - Ventilation System	1.00	25,614	m ²	\$64.43	\$1,650,289		\$64.43		
D3060 - Special Purpose HVAC System	1.00	25,614	m ²	\$12.47	\$319,516		\$12.47		
D3070 - Systems Testing and Balancing	1.00	25,614	m ²	\$6.42	\$164,336		\$6.42		
D3080 - Other HVAC System and Equipment	1.00	25,614	m ²	\$61.69	\$1,580,150		\$61.69		
D40 Fire Protection						\$674,021		\$26.31	0.9%
D4010 - Fire Suppression	1.00	25,614	m ²	\$20.08	\$514,240		\$20.08		
D4020 - Fire Protection Specialties	1.00	25,614	m ²	\$6.24	\$159,781		\$6.24		
D50 Electrical						\$3,541,530		\$138.27	4.5%
D5010 - Electrical Service Distribution	1.00	25,614	m ²	\$50.35	\$1,289,747		\$50.35		
D5020 - Lighting and Branch Wiring	1.00	25,614	m ²	\$55.12	\$1,411,797		\$55.12		
D5030 - Communication and Security	1.00	25,614	m ²	\$28.03	\$718,079		\$28.03		
D5090 - Other Electrical Systems	1.00	25,614	m ²	\$4.76	\$121,908		\$4.76		
D80 Integrated Automation						\$966,636		\$37.74	1.2%
D8010 - Integrated Automation	1.00	25,614	m ²	\$37.74	\$966,636		\$37.74		

UNIFORMAT SUMMARY - SHELL COST ESTIMATE
ONTARIO SCIENCE CENTRE RELOCATION
 CLASS D ESTIMATE (Rev.1)
 FEBRUARY 03, 2023



Gross Floor Area **25,614 m2**

Description Element/Sub-Element	Ratio	Quantity	Unit	Unit Rate	Elemental Cost		\$ per m2 Sub Element	\$ per m2 Element	%
					Sub Element	Element Total			
E EQUIPMENT AND FURNISHING									
E10 Equipment						\$0		\$0.00	0.0%
E1010 - Commercial Equipment	0.00	0	m2	\$0.00	\$0		\$0.00		
E1020 - Institutional Equipment	1.00	25,614	m2	\$0.00	\$0		\$0.00		
E1030 - Vehicular Equipment	0.00	0	NO	\$0.00	\$0		\$0.00		
E1090 - Other Equipment	0.00	0	m2	\$0.00	\$0		\$0.00		
E20 Furnishings						\$39,872		\$1.56	0.1%
E2010 - Fixed Furnishings	0.01	169	m2	\$236.00	\$39,872		\$1.56		
E2020 - Movable Furnishings	1.00	25,614	m2	\$0.00	\$0		\$0.00		
F SPECIAL CONSTRUCTION AND DEMOLITION									
F10 Special Construction						\$0		\$0.00	0.0%
F1010 - Special Structures	0.07	1,830	m2	\$0.00	\$0		\$0.00		
F1020 - Integrated Construction	0.00	0	m2	\$0.00	\$0		\$0.00		
F1030 - Special Construction Systems	0.00	0	m2	\$0.00	\$0		\$0.00		
F1040 - Special Facilities	0.00	1	m2	\$0.00	\$0		\$0.00		
F1050 - Special Controls and Instrumentation	0.00	0	m2	\$0.00	\$0		\$0.00		
F20 Selective Building Demolition						\$0		\$0.00	0.0%
F2010 - Building Elements Demolition	0.47	11,937	m2	\$0.00	\$0		\$0.00		
F2020 - Hazardous Components Abatement	0.00	0	m2	\$0.00	\$0		\$0.00		
G BUILDING SITWORK									
G10 Site Preparation						\$1,000,000		\$39.04	1.3%
G1010 - Subsurface Investigation	0.00	0	m2	\$0.00	\$0		\$0.00		
G1020 - Site Clearing	0.00	0	m2	\$0.00	\$0		\$0.00		
G1030 - Site Demolition and Relocations	0.00	0	m2	\$0.00	\$0		\$0.00		
G1040 - Site Earthwork	0.00	0	m2	\$0.00	\$0		\$0.00		
G1050 - Hazardous Waste Remediation	0.00	0	m2	\$0.00	\$0		\$0.00		
G1060 - Site Buildings	1.00	25,614	m2	\$39.04	\$1,000,000		\$39.04		
G20 Site Improvement						\$974,500		\$38.05	1.2%
G2010 - Roadways	0.00	0	m2	\$0.00	\$0		\$0.00		
G2020 - Parking Lots	0.00	0	m2	\$0.00	\$0		\$0.00		
G2030 - Pedestrian Paving	0.00	0	m2	\$0.00	\$0		\$0.00		
G2040 - Site Development	1.00	25,614	m2	\$38.05	\$974,500		\$38.05		
G2050 - Landscaping	0.00	0	m2	\$0.00	\$0		\$0.00		
G30 Site Mechanical Utilities						\$650,000		\$25.38	0.8%
G3010 - Water Supply & Distribution	0.00	0	m2	\$0.00	\$150,000		\$5.86		
G3020 - Sanitary Sewer Systems	0.00	0	m2	\$0.00	\$150,000		\$5.86		
G3030 - Storm Sewer Systems	0.00	0	m2	\$0.00	\$250,000		\$9.76		
G3040 - Fuel Distribution Systems	0.00	0	m2	\$0.00	\$50,000		\$1.95		
G3050 - Special Plumbing Systems	0.00	0	m2	\$0.00	\$50,000		\$1.95		
G40 Site Mechanical Utilities						\$1,200,000		\$46.85	1.5%
G4010 - Steam Distribution Systems	0.00	0	m2	\$0.00	\$0		\$0.00		
G4020 - Hydronic Distribution Systems	0.00	0	m2	\$0.00	\$1,200,000		\$46.85		
G50 Site Electrical Utilities						\$40,000		\$1.56	0.1%
G5010 - Electrical Distribution	0.00	0	m2	\$0.00	\$10,000		\$0.39		
G5020 - Site Lighting	0.00	0	m2	\$0.00	\$0		\$0.00		
G5030 - Site Communication and Security	0.00	0	m2	\$0.00	\$0		\$0.00		
G5090 - Other Site Electrical Utilities	0.00	0	m2	\$0.00	\$30,000		\$1.17		
G90 Other Site Construction						\$0		\$0.00	0.0%
G9010 - Service and Pedestrian Tunnels	0.00	0	m2	\$0.00	\$0		\$0.00		
G9020 - Other Site Systems and Equipments	0.00	0	m2	\$0.00	\$0		\$0.00		
ESTIMATED BASE CONSTRUCTION COST (nearest ,000)						\$79,086,000		\$3,087.60	100.0%

UNIFORMAT SUMMARY - PROGRAM/ FIT-UP ESTIMATE
ONTARIO SCIENCE CENTRE RELOCATION
 CLASS D ESTIMATE (Rev.1)
 FEBRUARY 03, 2023



Gross Floor Area **25,614 m2**

Description Element/Sub-Element					Elemental Cost		\$ per m2 Sub Element	\$ per m2 Element	%
	Ratio	Quantity	Unit	Unit Rate	Sub Element	Element Total			
C INTERIORS									
C10 Interior Construction						\$13,017,235		\$508.21	17.4%
C1010 - Partitions	0.785	20,103	m2	\$221.92	\$4,461,230		\$174.17		
C1020 - Interior Doors	0.01	233	LVS	\$3,704.51	\$862,457		\$33.67		
C1030 - Fittings	0.64	16,312	m2	\$471.66	\$7,693,548		\$300.36		
C20 Stairs						\$0		\$0.00	0.0%
C2010 - Stairs Construction	0.00	0	m	\$0.00	\$0		\$0.00		
C2020 - Stairs Finishes	0.00	0	m2	\$0.00	\$0		\$0.00		
C30 Interior Finishes						\$8,877,314		\$346.58	11.9%
C3010 - Wall Finishes	1.33	34,175	m2	\$43.35	\$1,481,375		\$57.83		
C3020 - Floor Finishes	0.61	15,515	m2	\$300.06	\$4,655,366		\$181.75		
C3030 - Ceiling Finishes	0.61	15,515	m2	\$176.64	\$2,740,573		\$107.00		
D SERVICES									
D10 Conveying						\$0		\$0.00	0.0%
D1010 - Elevators and Lifts	0.00	0	NO	\$0.00	\$0		\$0.00		
D1020 - Escalators and Moving Walks	0.00	0	NO	\$0.00	\$0		\$0.00		
D1090 - Other Conveying Systems	0.00	0	NO	\$0.00	\$0		\$0.00		
D20 Plumbing						\$4,916,021		\$191.93	6.6%
D2010 - Domestic Water Distribution	1.00	25,614	m2	\$79.74	\$2,042,415		\$79.74		
D2020 - Sanitary Drainage	1.00	25,614	m2	\$31.08	\$795,983		\$31.08		
D2030 - Building Support Plumbing System	1.00	25,614	m2	\$15.81	\$404,861		\$15.81		
D2040 - General Service Compressed Air	1.00	25,614	m2	\$4.97	\$127,393		\$4.97		
D2090 - Process Support Plumbing System	1.00	25,614	m2	\$60.33	\$1,545,369		\$60.33		
D30 HVAC						\$19,696,933		\$768.99	26.4%
D3010 - Facility Fuel System	1.00	25,614	m2	\$9.75	\$249,766		\$9.75		
D3020 - Heat Generating Systems	1.00	25,614	m2	\$152.84	\$3,914,827		\$152.84		
D3030 - Cooling Generating Systems	1.00	25,614	m2	\$152.84	\$3,914,827		\$152.84		
D3040 - Facility HVAC Distribution System	1.00	25,614	m2	\$164.33	\$4,209,142		\$164.33		
D3050 - Ventilation System	1.00	25,614	m2	\$123.25	\$3,156,856		\$123.25		
D3060 - Special Purpose HVAC System	1.00	25,614	m2	\$29.02	\$743,255		\$29.02		
D3070 - Systems Testing and Balancing	1.00	25,614	m2	\$12.85	\$329,205		\$12.85		
D3080 - Other HVAC System and Equipment	1.00	25,614	m2	\$124.11	\$3,179,055		\$124.11		
D40 Fire Protection						\$1,585,744		\$61.91	2.1%
D4010 - Fire Suppression	1.00	25,614	m2	\$44.51	\$1,139,976		\$44.51		
D4020 - Fire Protection Specialties	1.00	25,614	m2	\$17.40	\$445,768		\$17.40		
D50 Electrical Systems						\$11,477,841		\$448.11	15.4%
D5010 - Electrical Service Distribution	1.00	25,614	m2	\$18.27	\$467,882		\$18.27		
D5020 - Lighting and Branch Wiring	1.00	25,614	m2	\$305.81	\$7,832,910		\$305.81		
D5030 - Communication and Security	1.00	25,614	m2	\$106.00	\$2,715,020		\$106.00		
D5090 - Other Electrical Systems	1.00	25,614	m2	\$18.04	\$462,029		\$18.04		
D80 Integrated Automation						\$2,261,873		\$88.31	3.0%
D8010 - Integrated Automation	1.00	25,614	m2	\$88.31	\$2,261,873		\$88.31		
E EQUIPMENT AND FURNISHING									
E10 Equipment						\$1,042,056		\$40.68	1.4%
E1010 - Commercial Equipment	0.00	0	m2	\$0.00	\$0		\$0.00		
E1020 - Institutional Equipment	1.00	25,613	m2	\$40.69	\$1,042,056		\$40.68		
E1030 - Vehicular Equipment	0.00	0	NO	\$0.00	\$0		\$0.00		
E1090 - Other Equipment	0.00	0	m2	\$0.00	\$0		\$0.00		
E20 Furnishings						\$11,869,612		\$463.40	15.9%
E2010 - Fixed Furnishings	0.00	0	m2	\$0.00	\$0		\$0.00		
E2020 - Movable Furnishings	0.64	16,312	m2	\$727.67	\$11,869,612		\$463.40		
ESTIMATED BASE CONSTRUCTION COST (nearest ,000)						\$74,745,000		\$2,918.12	100.0%

Description Element/Sub-Element	Zone A Public Spaces / Amenities					Zone B Display Areas					Zone C Collection Support					Zone D Building Support					TOTAL				
	4,704 m2		Elemental Cost			8,175 m2		Elemental Cost			1,059 m2		Elemental Cost			2,374 m2		Elemental Cost			16,312 m2		Elemental Cost		
	Quantity	Unit	Unit Rate	Sub Element	Element Total	Quantity	Unit	Unit Rate	Sub Element	Element Total	Quantity	Unit	Unit Rate	Sub Element	Element Total	Quantity	Unit	Unit Rate	Sub Element	Element Total	Quantity	Unit	Unit Rate	Sub Element	Element Total
C INTERIORS					\$3,870,079					\$6,465,391					\$827,392					\$1,854,373					\$13,017,235
C10 Interior Construction																									
C1010 - Partitions	4,282	m2	\$218.53	\$935,834		7,685	m2	\$249.77	\$1,919,451		2,510	m2	\$197.40	\$495,474		5,626	m2	\$197.40	\$1,110,471		20,103	m2	\$221.92	\$4,461,230	
C1020 - Interior Doors	72	LVS	\$3,557.34	\$256,212		99	LVS	\$3,557.34	\$352,177		19	LVS	\$4,111.85	\$78,386		43	LVS	\$4,111.85	\$175,682		233	LVS	\$3,704.51	\$862,457	
C1030 - Fittings	4,704	m2	\$569.35	\$2,678,034		8,175	m2	\$512.97	\$4,193,763		1,059	m2	\$239.39	\$253,531		2,374	m2	\$239.39	\$568,221		16,312	m2	\$471.66	\$7,693,548	
C20 Stairs					\$0					\$0					\$0					\$0					\$0
C2010 - Strairs Construction	0	FLT	\$0.00	\$0		0	FLT	\$0.00	\$0		0	FLT	\$0.00	\$0		0	FLT	\$0.00	\$0		0	FLT	\$0.00	\$0	
C2020 - Strairs Finishes	0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0	
C30 Interior Finishes					\$2,767,049					\$3,964,842					\$695,665					\$1,449,758					\$8,877,314
C3010 - Wall Finishes	7,280	m2	\$47.45	\$345,432		13,064	m2	\$44.01	\$574,895		4,267	m2	\$38.47	\$164,145		9,563	m2	\$41.50	\$396,902		34,175	m2	\$43.35	\$1,481,375	
C3020 - Floor Finishes	4,427	m2	\$305.71	\$1,353,289		7,930	m2	\$312.72	\$2,479,881		974	m2	\$304.17	\$296,369		2,184	m2	\$240.79	\$525,828		15,515	m2	\$300.06	\$4,655,366	
C3030 - Ceiling Finishes	4,427	m2	\$241.34	\$1,068,328		7,930	m2	\$114.76	\$910,066		974	m2	\$241.34	\$235,151		2,184	m2	\$241.34	\$527,027		15,515	m2	\$176.64	\$2,740,573	
D SERVICES					\$0					\$0					\$0					\$0					\$0
D10 Conveying					\$0					\$0					\$0					\$0					\$0
D1010 - Elevators and Lifts	0	STS	\$0.00	\$0		0	STS	\$0.00	\$0		0	STS	\$0.00	\$0		0	STS	\$0.00	\$0		0	STS	\$0.00	\$0	
D1020 - Escalators and Moving Walks	0	m	\$0.00	\$0		0	m	\$0.00	\$0		0	m	\$0.00	\$0		0	m	\$0.00	\$0		0	m	\$0.00	\$0	
D1090 - Other Conveying Systems	0	NO	\$0.00	\$0		0	NO	\$0.00	\$0		0	NO	\$0.00	\$0		0	NO	\$0.00	\$0		0	NO	\$0.00	\$0	
D20 Plumbing					\$1,701,129					\$2,250,359					\$279,748					\$684,786					\$4,916,021
D2010 - Domestic Water Distribution	4,704	m2	\$139.28	\$655,128		8,175	m2	\$115.00	\$940,171		1,059	m2	\$115.00	\$121,795		2,374	m2	\$137.05	\$325,321		16,312	m2	\$125.21	\$2,042,415	
D2020 - Sanitary Drainage	4,704	m2	\$62.10	\$292,110		8,175	m2	\$40.25	\$329,060		1,059	m2	\$40.25	\$42,628		2,374	m2	\$55.69	\$132,185		16,312	m2	\$48.80	\$795,983	
D2030 - Building Support Plumbing System	4,704	m2	\$23.47	\$110,390		8,175	m2	\$24.44	\$199,786		1,059	m2	\$28.75	\$30,449		2,374	m2	\$27.06	\$64,236		16,312	m2	\$24.82	\$404,861	
D2040 - General Service Compressed Air	4,704	m2	\$23.20	\$109,124		8,175	m2	\$0.00	\$0		1,059	m2	\$17.25	\$18,269		2,374	m2	\$0.00	\$0		16,312	m2	\$7.81	\$127,393	
D2090 - Process Support Plumbing System	4,704	m2	\$113.61	\$534,377		8,175	m2	\$95.57	\$781,342		1,059	m2	\$62.89	\$66,607		2,374	m2	\$68.69	\$163,044		16,312	m2	\$94.74	\$1,545,369	
D30 HVAC					\$5,677,458					\$10,040,088					\$1,245,712					\$2,733,675					\$19,696,933
D3010 - Facility Fuel Systems	4,704	m2	\$22.13	\$104,114		8,175	m2	\$12.00	\$98,105		1,059	m2	\$18.00	\$19,064		2,374	m2	\$12.00	\$28,484		16,312	m2	\$15.31	\$249,766	
D3020 - Heating Systems	4,704	m2	\$240.00	\$1,128,874		8,175	m2	\$240.00	\$1,962,096		1,059	m2	\$240.00	\$254,181		2,374	m2	\$240.00	\$569,677		16,312	m2	\$240.00	\$3,914,827	
D3030 - Cooling Systems	4,704	m2	\$240.00	\$1,128,874		8,175	m2	\$240.00	\$1,962,096		1,059	m2	\$240.00	\$254,181		2,374	m2	\$240.00	\$569,677		16,312	m2	\$240.00	\$3,914,827	
D3040 - Facility HVAC Distribution System	4,704	m2	\$240.00	\$1,128,874		8,175	m2	\$276.00	\$2,256,410		1,059	m2	\$240.00	\$254,181		2,374	m2	\$240.00	\$569,677		16,312	m2	\$258.04	\$4,209,142	
D3050 - Ventilation	4,704	m2	\$180.00	\$846,656		8,175	m2	\$207.00	\$1,692,308		1,059	m2	\$180.00	\$190,635		2,374	m2	\$180.00	\$427,258		16,312	m2	\$193.53	\$3,156,856	
D3060 - Special Purpose HVAC Systems	4,704	m2	\$82.17	\$386,511		8,175	m2	\$22.50	\$183,946		1,059	m2	\$60.00	\$63,545		2,374	m2	\$46.03	\$109,253		16,312	m2	\$45.57	\$743,255	
D3070 - Systems Testing and Balancing	4,704	m3	\$19.84	\$93,335		8,175	m2	\$20.70	\$169,231		1,059	m2	\$20.00	\$21,182		2,374	m2	\$19.15	\$45,457		16,312	m2	\$20.18	\$329,205	
D3080 - Other HVAC System and Equipment	4,704	m4	\$182.88	\$860,221		8,175	m2	\$209.89	\$1,715,897		1,059	m2	\$178.21	\$188,744		2,374	m2	\$174.50	\$414,193		16,312	m2	\$194.89	\$3,179,055	
D40 Fire Protection					\$479,418					\$846,154					\$95,318					\$164,855					\$1,585,744
D4010 - Fire Suppression	4,704	m2	\$65.00	\$305,737		8,175	m2	\$74.75	\$611,111		1,059	m2	\$65.00	\$68,841		2,374	m2	\$65.00	\$154,287		16,312	m2	\$69.89	\$1,139,976	
D4020 - Fire Protection Specialties	4,704	m2	\$36.92	\$173,681		8,175	m2	\$28.75	\$235,043		1,059	m2	\$25.00	\$26,477		2,374	m2	\$4.45	\$10,568		16,312	m2	\$27.33	\$445,768	
D50 Electrical Systems					\$3,444,424					\$6,476,143					\$566,823					\$990,452					\$11,477,841
D5010 - Electrical Service and Distribution	4,704	m2	\$22.44	\$105,563		8,175	m2	\$35.25	\$288,183		1,059	m2	\$36.00	\$38,127		2,374	m2	\$15.17	\$36,009		16,312	m2	\$28.68	\$467,882	
D5020 - Lighting and Branch Wiring	4,704	m2	\$537.27	\$2,527,124		8,175	m2	\$540.00	\$4,414,716		1,059	m2	\$276.00	\$292,308		2,374	m2	\$252.25	\$598,763		16,312	m2	\$480.20	\$7,832,910	
D5030 - Communication and Security	4,704	m2	\$150.13	\$706,174		8,175	m2	\$182.40	\$1,491,193		1,059	m2	\$187.20	\$198,261		2,374	m2	\$134.56	\$319,392		16,312	m2	\$166.45	\$2,715,020	
D5090 - Other Electrical Systems	4,704	m2	\$22.44	\$105,563		8,175	m2	\$34.50	\$282,051		1,059	m2	\$36.00	\$38,127		2,374	m2	\$15.29	\$36,288		16,312	m2	\$28.32	\$462,029	
D80 Integrated Automation					\$638,685					\$1,128,205					\$190,635					\$304,348					\$2,261,873
D8010 - Integrated Automation	4,704	m2	\$135.79	\$638,685		8,175	m2	\$138.00	\$1,128,205		1,059	m2	\$180.00	\$190,635		2,374	m2	\$128.22	\$304,348		16,312	m2	\$138.66	\$2,261,873	
E EQUIPMENT AND FURNISHING					\$653,562					\$0					\$182,009					\$206,485					\$1,042,056
E10 Equipment					\$653,562					\$0					\$182,009					\$206,485					\$1,042,056
E1010 - Commercial Equipment	0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0	
E1020 - Institutional Equipment	4,704	m2	\$138.95	\$653,562		8,175	m2	\$0.00	\$0		1,059	m2	\$171.86	\$182,009		2,374	m2	\$86.99	\$206,485		16,312	m2	\$63.88	\$1,042,056	
E1030 - Vehicular Equipment	0	NO	\$0.00	\$0		0	NO	\$0.00	\$0		0	NO	\$0.00	\$0		0	NO	\$0.00	\$0		0	NO	\$0.00	\$0	
E1090 - Other Equipment	0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0	
E20 Furnishings					\$2,132,536					\$2,515,255					\$325,840					\$6,895,982					\$11,869,612
E2010 - Fixed Furnishings	0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0		0	m2	\$0.00	\$0	
E2020 - Movable Furnishings	4,704	m2	\$453.38	\$2,132,536		8,175	m2	\$307.66	\$2,515,255		1,059	m2	\$307.66	\$325,840		2,374	m2	\$2,905.22	\$6,895,982		16,312	m2	\$727.67	\$11,869,612	
ESTIMATED BASE CONSTRUCTION COST (nearest ,000)					\$21,364,000					\$33,686,000					\$4,409,000					\$15,285,000					\$74,745,000

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total	
A. SUBSTRUCTURE							
A10 SUBSTRUCTURE - FOUNDATIONS							
A1010 - Standard Foundations							
1	Foundation Design for New Build					Excluded	
2	Bridge to Pod #5 - 2 storey, 152m longx3.96m wide, including: - piers / foundation on water					Excluded	
2.1							
3	Bridge to Bridge10 - 2 storey, 115m longx3.96 wide, including: - foundation on land					Excluded	
3.1							
4	Premium for underwater construction					Excluded	
TOTAL FOR SUBSTRUCTURE - Standard Foundations		0.11	2,750	m2	\$0.00	\$0	
A1030 - Slab on Grade							
5	Level and compact subgrade					Excluded	
6	Level - 1 - Concrete slab on grade including: - non woven geotextile - granular A sub base, assumed 300mm depth - vapour barrier - synthetic fibre reinforcing, assumed 40 kg/m3 - concrete, assumed 200mm thick - 1.5m rigid insulation to perimeter - screed and cure - steel trowel finish					Excluded	
6.1			2,750	m2			
6.2							
6.3							
6.4							
6.5							
6.6							
6.7							
6.8							
TOTAL FOR SUBSTRUCTURE - Slab on Grade		0.11	2,750	m2	\$0.00	\$0	
B. SHELL							
B10 SHELL - SUPERSTRUCTURE							
B1010 - Floor Construction							
7	Suspended concrete structure to ground floor slab, area based on Design Test Fit received on January 24, 2023	4,676	m2	\$290.85	\$1,360,015		
8	Allowance for pits and trenches	1	LS	\$30,000.00	\$30,000		
9	Allowance for housekeeping pads	1	LS	\$30,000.00	\$30,000		
10	Suspended concrete structure, area based on Design Test Fit received on January 24, 2023, including: - column and beam formwork - soffit formwork - reinforcing steel - concrete - screed and cure - steel trowel finish	10,970	m2	\$581.70	\$6,381,249		
10.1							
10.2							
10.3							
10.4							
10.5							
10.6							
11	Extra over for 3rd Level long span structure	2,482	m2	\$155.00	\$384,710		
12	Extra over for additional loading requirements for new build Mechanical Penthouse Levels	417	m2	\$155.00	\$64,635		
13	Allowance for structural alteration to existing buildings, including: - PODs - Cine-sphere - Connection Bridges - PODs Mechanical Spaces					Excluded	
13.1						Excluded	
13.2						Excluded	
13.3						Excluded	
13.4						Excluded	
14	Bridge to Pod #5 - 2 storey, 152m longx3.96m wide, including: - structural steel structure, upper floor construction, assumed galvanized					Excluded	
14.1							
15	Bridge to Bridge10 - 2 storey, 115m longx3.96 wide, including: - structural steel structure, upper floor construction					Excluded	
15.1							
TOTAL FOR SHELL - Floor Construction		0.61	15,646	m2	\$527.33	\$8,250,609	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
<u>B1020 - Roof Construction</u>						
16	Crane tower rental					Included above
17	Roof construction; mixture of suspended concrete structure and structural steel roof construction to new build, including:	4,660	m2	\$794.10	\$3,700,506	
17.1	- column and beam formwork					
17.2	- soffit formwork					
17.3	- reinforcing steel					
17.4	- concrete					
17.5	- screed and cure					
17.6	- steel trowel finish					
18	Structural steel roof construction to new build Mech. Penthouse including:	417	m2	\$607.70	\$253,411	
18.1	- base plates and anchor bolts					
18.2	- structural steel columns					
18.3	- structural steel beams					
18.4	- open web steel joists					
18.5	- bridging and bracing					
18.6	- metal deck					
19	Bridge to Pod #5 - 2 storey, 152m longx3.96m wide, including:					Excluded
19.1	- structural steel structure, roof construction, assumed galvanized					
20	Bridge to Bridge10 - 2 storey, 115m longx3.96 wide, including:					
20.1	- structural steel structure, roof construction					
21	Allowance for structural alteration to existing buildings, including:					Excluded
21.1	- PODs					Excluded
21.2	- Cine-sphere					Excluded
21.3	- Bridge 10	327	m2	\$8,000.00	\$2,616,000	
22	Framing to roof openings					Included above
23	Allowance for Main Entrance Canopy	100	m2	\$3,000.00	\$300,000	
TOTAL FOR SHELL - Roof Construction		0.21	5,404	m2	\$1,271.27	\$6,869,917

B20 SHELL - EXTERIOR ENCLOSURE

B2010 - Exterior Walls

24	High-performance solid exterior envelope, assumed 60% of total envelope area, total area based on Design Test Fit received on January 24, 2023, including:	5,069	m2	\$800.16		\$4,056,000
24.1	- heavy gauge prefinished metal plate panel, assumed 50% of solid area	2,535	m2	\$1,000.00	\$2,535,000	
24.2	- masonry veneer walls, assumed 50% of solid area	2,535	m2	\$600.00	\$1,521,000	
25	Prefinished metal panel to Penthouse Levels, assumed 6.0m high including parapet	648	m2	\$700.00	\$453,713	
26	High-performance solid exterior envelope, assumed 50% of total envelope area, including:					Excluded
26.1	- Bridge to Pod #5 - 2 storey, 152m longx3.96m wide					
26.1	- Bridge to Bridge10 - 2 storey, 115m longx3.96 wide					
27	Structural wall bracing (2kgs/m2)	6	TN	\$6,136.00	\$39,064	
28	Allowance for projections, including:	18,396	m2	\$100.00	\$1,839,969	
28.1	- roof terrace					
28.2	- exterior wall parapets including roofing membrane, cant strip, blocking, and prefinished cap flashing (exterior wall assembly included A3.2)					
28.3	- canopy to Main Entrance including structure, roof finish, soffit finish, and fascia					
28.4	- roof screens to mechanical equipment					
28.5	- fall protection/window washing system					
28.6	- roof ladder					
28.7	- bollards					
28.8	- frost slab to entrances					
28.9	- exterior building signature signage					
28.10	- continuous sunshades					
28.11	- fire exit stair to Bridge to Bridge10, assumed every 45m					Excluded
29	Soffits, including:					
29.1	- to new building	1,305	m2	\$472.00	\$615,960	
29.2	- to new bridges					Excluded

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
30	Existing buildings, including:					
30.1	- PODs - new cladding				Excluded	
30.2	- Cine-sphere - repair existing				Excluded	
31	Allowance for unique logistic				Excluded	
32	Soffit underneath PODs and Bridges				Excluded	
33	Handrail to PODs roof				Excluded	
34	Allowance for accessibility upgrade for the existing structures has been included. Scope of work includes 1 freight sized elevator being added to one of the pods (includes access to roof), upgrade of existing ramps from pod 3 (cinesphere ramp) and pod 5 (live nation ramp)	1	LS	\$10,000,000.00	\$10,000,000	
Structural Walls Above Grade						
35	Extra over for cast-in-place concrete walls behind cladding above (stairs), including formwork, reinforcing, and concrete	274	m2	\$885.00	\$242,490	
TOTAL FOR SHELL - Exterior Walls		0.22	5,717	m2	\$3,016.67	\$17,246,796
B2020 - Exterior Windows						
36	Aluminum framed curtain wall system, assumed triple glazed, low e coating, and argon filled, assumed 40% of total envelop area	3,379	m2	\$1,700.00	\$5,744,300	
37	Aluminum framed curtain wall system, assumed triple glazed, low e coating, and argon filled, assumed 50% of total envelop area				Excluded	
37.1	- Bridge to Pod #5 - 2 storey, 152m longx3.96m wide					
37.1	- Bridge to Bridge10 - 2 storey, 115m longx3.96 wide					
38	Extra over to add Ceramic Frit, assumed 10% of the curtain wall area	338	m2	\$100.00	\$33,790	
39	Allowance for structural support to high curtain wall area, assumed 60% of curtain wall (2kqs/m2)	4	TN	\$6,100.00	\$24,400	
40	Aluminum framed curtain wall system, assumed triple glazed, low e coating, and argon filled to existing buildings, including:				Excluded	
40.1	- PODs - repair to existing				Excluded	
40.1	- Bridges - new curtain wall to Bridge 10	776	m2	\$2,600.00	\$2,017,600	
40.1	- Cine-sphere - repair to existing				Excluded	
41	Allowance for louvres to mechanical room to new building	1	LS	\$1,200.00	\$1,200	
TOTAL FOR SHELL - Exterior Windows		0.16	4,155	m2	\$1,882.38	\$7,821,290
B2030 - Exterior Doors						
42	Revolving door to Main Entrance, 2000mm dia	5	NO	\$80,000.00	\$400,000	
43	Aluminum framed fully glazed doors including installation and finish					
43.1	- single (1036mm x 2686mm), to Level 1	4	NO	\$3,400.00	\$13,600	
43.2	- double (2-1036mm x 2686mm), to Level 1	6	PR	\$6,800.00	\$40,800	
43.3	- single (1036mm x 2686mm), to upper level terraces	6	NO	\$3,400.00	\$20,400	
44	Insulated hollow metal door and frame including installation and paint finish					
44.1	- single, assumed 1100mm x 2700mm	1	NO	\$5,728.93	\$5,729	
44.2	- double, assumed 2-1100mm x 2700mm	1	PR	\$11,457.87	\$11,458	
45	Door hardware supply allowance				Included above	
46	Barrier free operators, assumed to aluminum double doors	6	NO	\$3,500.00	\$21,000	
47	Overhead door to loading area, 3000mm x 4000mm	1	NO	\$22,700.00	\$22,700	
48	Aluminum framed fully glazed doors including installation and finish to new Bridges				Excluded	
4.1	- double (2-1036mm x 2686mm), assumed to both Level each end					
49	Insulated hollow metal door and frame including installation and paint finish				Excluded	
49.1	- single, assumed 1100mm x 2700mm, assumed fire exit to Bridge to Bridge 10					
50	Doors to existing buildings				Excluded	
50.1	Aluminum framed fully glazed doors including installation and finish					
50.2	- double (2-1036mm x 2686mm)				Excluded	
50.3	Insulated hollow metal door and frame including installation and paint finish					
50.4	- single, assumed 1100mm x 2700mm				Excluded	
50.5	- double, assumed 2-1100mm x 2700mm				Excluded	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
50.6	Barrier free operators, assumed to aluminum double doors					Excluded
TOTAL FOR SHELL - Exterior Doors		0.00	109	m2	\$4,908.73	\$535,687

B30 SHELL - ROOFING

B3010 - Roof Coverings

51	Membrane roofing, including filter fabric, insulation, roof membrane, densglas sheathing (including provisions for roof equipment), including:	5,077	m2	\$439.60		\$2,231,852
51.1	- new building	5,077	m2	\$413.00	\$2,096,801	Excluded
51.2	- new bridges					
51.3	- renovation area, assumed 100% new roofing	327	m2	\$413.00	\$135,051	
52	Extra over for tapered insulation, assumed to 100% roof area	5,077	m2	\$0.00		\$0
52.1	- new building	5,077	m2		Included above u.rate	
52.2	- new bridges				Excluded	
52.3	- renovation area, assumed 100% new roofing				Excluded	
53	Extra over for green roof including membrane, soil, and growing medium, 60% roof area as per City of Toronto Green Roof Bylaw	3,046	m2	\$448.40		\$1,365,826
53.1	- new building	3,046	m2	\$448.40	\$1,365,826	
53.2	- renovation area, assumed 100% new roofing				Excluded	
54	Flashing to vertical surfaces	358	m	\$53.10	\$19,010	
55	Flashing to openings	1	LS	\$11,800.00	\$11,800	
56	Roof pavers, assumed to 40% roof area	2,031	m2	\$354.00		\$718,974
56.1	- new building	2,031	m2	\$354.00	\$718,974	
56.2	- renovation area				Excluded	
57	Exterior wall parapets including roofing membrane, cant strip, blocking, and prefinished cap flashing, including masonry cladding (assumed 600mm height)	548	m	\$826.00	\$452,648	
58	Allowance for window washing anchors/ equipment (fall arrest anchors, davit arm bases, etc.)					
58.1	- to new building	1	LS	\$295,000.00	\$295,000	
58.2	- to PODs and Bridges				Excluded	
TOTAL FOR SHELL - Roof Coverings		0.20	5,077	m2	\$1,003.57	\$5,095,110

B3020 - Roof Openings

59	Allowance for Skylight	52	m2	\$3,000.00	\$155,310	
TOTAL FOR SHELL - Roof Openings		0.00	52	m2	\$3,000.00	\$155,310

C. INTERIORS

C10 INTERIOR CONSTRUCTION

C1010 - Partitions

60	Interior partitions, combination of gypsum board partition, CMU partition and glazed partition, including:					
Zone A Public Spaces / Amenities						
60.1	Building Entry and Visitor Amenities - New Building	1,611	m2	\$197.40	\$318,048	
60.2	Building Entry and Visitor Amenities - Renovation	716	m2	\$197.40	\$141,354	
60.3	Education (Science School) - New Building	227	m2	\$197.40	\$44,820	
60.4	Education (Science School) - Renovation	0	m2	\$197.40	\$0	
60.5	Workshops and Maker Spaces - New Building	647	m2	\$249.77	\$161,501	
60.6	Workshops and Maker Spaces - Renovation	364	m2	\$249.77	\$90,844	
60.7	Demonstration Spaces - New Building	491	m2	\$249.77	\$122,741	
60.8	Demonstration Spaces - renovation	226	m2	\$249.77	\$56,525	
60.9	Planetarium and Cinesphere - New Building	0	m2	\$256.18	\$0	
60.10	Planetarium and Cinesphere - Renovation	0	m2	\$256.18	\$0	
60.11	Zone B Display Areas					
60.12	Exhibits - Permanent and Temporary - New Building	5,764	m2	\$249.77	\$1,439,589	
60.13	Exhibits - Permanent and Temporary - Renovation	1,921	m2	\$249.77	\$479,863	
60.14						

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
60.15	Zone C Collection Support					
60.16	Exhibit Support Spaces - New Building	2,510	m2	\$197.40	\$495,474	
60.17	Exhibit Support Spaces - Renovation	0	m2	\$197.40	\$0	
60.18	Zone D Building Support					
60.19	Administrative - OSC - New Building	3,082	m2	\$197.40	\$608,477	
60.20	Administrative - OSC - Renovation	0	m2	\$197.40	\$0	
60.21	Administrative - Support - New Building	385	m2	\$197.40	\$76,060	
60.22	Administrative - Support - Renovation	0	m2	\$197.40	\$0	
60.23	Building Support - New Building	1,607	m2	\$197.40	\$317,277	
60.24	Building Support - Renovation	550	m2	\$197.40	\$108,657	
60.25	Building Grossing, including:					
60.26	Reno-Non Program (Bridges)	683	m2	\$237.00	\$161,849	
60.27	Reno-Program (Cinesphere)	0	m2	\$0.00	\$0	
60.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storev)	0	m2	\$237.00	\$0	
60.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	2,436	m2	\$237.00	\$577,223	
60.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	19	m2	\$237.00	\$4,579	

TOTAL FOR INTERIORS - Partitions

0.91	23,241	m2	\$223.96	\$5,204,881
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C1020 - Interior Doors

61	Interior doors, combination of hollow metal and aluminum framed doors including hardware, installation and finish					
61.1	Zone A Public Spaces / Amenities					
61.2	Building Entry and Visitor Amenities - New Building	31	LVS	\$3,557.34	\$109,754	
61.3	Building Entry and Visitor Amenities - Renovation	14	LVS	\$3,557.34	\$48,780	
61.4	Education (Science School) - New Building	4	LVS	\$3,557.34	\$12,889	
61.5	Education (Science School) - Renovation	0	LVS	\$3,557.34	\$0	
61.6	Workshops and Maker Spaces - New Building	9	LVS	\$3,557.34	\$31,727	
61.7	Workshops and Maker Spaces - Renovation	5	LVS	\$3,557.34	\$17,846	
61.8	Demonstration Spaces - New Building	7	LVS	\$3,557.34	\$24,112	
61.9	Demonstration Spaces - renovation	3	LVS	\$3,557.34	\$11,104	
61.10	Planetarium and Cinesphere - New Building	0	LVS	\$4,310.86	\$0	
61.11	Planetarium and Cinesphere - Renovation	0	LVS	\$4,310.86	\$0	
61.12	Zone B Display Areas					
61.13	Exhibits - Permanent and Temporary - New Building	74	LVS	\$3,557.34	\$263,243	
61.14	Exhibits - Permanent and Temporary - Renovation	25	LVS	\$3,557.34	\$88,933	
61.15	Zone C Collection Support					
61.16	Exhibit Support Spaces - New Building	19	LVS	\$4,111.85	\$78,386	
61.17	Exhibit Support Spaces - Renovation	0	LVS	\$4,111.85	\$0	
61.18	Zone D Building Support					
61.19	Administrative - OSC - New Building	23	LVS	\$4,111.85	\$96,264	
61.20	Administrative - OSC - Renovation	0	LVS	\$4,111.85	\$0	
61.21	Administrative - Support - New Building	3	LVS	\$4,111.85	\$12,033	
61.22	Administrative - Support - Renovation	0	LVS	\$4,111.85	\$0	
61.23	Building Support - New Building	12	LVS	\$4,111.85	\$50,195	
61.24	Building Support - Renovation	4	LVS	\$4,111.85	\$17,190	
61.25	Building Grossing, including:					
61.26	Reno-Non Program (Bridges)	29	LVS	\$4,111.85	\$120,346	
61.27	Reno-Program (Cinesphere)	0	LVS	\$0.00	\$0	
61.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storev)	0	LVS	\$4,111.85	\$0	
61.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	104	LVS	\$4,111.85	\$429,203	
61.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	1	LVS	\$4,111.85	\$3,405	

TOTAL FOR INTERIORS - Doors

0.01	367	LVS	\$3,853.65	\$1,415,410
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LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
C1030 - Fittings						
62	Fittings and fixtures including tack boards, lockers, wshroom accessories, storage shelving, handrails, washroom partitions, millworks, specialties etc.					
62.1	Zone A Public Spaces / Amenities					
62.2	Building Entry and Visitor Amenities - New Building	1,714	m2	\$512.97	\$879,260	
62.3	Building Entry and Visitor Amenities - Renovation	762	m2	\$512.97	\$390,782	
62.4	Education (Science School) - New Building	242	m2	\$512.97	\$123,907	
62.5	Education (Science School) - Renovation	0	m2	\$512.97	\$0	
62.6	Workshops and Maker Spaces - New Building	743	m2	\$646.49	\$480,481	
62.7	Workshops and Maker Spaces - Renovation	418	m2	\$646.49	\$270,270	
62.8	Demonstration Spaces - New Building	565	m2	\$646.49	\$365,165	
62.9	Demonstration Spaces - renovation	260	m2	\$646.49	\$168,168	
62.10	Planetarium and Cinesphere - New Building	0	m2	\$646.49	\$0	
62.11	Planetarium and Cinesphere - Renovation	0	m2	\$646.49	\$0	
62.12	Zone B Display Areas					
62.13	Exhibits - Permanent and Temporary - New Building	6,132	m2	\$512.97	\$3,145,322	
62.14	Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$512.97	\$1,048,441	
62.15	Zone C Collection Support					
62.16	Exhibit Support Spaces - New Building	1,059	m2	\$239.39	\$253,531	
62.17	Exhibit Support Spaces - Renovation	0	m2	\$239.39	\$0	
62.18	Zone D Building Support					
62.19	Administrative - OSC - New Building	1,301	m2	\$239.39	\$311,354	
62.20	Administrative - OSC - Renovation	0	m2	\$239.39	\$0	
62.21	Administrative - Support - New Building	163	m2	\$239.39	\$38,919	
62.22	Administrative - Support - Renovation	0	m2	\$239.39	\$0	
62.23	Building Support - New Building	678	m2	\$239.39	\$162,349	
62.24	Building Support - Renovation	232	m2	\$239.39	\$55,599	
62.25	Building Grossing, including:					
62.26	Reno-Non Program (Bridges)	1,626	m2	\$239.39	\$389,243	
62.27	Reno-Program (Cinesphere)	1,830	m2	\$0.00	\$0	
62.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storev)	0	m2	\$239.39	\$0	
62.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$213.52	\$1,238,222	
62.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$213.52	\$9,822	
TOTAL FOR INTERIORS - Fittings		1.00	25,613	m2	\$364.30	\$9,330,835

C20 STAIRS

C2010 - Strairs Construction

63	Poured concrete stairs, including:	1,071	m	\$442.50		\$473,918
63.1	- stair 1 to 6 (from Ground Floor to 5th Floor)	1,071	m	\$442.50	\$473,918	
64	Lobby feature stair (floating treads)					
64.1	- feature stair (assumed from Ground to 3rd Floor)	314	m	\$3,481.00	\$1,093,034	
TOTAL FOR INTERIOR - Stairs		0.05	1,385	m	\$1,131.37	\$1,566,952

C2020 - Stairs Finishes

65	Poured concrete stairs	857	NO	\$600.00		\$514,080
65.1	- stair 1, 2 (from Ground Floor to 5th Floor)	857	NO	\$600.00	\$514,080	
66	Lobby feature stair (floating treads)					
66.1	- feature stair (assumed from Ground to 3rd Floor)	180	NO	\$1,200.00	\$216,000	
TOTAL FOR INTERIOR - Stair Finishes		0.02	457	m2	\$1,597.55	\$730,080

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
C30 INTERIOR FINISHES						
C3010 - Wall Finishes						
67	Wall finishes, combination of paint, ceramic tiles					
67.1	Zone A Public Spaces / Amenities					
67.2	Building Entry and Visitor Amenities - New Building	2,739	m2	\$44.01	\$120,532	
67.3	Building Entry and Visitor Amenities - Renovation	1,217	m2	\$44.01	\$53,570	
67.4	Education (Science School) - New Building	386	m2	\$51.55	\$19,897	
67.5	Education (Science School) - Renovation	0	m2	\$51.55	\$0	
67.6	Workshops and Maker Spaces - New Building	1,099	m2	\$51.55	\$56,663	
67.7	Workshops and Maker Spaces - Renovation	618	m2	\$51.55	\$31,873	
67.8	Demonstration Spaces - New Building	835	m2	\$51.55	\$43,064	
67.9	Demonstration Spaces - renovation	385	m2	\$51.55	\$19,832	
67.10	Planetarium and Cinesphere - New Building	0	m2	\$51.55	\$0	
67.11	Planetarium and Cinesphere - Renovation	0	m2	\$51.55	\$0	
67.12	Zone B Display Areas					
67.13	Exhibits - Permanent and Temporary - New Building	9,798	m2	\$44.01	\$431,171	
67.14	Exhibits - Permanent and Temporary - Renovation	3,266	m2	\$44.01	\$143,724	
67.15	Zone C Collection Support					
67.16	Exhibit Support Spaces - New Building	4,267	m2	\$38.47	\$164,145	
67.17	Exhibit Support Spaces - Renovation	0	m2	\$38.47	\$0	
67.18	Zone D Building Support					
67.19	Administrative - OSC - New Building	5,240	m2	\$44.01	\$230,597	
67.20	Administrative - OSC - Renovation	0	m2	\$44.01	\$0	
67.21	Administrative - Support - New Building	655	m2	\$38.47	\$25,198	
67.22	Administrative - Support - Renovation	0	m2	\$38.47	\$0	
67.23	Building Support - New Building	2,732	m2	\$38.47	\$105,110	
67.24	Building Support - Renovation	936	m2	\$38.47	\$35,997	
67.25	Building Grossing, including:					
67.26	Reno-Non Program (Bridges)	1,161	m2	\$33.68	\$39,105	
67.27	Reno-Program (Cinesphere)	0	m2	\$0.00	\$0	
67.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$33.68	\$0	
67.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	4,140	m2	\$33.68	\$139,465	
67.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	33	m2	\$33.68	\$1,106	
TOTAL FOR INTERIORS - Wall Finishes		1.54	39,509 m2	\$42.04	\$1,661,051	

C3020 - Floor Finishes

68	Floor finishes, combination of porcelain/ceramic tiles, carpet tiles, resilient flooring					
68.1	Zone A Public Spaces / Amenities					
68.2	Building Entry and Visitor Amenities - New Building	1,577	m2	\$304.17	\$479,649	
68.3	Building Entry and Visitor Amenities - Renovation	701	m2	\$304.17	\$213,177	
68.4	Education (Science School) - New Building	222	m2	\$304.17	\$67,593	
68.5	Education (Science School) - Renovation	0	m2	\$304.17	\$0	
68.6	Workshops and Maker Spaces - New Building	721	m2	\$304.17	\$219,281	
68.7	Workshops and Maker Spaces - Renovation	406	m2	\$304.17	\$123,346	
68.8	Demonstration Spaces - New Building	548	m2	\$312.72	\$171,337	
68.9	Demonstration Spaces - renovation	252	m2	\$312.72	\$78,905	
68.10	Planetarium and Cinesphere - New Building	0	m2	\$339.57	\$0	
68.11	Planetarium and Cinesphere - Renovation	0	m2	\$339.57	\$0	
68.12	Zone B Display Areas					
68.13	Exhibits - Permanent and Temporary - New Building	5,948	m2	\$312.72	\$1,859,911	
68.14	Exhibits - Permanent and Temporary - Renovation	1,983	m2	\$312.72	\$619,970	
68.15	Zone C Collection Support					
68.16	Exhibit Support Spaces - New Building	974	m2	\$304.17	\$296,369	
68.17	Exhibit Support Spaces - Renovation	0	m2	\$304.17	\$0	
68.18	Zone D Building Support					
68.19	Administrative - OSC - New Building	1,197	m2	\$304.17	\$363,962	
68.20	Administrative - OSC - Renovation	0	m2	\$304.17	\$0	
68.21	Administrative - Support - New Building	150	m2	\$163.97	\$24,525	
68.22	Administrative - Support - Renovation	0	m2	\$163.97	\$0	
68.23	Building Support - New Building	624	m2	\$163.97	\$102,305	
68.24	Building Support - Renovation	214	m2	\$163.97	\$35,036	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
68.25	Building Grossing, including:					
68.26	Reno-Non Program (Bridges)	1,463	m2	\$312.72	\$457,629	
68.27	Reno-Program (Cinesphere)	0	m2	\$0.00	\$0	
68.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storev)	0	m2	\$312.72	\$0	
68.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,219	m2	\$163.97	\$855,769	
68.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	41	m2	\$163.97	\$6,788	
TOTAL FOR INTERIORS - Floor Finishes						
		0.87	22,239	m2	\$268.70	\$5,975,552

C3030 - Ceiling Finishes

69	Ceiling finishes, combination of suspended gypsum board ceiling, acoustical tile ceiling, gypsum bulkheads					
69.1	Zone A Public Spaces / Amenities					
69.2	Building Entry and Visitor Amenities - New Building	1,577	m2	\$241.34	\$380,574	
69.3	Building Entry and Visitor Amenities - Renovation	701	m2	\$241.34	\$169,144	
69.4	Education (Science School) - New Building	222	m2	\$241.34	\$53,631	
69.5	Education (Science School) - Renovation	0	m2	\$241.34	\$0	
69.6	Workshops and Maker Spaces - New Building	721	m2	\$241.34	\$173,987	
69.7	Workshops and Maker Spaces - Renovation	406	m2	\$241.34	\$97,868	
69.8	Demonstration Spaces - New Building	548	m2	\$241.34	\$132,230	
69.9	Demonstration Spaces - renovation	252	m2	\$241.34	\$60,895	
69.10	Planetarium and Cinesphere - New Building	0	m2	\$241.34	\$0	
69.11	Planetarium and Cinesphere - Renovation	0	m2	\$241.34	\$0	
69.12	Zone B Display Areas					
69.13	Exhibits - Permanent and Temporary - New Building	5,948	m2	\$114.76	\$682,550	
69.14	Exhibits - Permanent and Temporary - Renovation	1,983	m2	\$114.76	\$227,517	
69.15	Zone C Collection Support					
69.16	Exhibit Support Spaces - New Building	974	m2	\$241.34	\$235,151	
69.17	Exhibit Support Spaces - Renovation	0	m2	\$241.34	\$0	
69.18	Zone D Building Support					
69.19	Administrative - OSC - New Building	1,197	m2	\$241.34	\$288,782	
69.20	Administrative - OSC - Renovation	0	m2	\$241.34	\$0	
69.21	Administrative - Support - New Building	150	m2	\$241.34	\$36,098	
69.22	Administrative - Support - Renovation	0	m2	\$241.34	\$0	
69.23	Building Support - New Building	624	m2	\$241.34	\$150,579	
69.24	Building Support - Renovation	214	m2	\$241.34	\$51,568	
69.25	Building Grossing, including:					
69.26	Reno-Non Program (Bridges)	1,463	m2	\$96.79	\$141,638	
69.27	Reno-Program (Cinesphere)	0	m2	\$0.00	\$0	
69.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storev)	0	m2	\$96.79	\$0	
69.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,219	m2	\$96.79	\$505,142	
69.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	41	m2	\$96.79	\$4,007	
TOTAL FOR INTERIORS - Ceiling Finishes						
		0.87	22,239	m2	\$152.50	\$3,391,360

D. SERVICES

D10 CONVEYING

D1010 - Elevators and Lifts

70	Elevators, including:	7	NO	\$544,285.71		\$3,810,000
70.1	- passenger (public) elevators (serving 3 stops Parking 2 to Ground Level)	2	NO	\$270,000.00	\$540,000	
70.1	- passenger (public) elevators (serving 7 stops Parking 2 to 5th Level)	4	NO	\$630,000.00	\$2,520,000	
70.2	- service elevator #1 (serving 7 stops Parking 2 to 5th Level) large size	1	NO	\$750,000.00	\$750,000	
71	Allowance to refurbish existing elevators					Excluded
72	Allowance for new elevator addition to PODs as per comments					Included in item 34
TOTAL FOR SERVICES - Elevators and Lifts						
		0.00	3	NO	\$1,270,000.00	\$3,810,000

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
<u>D1020 - Escalators and Moving Walks</u>						
73	Escalator to Lobby as per Design Test Fit received on January 24, 2023	2	NO	\$195,000.00	\$390,000	
74	Moving walk					Excluded
TOTAL FOR SERVICES - Escalators and Moving Walks		0.00	2	NO	\$195,000.00	\$390,000

D20 PLUMBING

D2010 - Domestic Water Distribution

75	Domestic cold water services are extended from the incoming water service to the building with central water meter and backflow preventer assembly, to fixtures and fittings throughout, as well as mechanical cooling systems make-up and general interior and exterior hose bibb coverage. All domestic cold water is thermally insulated. plumbing fixtures included					
<u>Zone A Public Spaces /Amenities</u>						
75.1	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$115.00	\$197,115	
75.2	- Building Entry and Visitor Amenities - Renovation	762	m2	\$115.00	\$87,607	
75.3	- Education (Science School) - New Building	242	m2	\$115.00	\$27,778	
75.4	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
75.5	- Workshops and Maker Spaces - New Building	743	m2	\$172.50	\$128,205	
75.6	- Workshops and Maker Spaces - Renovation	418	m2	\$172.50	\$72,115	
75.7	- Demonstration Spaces - New Building	565	m2	\$172.50	\$97,436	
75.8	- Demonstration Spaces - renovation	260	m2	\$172.50	\$44,872	
75.9	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
75.10	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
75.11						
<u>Zone B Display Areas</u>						
75.12	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$115.00	\$705,180	
75.13	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$115.00	\$235,060	
75.14						
<u>Zone C Collection Support</u>						
75.15	- Exhibit Support Spaces - New Building	1,059	m2	\$115.00	\$121,785	
75.16	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
75.17						
<u>Zone D Building Support</u>						
75.18	- Administrative - OSC - New Building	1,301	m2	\$115.00	\$149,615	
75.19	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
75.20	- Administrative - Support - New Building	163	m2	\$115.00	\$18,745	
75.21	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
75.22	- Building Support - New Building	678	m2	\$172.50	\$116,955	
75.23	- Building Support - Renovation	232	m2	\$172.50	\$40,020	
75.24						
<u>Building Grossing, Including</u>						
75.25	- Reno-Non Program (Bridges)	1,626	m2	\$115.00	\$186,990	
75.26	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
75.27	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
75.28	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$143.99	\$834,999	
75.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$143.99	\$6,624	
75.30						
TOTAL FOR SERVICES - Domestic Water Distribution		1.00	25,614	m2	\$119.90	\$3,071,101

D2020 - Sanitary Waste

76	A complete system of sanitary waste and vent collection are provided to serve plumbing fixtures, floor drains and equipment throughout. Condensate drainage is provided to serve HVAC equipment piped to floor / hub drains throughout. Service connects to outlet to site sanitary sewer. Grease interceptor is provided for commercial kitchen.					
<u>Zone A Public Spaces /Amenities</u>						
76.1	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$40.25	\$68,990	
76.2	- Building Entry and Visitor Amenities - Renovation	762	m2	\$40.25	\$30,662	
76.3	- Education (Science School) - New Building	242	m2	\$40.25	\$9,722	
76.4	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
76.5	- Workshops and Maker Spaces - New Building	743	m2	\$92.00	\$68,376	
76.6	- Workshops and Maker Spaces - Renovation	418	m2	\$92.00	\$38,462	
76.7	- Demonstration Spaces - New Building	565	m2	\$92.00	\$51,966	
76.8	- Demonstration Spaces - renovation	260	m2	\$92.00	\$23,932	
76.9	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
76.10	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
76.11						
<u>Zone B Display Areas</u>						
76.12	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$40.25	\$246,813	
76.13	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$40.25	\$82,271	
76.14						

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
76.15	Zone C Collection Support					
76.16	- Exhibit Support Spaces - New Building	1,059	m2	\$40.25	\$42,625	
76.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
76.18	Zone D Building Support					
76.19	- Administrative - OSC - New Building	1,301	m2	\$40.25	\$52,365	
76.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
76.21	- Administrative - Support - New Building	163	m2	\$40.25	\$6,561	
76.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
76.23	- Building Support - New Building	678	m2	\$80.50	\$54,579	
76.24	- Building Support - Renovation	232	m2	\$80.50	\$18,676	
76.25	Building Grossing, Including					
76.26	- Reno-Non Program (Bridges)	1,626	m2	\$51.75	\$84,146	
76.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
76.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
76.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$56.12	\$325,417	
76.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$56.12	\$2,581	
TOTAL FOR SERVICES - Sanitary Waste		1.00	25,614	m2	\$47.17	\$1,208,143

D2030 - Building Support Plumbing System

77 A complete systems of roof/storm water drainage will be provided to collect rainwater from roofs and green roofs. Service will connect to outlets to site storm sewer. Adjacent overflow "daylight" drains will spill to grade. Special provision for noise sensitive area drainage is also included

77.1 Zone A Public Spaces /Amenities

77.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$28.75	\$49,279	
77.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$11.50	\$8,761	
77.4	- Education (Science School) - New Building	242	m2	\$28.75	\$6,944	
77.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
77.6	- Workshops and Maker Spaces - New Building	743	m2	\$28.75	\$21,368	
77.7	- Workshops and Maker Spaces - Renovation	418	m2	\$11.50	\$4,808	
77.8	- Demonstration Spaces - New Building	565	m2	\$28.75	\$16,239	
77.9	- Demonstration Spaces - renovation	260	m2	\$11.50	\$2,991	
77.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
77.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	

77.12 Zone B Display Areas

77.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$28.75	\$176,295	
77.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$11.50	\$23,506	

77.15 Zone C Collection Support

77.16	- Exhibit Support Spaces - New Building	1,059	m2	\$28.75	\$30,446	
77.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	

77.18 Zone D Building Support

77.19	- Administrative - OSC - New Building	1,301	m2	\$28.75	\$37,404	
77.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
77.21	- Administrative - Support - New Building	163	m2	\$28.75	\$4,686	
77.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
77.23	- Building Support - New Building	678	m2	\$28.75	\$19,493	
77.24	- Building Support - Renovation	232	m2	\$11.50	\$2,668	

77.25 Building Grossing, Including

77.26	- Reno-Non Program (Bridges)	1,626	m2	\$28.75	\$46,748	
77.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
77.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
77.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$28.54	\$165,524	
77.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$28.54	\$1,313	

TOTAL FOR SERVICES - Building Support Plumbing System		1.00	25,614	m2	\$24.15	\$618,472
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LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
<u>D2040 - General Service Compressed Air System</u>						
78	Provisional sum allowance for compressed air system to serve the building c/w compressor, filters, regulators, piping, outlets, hose reels, etc.					
78.1	<u>Zone A Public Spaces /Amenities</u>					
78.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$0.00		\$0
78.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$0.00		\$0
78.4	- Education (Science School) - New Building	242	m2	\$57.50		\$13,889
78.5	- Education (Science School) - Renovation	0	m2	\$0.00		\$0
78.6	- Workshops and Maker Spaces - New Building	743	m2	\$57.50		\$42,735
78.7	- Workshops and Maker Spaces - Renovation	418	m2	\$57.50		\$24,038
78.8	- Demonstration Spaces - New Building	565	m2	\$34.50		\$19,487
78.9	- Demonstration Spaces - renovation	260	m2	\$34.50		\$8,974
78.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00		\$0
78.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00		\$0
78.12	<u>Zone B Display Areas</u>					
78.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$0.00		\$0
78.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$0.00		\$0
78.15	<u>Zone C Collection Support</u>					
78.16	- Exhibit Support Spaces - New Building	1,059	m2	\$17.25		\$18,268
78.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00		\$0
78.18	<u>Zone D Building Support</u>					
78.19	- Administrative - OSC - New Building	1,301	m2	\$0.00		\$0
78.20	- Administrative - OSC - Renovation	0	m2	\$0.00		\$0
78.21	- Administrative - Support - New Building	163	m2	\$0.00		\$0
78.22	- Administrative - Support - Renovation	0	m2	\$0.00		\$0
78.23	- Building Support - New Building	678	m2	\$0.00		\$0
78.24	- Building Support - Renovation	232	m2	\$0.00		\$0
78.25	<u>Building Grossing, Including</u>					
78.26	- Reno-Non Program (Bridges)	1,626	m2	\$0.00		\$0
78.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00		Excluded
78.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storey)	0	m2	\$0.00		\$0
78.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$8.98		\$52,080
78.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$8.98		\$413
TOTAL FOR SERVICES - General Service Compressed Air System		1.00	25,614	m2	\$7.02	\$179,884

D2050 - Process Support Plumbing Systems

79	Allowance for process support plumbing system including specialty services, miscellaneous work, general accounts including: Supervision, submittals, warranty, hoisting and millwrighting, fire stopping, cutting and coring, and general overheads (site and office)					
79.1	<u>Zone A Public Spaces /Amenities</u>					
79.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$57.50		\$98,558
79.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$52.11		\$39,697
79.4	- Education (Science School) - New Building	242	m2	\$132.07		\$31,901
79.5	- Education (Science School) - Renovation	0	m2	\$0.00		\$0
79.6	- Workshops and Maker Spaces - New Building	743	m2	\$191.82		\$142,561
79.7	- Workshops and Maker Spaces - Renovation	418	m2	\$182.38		\$76,247
79.8	- Demonstration Spaces - New Building	565	m2	\$179.24		\$101,242
79.9	- Demonstration Spaces - renovation	260	m2	\$169.80		\$44,171
79.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00		\$0
79.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00		\$0
79.12	<u>Zone B Display Areas</u>					
79.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$110.06		\$674,888
79.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$52.11		\$106,512
79.15	<u>Zone C Collection Support</u>					
79.16	- Exhibit Support Spaces - New Building	1,059	m2	\$62.89		\$66,601
79.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00		\$0
79.18	<u>Zone D Building Support</u>					
79.19	- Administrative - OSC - New Building	1,301	m2	\$57.50		\$74,808
79.20	- Administrative - OSC - Renovation	0	m2	\$0.00		\$0
79.21	- Administrative - Support - New Building	163	m2	\$57.50		\$9,373
79.22	- Administrative - Support - Renovation	0	m2	\$0.00		\$0
79.23	- Building Support - New Building	678	m2	\$88.05		\$59,696
79.24	- Building Support - Renovation	232	m2	\$82.66		\$19,176

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
79.25	Building Grossing, Including					
79.26	- Reno-Non Program (Bridges)	1,626	m2	\$61.09	\$99,338	
79.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
79.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
79.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$129.95	\$753,580	
79.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$129.95	\$5,978	
TOTAL FOR SERVICES - Process Support Plumbing Systems		1.00	25,614	m2	\$93.87	\$2,404,325

D30 HVAC

D3010 - Facility Fuel System

Generator Fuel Supply

80	Generator fuel oil supply including storage tanks - double wall vacuum monitored with initial fill of fuel oil and monitoring controls, lockable remote stainless fuel fill cabinet and alarm, fill station, fuel oil transfer pump c/w strainer and pressure reliefs, painted steel drip tray, adjustable back pressure valve and flow switch, skid mounted, fuel oil piping and venting, Sch.40 black mild steel with screwed joints and fittings					
80.1	Natural gas service to boilers and other gas-fired equipment, as well as kitchen equipment c/w distribution piping, hook-up connection assemblies and PRV stations / valving					
80.2	Zone A Public Spaces /Amenities					
80.3	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$12.00	\$20,569	
80.4	- Building Entry and Visitor Amenities - Renovation	762	m2	\$12.00	\$9,142	
80.5	- Education (Science School) - New Building	242	m2	\$12.00	\$2,899	
80.6	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
80.7	- Workshops and Maker Spaces - New Building	743	m2	\$36.00	\$26,756	
80.8	- Workshops and Maker Spaces - Renovation	418	m2	\$36.00	\$15,050	
80.9	- Demonstration Spaces - New Building	565	m2	\$36.00	\$20,334	
80.10	- Demonstration Spaces - renovation	260	m2	\$36.00	\$9,365	
80.11	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
80.12	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
80.13	Zone B Display Areas					
80.14	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$12.00	\$73,584	
80.15	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$12.00	\$24,528	
80.16	Zone C Collection Support					
80.17	- Exhibit Support Spaces - New Building	1,059	m2	\$18.00	\$19,062	
80.18	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
80.19	Zone D Building Support					
80.20	- Administrative - OSC - New Building	1,301	m2	\$12.00	\$15,612	
80.21	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
80.22	- Administrative - Support - New Building	163	m2	\$12.00	\$1,956	
80.23	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
80.24	- Building Support - New Building	678	m2	\$12.00	\$8,136	
80.25	- Building Support - Renovation	232	m2	\$12.00	\$2,784	
80.26	Building Grossing, Including					
80.27	- Reno-Non Program (Bridges)	1,626	m2	\$0.00	\$0	
80.28	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
80.29	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
80.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$18.37	\$106,552	
80.31	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$18.37	\$845	
TOTAL FOR SERVICES - Facility Fuel System		1.00	25,614	m2	\$13.94	\$357,173

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
D3020 - Heat Generating Systems						
81	Central high efficiency condensing style hot water boilers (with acid neutralization and primary heating water pumps) are utilized to provide hot water to serve the building heating loads. Air and expansion control and chemical pot feeder are provided. Heat exchangers are provided for freeze protection for hot glycol loop. Hot and hot glycol water heating piping is extended to air handling units, perimeter radiation, in-floor heating, unit heaters and VAV reheat coils throughout utilizing fully redundant secondary circulation pumps c/w VFD's.					
81.1	Zone A Public Spaces /Amenities					
81.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$240.00	\$411,371	
81.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$240.00	\$182,832	
81.4	- Education (Science School) - New Building	242	m2	\$240.00	\$57,971	
81.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
81.6	- Workshops and Maker Spaces - New Building	743	m2	\$240.00	\$178,372	
81.7	- Workshops and Maker Spaces - Renovation	418	m2	\$240.00	\$100,334	
81.8	- Demonstration Spaces - New Building	565	m2	\$240.00	\$135,563	
81.9	- Demonstration Spaces - renovation	260	m2	\$240.00	\$62,430	
81.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
81.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
81.12	Zone B Display Areas					
81.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$240.00	\$1,471,680	
81.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$240.00	\$490,560	
81.15	Zone C Collection Support					
81.16	- Exhibit Support Spaces - New Building	1,059	m2	\$240.00	\$254,160	
81.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
81.18	Zone D Building Support					
81.19	- Administrative - OSC - New Building	1,301	m2	\$240.00	\$312,240	
81.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
81.21	- Administrative - Support - New Building	163	m2	\$240.00	\$39,120	
81.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
81.23	- Building Support - New Building	678	m2	\$240.00	\$162,720	
81.24	- Building Support - Renovation	232	m2	\$240.00	\$55,680	
81.25	Building Grossing, Including					
81.26	- Reno-Non Program (Bridges)	1,626	m2	\$180.00	\$292,680	
81.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
81.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
81.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$288.00	\$1,670,112	
81.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$288.00	\$13,248	
TOTAL FOR SERVICES - Heat Generating Systems		1.00	25,614	m2	\$229.99	\$5,891,074

D3030 - Cooling Generating Systems

82	Central, high efficiency water cooled chillers provide chilled water to serve the building HVAC loads. Chilled water loops are provided with primary circulation pumps c/w VFD's. Air and expansion control and chemical pot feeder are provided. Chilled water piping is extended to air handling units and space cooling units throughout utilizing fully redundant secondary circulation pumps c/w VFD's.					
82.1	Zone A Public Spaces /Amenities					
82.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$240.00	\$411,371	
82.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$240.00	\$182,832	
82.4	- Education (Science School) - New Building	242	m2	\$240.00	\$57,971	
82.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
82.6	- Workshops and Maker Spaces - New Building	743	m2	\$240.00	\$178,372	
82.7	- Workshops and Maker Spaces - Renovation	418	m2	\$240.00	\$100,334	
82.8	- Demonstration Spaces - New Building	565	m2	\$240.00	\$135,563	
82.9	- Demonstration Spaces - renovation	260	m2	\$240.00	\$62,430	
82.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
82.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
82.12	Zone B Display Areas					
82.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$240.00	\$1,471,680	
82.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$240.00	\$490,560	
82.15	Zone C Collection Support					
82.16	- Exhibit Support Spaces - New Building	1,059	m2	\$240.00	\$254,160	
82.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
82.18	Zone D Building Support					
82.19	- Administrative - OSC - New Building	1,301	m2	\$240.00	\$312,240	
82.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
82.21	- Administrative - Support - New Building	163	m2	\$240.00	\$39,120	
82.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
82.23	- Building Support - New Building	678	m2	\$240.00	\$162,720	
82.24	- Building Support - Renovation	232	m2	\$240.00	\$55,680	
82.25	Building Grossing, Including					
82.26	- Reno-Non Program (Bridges)	1,626	m2	\$180.00	\$292,680	
82.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
82.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
82.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$288.00	\$1,670,112	
82.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$288.00	\$13,248	
TOTAL FOR SERVICES - Cooling Generating Systems		1.00	25,614	m2	\$229.99	\$5,891,074
D3040 - Facility HVAC Distribution System						
83	Heating/cooling and ventilation is achieved through central indoor mounted energy recovery air handling units and supplemented with localized spot cooling units to suit special purpose needs. Variable air volume (VAV) AHU's with noise sensitive overhead air distribution to supply conditioned air to the spaces via a network of sheetmetal ducts to localized air control terminals (VAV boxes and/or VAV w/ reheat coils) and supply air diffusers. Return air will be ducted or via ceiling plenum based on building design.					
83.1	Zone A Public Spaces /Amenities					
83.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$240.00	\$411,371	
83.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$240.00	\$182,832	
83.4	- Education (Science School) - New Building	242	m2	\$240.00	\$57,971	
83.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
83.6	- Workshops and Maker Spaces - New Building	743	m2	\$240.00	\$178,372	
83.7	- Workshops and Maker Spaces - Renovation	418	m2	\$240.00	\$100,334	
83.8	- Demonstration Spaces - New Building	565	m2	\$240.00	\$135,563	
83.9	- Demonstration Spaces - renovation	260	m2	\$240.00	\$62,430	
83.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
83.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
83.12	Zone B Display Areas					
83.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$288.00	\$1,766,016	
83.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$240.00	\$490,560	
83.15	Zone C Collection Support					
83.16	- Exhibit Support Spaces - New Building	1,059	m2	\$240.00	\$254,160	
83.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
83.18	Zone D Building Support					
83.19	- Administrative - OSC - New Building	1,301	m2	\$240.00	\$312,240	
83.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
83.21	- Administrative - Support - New Building	163	m2	\$240.00	\$39,120	
83.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
83.23	- Building Support - New Building	678	m2	\$240.00	\$162,720	
83.24	- Building Support - Renovation	232	m2	\$240.00	\$55,680	
83.25	Building Grossing, Including					
83.26	- Reno-Non Program (Bridges)	1,626	m2	\$180.00	\$292,680	
83.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
83.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
83.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$309.65	\$1,795,673	
83.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$309.65	\$14,244	
TOTAL FOR SERVICES - Facility HVAC Distribution System		1.00	25,614	m2	\$246.43	\$6,311,967

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
<u>D3050 - Ventilation System</u>						
84	Semi-Custom quality air handling units generally comprising of: 4" thick Double Wall insulated casing, solid stainless steel base (drain pan), chilled water cooling/hot water heating coil section, energy recovery section (where required, assume 30% of units), mixing box section, MERV8/13 Pre / Final filter sections, variable frequency drives, supply and return/exhaust fan arrays c/w vibration isolation, access sections with marine lights, airflow stations, factory installed building automation BACnet, and intake and discharge plenums equal to Trane / Daikin / Carrier					
84.1	<u>Zone A Public Spaces /Amenities</u>					
84.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$180.00	\$308,528	
84.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$180.00	\$137,124	
84.4	- Education (Science School) - New Building	242	m2	\$180.00	\$43,478	
84.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
84.6	- Workshops and Maker Spaces - New Building	743	m2	\$180.00	\$133,779	
84.7	- Workshops and Maker Spaces - Renovation	418	m2	\$180.00	\$75,251	
84.8	- Demonstration Spaces - New Building	565	m2	\$180.00	\$101,672	
84.9	- Demonstration Spaces - renovation	260	m2	\$180.00	\$46,823	
84.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
84.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
84.12	<u>Zone B Display Areas</u>					
84.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$216.00	\$1,324,512	
84.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$180.00	\$367,920	
84.15	<u>Zone C Collection Support</u>					
84.16	- Exhibit Support Spaces - New Building	1,059	m2	\$180.00	\$190,620	
84.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
84.18	<u>Zone D Building Support</u>					
84.19	- Administrative - OSC - New Building	1,301	m2	\$180.00	\$234,180	
84.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
84.21	- Administrative - Support - New Building	163	m2	\$180.00	\$29,340	
84.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
84.23	- Building Support - New Building	678	m2	\$180.00	\$122,040	
84.24	- Building Support - Renovation	232	m2	\$180.00	\$41,760	
84.25	<u>Building Grossing, Including</u>					
84.26	- Reno-Non Program (Bridges)	1,626	m2	\$180.00	\$292,680	
84.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
84.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
84.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$232.24	\$1,346,754	
84.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$232.24	\$10,683	
TOTAL FOR SERVICES - Ventilation System		1.00	25,614	m2	\$187.68	\$4,807,145
<u>D3060 - Special Purpose HVAC System</u>						
85	Allowance for special purpose HVAC system including speciality HVAC and exhaust system including fine particle, dust collection systems and smoke/fume exhaust systems					
85.1	<u>Zone A Public Spaces /Amenities</u>					
85.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$0.00	\$0	
85.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$0.00	\$0	
85.4	- Education (Science School) - New Building	242	m2	\$120.00	\$28,986	
85.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
85.6	- Workshops and Maker Spaces - New Building	743	m2	\$180.00	\$133,779	
85.7	- Workshops and Maker Spaces - Renovation	418	m2	\$180.00	\$75,251	
85.8	- Demonstration Spaces - New Building	565	m2	\$180.00	\$101,672	
85.9	- Demonstration Spaces - renovation	260	m2	\$180.00	\$46,823	
85.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
85.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
85.12	<u>Zone B Display Areas</u>					
85.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$30.00	\$183,960	
85.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$0.00	\$0	
85.15	<u>Zone C Collection Support</u>					
85.16	- Exhibit Support Spaces - New Building	1,059	m2	\$60.00	\$63,540	
85.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
85.18	Zone D Building Support					
85.19	- Administrative - OSC - New Building	1,301	m2	\$0.00		\$0
85.20	- Administrative - OSC - Renovation	0	m2	\$0.00		\$0
85.21	- Administrative - Support - New Building	163	m2	\$0.00		\$0
85.22	- Administrative - Support - Renovation	0	m2	\$0.00		\$0
85.23	- Building Support - New Building	678	m2	\$120.00	\$81,360	
85.24	- Building Support - Renovation	232	m2	\$120.00	\$27,840	
85.25	Building Grossing, Including					
85.26	- Reno-Non Program (Bridges)	1,626	m2	\$0.00		\$0
85.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00		Excluded
85.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00		\$0
85.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$54.67	\$317,046	
85.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$54.67	\$2,515	
TOTAL FOR SERVICES - Special Purpose HVAC System		1.00	25,614	m2	\$41.49	\$1,062,771

D3070 - Systems Testing and Balancing

86	Adjust, balance and set air and liquid flow rates to design specifications. Submit report and commissioning system to first class (enhanced) operating condition					
86.1	Zone A Public Spaces /Amenities					
86.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$18.00	\$30,853	
86.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$18.00	\$13,712	
86.4	- Education (Science School) - New Building	242	m2	\$21.00	\$5,072	
86.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
86.6	- Workshops and Maker Spaces - New Building	743	m2	\$22.00	\$16,351	
86.7	- Workshops and Maker Spaces - Renovation	418	m2	\$22.00	\$9,197	
86.8	- Demonstration Spaces - New Building	565	m2	\$22.00	\$12,427	
86.9	- Demonstration Spaces - renovation	260	m2	\$22.00	\$5,723	
86.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
86.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
86.12	Zone B Display Areas					
86.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$21.60	\$132,451	
86.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$18.00	\$36,792	
86.15	Zone C Collection Support					
86.16	- Exhibit Support Spaces - New Building	1,059	m2	\$20.00	\$21,180	
86.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
86.18	Zone D Building Support					
86.19	- Administrative - OSC - New Building	1,301	m2	\$18.00	\$23,418	
86.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
86.21	- Administrative - Support - New Building	163	m2	\$18.00	\$2,934	
86.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
86.23	- Building Support - New Building	678	m2	\$21.00	\$14,238	
86.24	- Building Support - Renovation	232	m2	\$21.00	\$4,872	
86.25	Building Grossing, Including					
86.26	- Reno-Non Program (Bridges)	1,626	m2	\$14.00	\$22,764	
86.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00		Excluded
86.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00		\$0
86.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$24.22	\$140,442	
86.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$24.22	\$1,114	
TOTAL FOR SERVICES - Systems Testing and Balancing		1.00	25,614	m2	\$19.27	\$493,540

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
<u>D3080 - Other HVAC System and Equipment</u>						
87	Allowance for HVAC support system including specialty systems, miscellaneous work, general accounts including: Supervision, submittals, warranty, hoisting and millwrighting, fire stopping, cutting and coring, and general overheads (site and office)					
87.1	<u>Zone A Public Spaces /Amenities</u>					
87.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$166.07	\$284,654	
87.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$166.07	\$126,513	
87.4	- Education (Science School) - New Building	242	m2	\$188.04	\$45,419	
87.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
87.6	- Workshops and Maker Spaces - New Building	743	m2	\$203.21	\$151,033	
87.7	- Workshops and Maker Spaces - Renovation	418	m2	\$203.21	\$84,956	
87.8	- Demonstration Spaces - New Building	565	m2	\$203.21	\$114,785	
87.9	- Demonstration Spaces - renovation	260	m2	\$203.21	\$52,861	
87.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
87.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
87.12	<u>Zone B Display Areas</u>					
87.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$224.49	\$1,376,573	
87.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$166.07	\$339,450	
87.15	<u>Zone C Collection Support</u>					
87.16	- Exhibit Support Spaces - New Building	1,059	m2	\$178.21	\$188,729	
87.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
87.18	<u>Zone D Building Support</u>					
87.19	- Administrative - OSC - New Building	1,301	m2	\$166.07	\$216,059	
87.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
87.21	- Administrative - Support - New Building	163	m2	\$166.07	\$27,070	
87.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
87.23	- Building Support - New Building	678	m2	\$188.04	\$127,488	
87.24	- Building Support - Renovation	232	m2	\$188.04	\$43,624	
87.25	<u>Building Grossing, Including</u>					
87.26	- Reno-Non Program (Bridges)	1,626	m2	\$131.07	\$213,122	
87.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
87.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storev)	0	m2	\$0.00	\$0	
87.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$207.52	\$1,203,405	
87.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$207.52	\$9,546	
TOTAL FOR SERVICES - Other HVAC System and Equipment		1.00	25,614	m2	\$179.80	\$4,605,286

D40 FIRE PROTECTION

D4010 - Fire Suppression

88	The building will be fully standpiped, sprinklered, designed, installed and tested in accordance to NFPA13 and OBC. Sprinkler coverage includes black steel screwed / Victaulic joint mains, branches, drops and heads extended from risers. Fire hose cabinets will be located on each level at stairwells and other locations where required throughout. Hand-held fire portable dry chemical fire extinguishers will be located inside fire hose cabinets, food outlets, mechanical and electrical rooms and other service rooms					
88.1	<u>Zone A Public Spaces /Amenities</u>					
88.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$65.00	\$111,413	
88.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$65.00	\$49,517	
88.4	- Education (Science School) - New Building	242	m2	\$65.00	\$15,700	
88.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
88.6	- Workshops and Maker Spaces - New Building	743	m2	\$65.00	\$48,309	
88.7	- Workshops and Maker Spaces - Renovation	418	m2	\$65.00	\$27,174	
88.8	- Demonstration Spaces - New Building	565	m2	\$65.00	\$36,715	
88.9	- Demonstration Spaces - Renovation	260	m2	\$65.00	\$16,908	
88.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
88.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
88.12	<u>Zone B Display Areas</u>					
88.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$78.00	\$478,296	
88.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$65.00	\$132,860	
88.15	<u>Zone C Collection Support</u>					
88.16	- Exhibit Support Spaces - New Building	1,059	m2	\$65.00	\$68,835	
88.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
88.18	Zone D Building Support					
88.19	- Administrative - OSC - New Building	1,301	m2	\$65.00	\$84,565	
88.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
88.21	- Administrative - Support - New Building	163	m2	\$65.00	\$10,595	
88.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
88.23	- Building Support - New Building	678	m2	\$65.00	\$44,070	
88.24	- Building Support - Renovation	232	m2	\$65.00	\$15,080	
88.25	Building Grossing, Including					
88.26	- Reno-Non Program (Bridges)	1,626	m2	\$65.00	\$105,690	
88.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
88.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
88.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$69.89	\$405,273	
88.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$69.89	\$3,215	
TOTAL FOR SERVICES - Fire Suppression		1.00	25,614	m2	\$64.58	\$1,654,216

D4020 - Fire Protection Specialities

89	Allowance for enhanced or supplemental fire protection services including preaction, or clean agent system to special rooms.					
89.1	Zone A Public Spaces /Amenities					
89.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$0.00	\$0	
89.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$0.00	\$0	
89.4	- Education (Science School) - New Building	242	m2	\$65.00	\$15,700	
89.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
89.6	- Workshops and Maker Spaces - New Building	743	m2	\$65.00	\$48,309	
89.7	- Workshops and Maker Spaces - Renovation	418	m2	\$65.00	\$27,174	
89.8	- Demonstration Spaces - New Building	565	m2	\$100.00	\$56,485	
89.9	- Demonstration Spaces - Renovation	260	m2	\$100.00	\$26,013	
89.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
89.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
89.12	Zone B Display Areas					
89.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$30.00	\$183,960	
89.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$25.00	\$51,100	
89.15	Zone C Collection Support					
89.16	- Exhibit Support Spaces - New Building	1,059	m2	\$25.00	\$26,475	
89.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
89.18	Zone D Building Support					
89.19	- Administrative - OSC - New Building	1,301	m2	\$0.00	\$0	
89.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
89.21	- Administrative - Support - New Building	163	m2	\$65.00	\$10,595	
89.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
89.23	- Building Support - New Building	678	m2	\$0.00	\$0	
89.24	- Building Support - Renovation	232	m2	\$0.00	\$0	
89.25	Building Grossing, Including					
89.26	- Reno-Non Program (Bridges)	1,626	m2	\$0.00	\$0	
89.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
89.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
89.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$27.33	\$158,482	
89.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$27.33	\$1,257	
TOTAL FOR SERVICES - Fire Protection Specialities		1.00	25,614	m2	\$23.64	\$605,550

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
D50 ELECTRICAL						
D5010 - Electrical Service and Distribution						
90	Normal power distribution system with 347/600V mechanical distribution panels, 120/208V power and lighting panels and associated transformers, Power connection with line and load side wiring for mechanical equipment , and Feeders for the above distribution equipment using rw90 copper conductors in EMT conduit to circuit panels.					
90.1	Zone A Public Spaces / Amenities					
90.2	Building Entry and Visitor Amenities - New Building	1,714	m2	\$12.00	\$20,569	
90.3	Building Entry and Visitor Amenities - Renovation	762	m2	\$12.00	\$9,142	
90.4	Education (Science School) - New Building	242	m2	\$18.00	\$4,348	
90.5	Education (Science School) - Renovation	0	m2	\$18.00	\$0	
90.6	Workshops and Maker Spaces - New Building	743	m2	\$36.00	\$26,756	
90.7	Workshops and Maker Spaces - Renovation	418	m2	\$36.00	\$15,050	
90.8	Demonstration Spaces - New Building	565	m2	\$36.00	\$20,334	
90.9	Demonstration Spaces - renovation	260	m2	\$36.00	\$9,365	
90.10	Planetarium and Cinesphere - New Building	0	m2	\$36.00	\$0	
90.11	Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
90.12	Zone B Display Areas					
90.13	Exhibits - Permanent and Temporary - New Building	6,132	m2	\$41.00	\$251,394	
90.14	Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$18.00	\$36,789	
90.15	Zone C Collection Support					
90.16	Exhibit Support Spaces - New Building	1,059	m2	\$36.00	\$38,127	
90.17	Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
90.18	Zone D Building Support					
90.19	Administrative - OSC - New Building	1,301	m2	\$18.00	\$23,411	
90.20	Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
90.21	Administrative - Support - New Building	163	m2	\$12.00	\$1,951	
90.22	Administrative - Support - Renovation	0	m2	\$0.00	\$0	
90.23	Building Support - New Building	678	m2	\$12.00	\$8,138	
90.24	Building Support - Renovation	232	m2	\$10.80	\$2,508	
90.25	Building Grossing, including:					
90.26	Reno-Non Program (Bridges)	1,635	m2	\$12.00	\$19,620	
90.27	Reno-Program (Cinesphere)	0	m2	\$12.00	\$0	
90.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storey)	0	m2	\$12.00	\$0	
90.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$218.93	\$1,269,575	
90.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$12.00	\$552	
TOTAL FOR SERVICES - Electrical Service and Distribution		1.00	25,614	m2	\$68.62	\$1,757,629

D5020 - Lighting and Branch Wiring

91	Lighting control system including local switch/dimmer, occupancy sensors, daylight harvesting, etc, Supply and installation of LED light fixtures with associated wiring and supports, Specialty/convenience receptacles and power connections c/w conduit and wire					
91.1	Zone A Public Spaces / Amenities					
91.2	Building Entry and Visitor Amenities - New Building	1,714	m2	\$684.00	\$1,172,408	
91.3	Building Entry and Visitor Amenities - Renovation	762	m2	\$684.00	\$521,070	
91.4	Education (Science School) - New Building	242	m2	\$444.00	\$107,246	
91.5	Education (Science School) - Renovation	0	m2	\$444.00	\$0	
91.6	Workshops and Maker Spaces - New Building	743	m2	\$276.00	\$205,128	
91.7	Workshops and Maker Spaces - Renovation	418	m2	\$276.00	\$115,385	
91.8	Demonstration Spaces - New Building	565	m2	\$492.00	\$277,904	
91.9	Demonstration Spaces - renovation	260	m2	\$492.00	\$127,982	
91.10	Planetarium and Cinesphere - New Building	0	m2	\$822.00	\$0	
91.11	Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
91.12	Zone B Display Areas					
91.13	Exhibits - Permanent and Temporary - New Building	6,132	m2	\$552.00	\$3,384,615	
91.14	Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$504.00	\$1,030,100	
91.15	Zone C Collection Support					
91.16	Exhibit Support Spaces - New Building	1,059	m2	\$276.00	\$292,308	
91.17	Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	
91.18	Zone D Building Support					
91.19	Administrative - OSC - New Building	1,301	m2	\$276.00	\$358,974	
91.20	Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
91.21	Administrative - Support - New Building	163	m2	\$276.00	\$44,872	
91.22	Administrative - Support - Renovation	0	m2	\$0.00	\$0	
91.23	Building Support - New Building	678	m2	\$219.60	\$148,930	
91.24	Building Support - Renovation	232	m2	\$198.00	\$45,987	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
91.25	Building Grossing, including:					
91.26	Reno-Non Program (Bridges)	1,635	m2	\$220.00	\$359,697	
91.27	Reno-Program (Cinesphere)	0	m2	\$180.00	\$0	
91.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storey)	0	m2	\$180.00	\$0	
91.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$180.00	\$1,043,820	
91.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$180.00	\$8,280	

TOTAL FOR SERVICES - Lighting and Branch Wiring

1.00	25,614	m2	\$360.92	\$9,244,707
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D5030 - Communication and Security

92 Addressable fire alarm system consisting of a control panel c/w integral annunciator, pullstations, smoke/heat detectors, audible/visual alarms, etc..., Communications system c/w vertical, horizontal cabling system, racks, patch panels, and wire management, Public Address system c/w equipment devices and wiring, Audio visual device outlets and conduit infrastructure, Intercommunication systems and paging, Clock and program systems, Security system for access control system, video surveillance system, intercom system, and duress and intrusion system .

92.1	Zone A Public Spaces / Amenities					
92.2	Building Entry and Visitor Amenities - New Building	1,714	m2	\$112.80	\$193,344	
92.3	Building Entry and Visitor Amenities - Renovation	762	m2	\$112.80	\$85,931	
92.4	Education (Science School) - New Building	242	m2	\$228.00	\$55,072	
92.5	Education (Science School) - Renovation	0	m2	\$228.00	\$0	
92.6	Workshops and Maker Spaces - New Building	743	m2	\$187.20	\$139,130	
92.7	Workshops and Maker Spaces - Renovation	418	m2	\$187.20	\$78,261	
92.8	Demonstration Spaces - New Building	565	m2	\$187.20	\$105,739	
92.9	Demonstration Spaces - renovation	260	m2	\$187.20	\$48,696	
92.10	Planetarium and Cinesphere - New Building	0	m2	\$228.00	\$0	
92.11	Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
92.12	Zone B Display Areas					
92.13	Exhibits - Permanent and Temporary - New Building	6,132	m2	\$187.20	\$1,147,826	
92.14	Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$168.00	\$343,367	
92.15	Zone C Collection Support					
92.16	Exhibit Support Spaces - New Building	1,059	m2	\$187.20	\$198,261	
92.17	Exhibit Support Spaces - Renovation	0	m2	\$188.45	\$0	
92.18	Zone D Building Support					
92.19	Administrative - OSC - New Building	1,301	m2	\$150.00	\$195,095	
92.20	Administrative - OSC - Renovation	0	m2	\$188.45	\$0	
92.21	Administrative - Support - New Building	163	m2	\$150.00	\$24,387	
92.22	Administrative - Support - Renovation	0	m2	\$188.45	\$0	
92.23	Building Support - New Building	678	m2	\$112.80	\$76,499	
92.24	Building Support - Renovation	232	m2	\$100.80	\$23,411	
92.25	Building Grossing, including:					
92.26	Reno-Non Program (Bridges)	1,635	m2	\$96.00	\$156,959	
92.27	Reno-Program (Cinesphere)	0	m2	\$96.00	\$0	
92.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storey)	0	m2	\$96.00	\$0	
92.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$96.00	\$556,704	
92.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$96.00	\$4,416	

TOTAL FOR SERVICES - Communication and Security

1.00	25,614	m2	\$134.03	\$3,433,099
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D5090 - Other Electrical Systems

93 Emergency distribution system with 347/600V life safety and non life safety ATS, lighting panels and 120/208V power panels and critical power panels with the associated transformers. Lightning and grounding protection systems

93.1	Zone A Public Spaces / Amenities					
93.2	Building Entry and Visitor Amenities - New Building	1,714	m2	\$12.00	\$20,569	
93.3	Building Entry and Visitor Amenities - Renovation	762	m2	\$12.00	\$9,142	
93.4	Education (Science School) - New Building	242	m2	\$18.00	\$4,348	
93.5	Education (Science School) - Renovation	0	m2	\$18.00	\$0	
93.6	Workshops and Maker Spaces - New Building	743	m2	\$36.00	\$26,756	
93.7	Workshops and Maker Spaces - Renovation	418	m2	\$36.00	\$15,050	
93.8	Demonstration Spaces - New Building	565	m2	\$36.00	\$20,334	
93.9	Demonstration Spaces - renovation	260	m2	\$36.00	\$9,365	
93.10	Planetarium and Cinesphere - New Building	0	m2	\$36.00	\$0	
93.11	Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	
93.12	Zone B Display Areas					
93.13	Exhibits - Permanent and Temporary - New Building	6,132	m2	\$36.00	\$220,736	
93.14	Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$30.00	\$61,315	
93.15	Zone C Collection Support					
93.16	Exhibit Support Spaces - New Building	1,059	m2	\$36.00	\$38,127	
93.17	Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
93.18	Zone D Building Support					
93.19	Administrative - OSC - New Building	1,301	m2	\$18.00	\$23,411	
93.20	Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
93.21	Administrative - Support - New Building	163	m2	\$12.00	\$1,951	
93.22	Administrative - Support - Renovation	0	m2	\$0.00	\$0	
93.23	Building Support - New Building	678	m2	\$12.00	\$8,138	
93.24	Building Support - Renovation	232	m2	\$12.00	\$2,787	
93.25	Building Crossing, including:					
93.26	Reno-Non Program (Bridges)	1,635	m2	\$32.00	\$52,320	
93.27	Reno-Program (Cinesphere)	0	m2	\$12.00	\$0	
93.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$12.00	\$0	
93.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$12.00	\$69,588	

TOTAL FOR SERVICES - Other Electrical Systems

1.00	25,614	m2	\$22.80	\$583,937
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D80 CONTROLS & AUTOMATION

D8010 - Integrated Automation System

94 A new Building Automation System (BAS) is provided consisting of direct digital controls, connected to existing system. The BAS controls will monitor all HVAC systems and equipment, and various plumbing, fire protection and electrical systems where required. System allows operators to start and stop equipment and automatically control zone temperatures, air and water flow rates. System and system graphics allow full monitoring, trending and reporting of set points, equipment control and alarm functions. Damper and valve actuators are electric / electronic type with direct digital control (DDC). Ventilation rates are controlled by main duct run mounted carbon dioxide sensors (demand ventilation) throughout the facility. Humidification is controlled by humidistats throughout the facility. Metering is provided on electrical, water, chilled and heating water services

94.1 Zone A Public Spaces /Amenities

94.2	- Building Entry and Visitor Amenities - New Building	1,714	m2	\$96.00	\$164,548	
94.3	- Building Entry and Visitor Amenities - Renovation	762	m2	\$96.00	\$73,133	
94.4	- Education (Science School) - New Building	242	m2	\$180.00	\$43,478	
94.5	- Education (Science School) - Renovation	0	m2	\$0.00	\$0	
94.6	- Workshops and Maker Spaces - New Building	743	m2	\$180.00	\$133,779	
94.7	- Workshops and Maker Spaces - Renovation	418	m2	\$180.00	\$75,251	
94.8	- Demonstration Spaces - New Building	565	m2	\$180.00	\$101,672	
94.9	- Demonstration Spaces - renovation	260	m2	\$180.00	\$46,823	
94.10	- Planetarium and Cinesphere - New Building	0	m2	\$0.00	\$0	
94.11	- Planetarium and Cinesphere - Renovation	0	m2	\$0.00	\$0	

94.12 Zone B Display Areas

94.13	- Exhibits - Permanent and Temporary - New Building	6,132	m2	\$144.00	\$883,008	
94.14	- Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$120.00	\$245,280	

94.15 Zone C Collection Support

94.16	- Exhibit Support Spaces - New Building	1,059	m2	\$180.00	\$190,620	
94.17	- Exhibit Support Spaces - Renovation	0	m2	\$0.00	\$0	

94.18 Zone D Building Support

94.19	- Administrative - OSC - New Building	1,301	m2	\$96.00	\$124,896	
94.20	- Administrative - OSC - Renovation	0	m2	\$0.00	\$0	
94.21	- Administrative - Support - New Building	163	m2	\$96.00	\$15,648	
94.22	- Administrative - Support - Renovation	0	m2	\$0.00	\$0	
94.23	- Building Support - New Building	678	m2	\$180.00	\$122,040	
94.24	- Building Support - Renovation	232	m2	\$180.00	\$41,760	

94.25 Building Crossing, Including

94.26	- Reno-Non Program (Bridges)	1,626	m2	\$96.00	\$156,096	
94.27	- Reno-Program (Cinesphere)	1,830	m2	\$0.00	Excluded	
94.28	- New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m longx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
94.29	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$138.66	\$804,098	
94.30	- Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$138.66	\$6,378	

TOTAL FOR SERVICES - Integrated Automation System

1.00	25,614	m2	\$126.04	\$3,228,509
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LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
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E. EQUIPMENT AND FURNISHING

E10 EQUIPMENT

E1020 - Institutional Equipment

95	Institutional Equipment (Library equipment, Theater and stage equipment, Laboratory equipment etc)					
95.1	Zone A Public Spaces / Amenities					
95.2	Building Entry and Visitor Amenities - New Building	1,714	m2	\$0.00		\$0
95.3	Building Entry and Visitor Amenities - Renovation	762	m2	\$0.00		\$0
95.4	Education (Science School) - New Building	242	m2	\$293.37		\$70,862
95.5	Education (Science School) - Renovation	0	m2	\$293.37		\$0
95.6	Workshops and Maker Spaces - New Building	743	m2	\$293.37		\$218,036
95.7	Workshops and Maker Spaces - Renovation	418	m2	\$293.37		\$122,645
95.8	Demonstration Spaces - New Building	565	m2	\$293.37		\$165,707
95.9	Demonstration Spaces - renovation	260	m2	\$293.37		\$76,313
95.10	Planetarium and Cinesphere - New Building	0	m2	\$293.37		\$0
95.11	Planetarium and Cinesphere - Renovation	0	m2	\$293.37		\$0
95.12	Zone B Display Areas					
95.13	Exhibits - Permanent and Temporary - New Building	6,132	m2	\$0.00		\$0
95.14	Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$0.00		\$0
95.15	Zone C Collection Support					
95.16	Exhibit Support Spaces - New Building	1,059	m2	\$171.86		\$182,009
95.17	Exhibit Support Spaces - Renovation	0	m2	\$171.86		\$0
95.18	Zone D Building Support					
95.19	Administrative - OSC - New Building	1,301	m2	\$0.00		\$0
95.20	Administrative - OSC - Renovation	0	m2	\$0.00		\$0
95.21	Administrative - Support - New Building	163	m2	\$0.00		\$0
95.22	Administrative - Support - Renovation	0	m2	\$0.00		\$0
95.23	Building Support - New Building	678	m2	\$226.80		\$153,810
95.24	Building Support - Renovation	232	m2	\$226.80		\$52,675
95.25	Building Grossing, including:					
95.26	Reno-Non Program (Bridges)	1,626	m2	\$0.00		\$0
95.27	Reno-Program (Cinesphere)	1,830	m2	\$0.00		\$0
95.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storey)	0	m2	\$0.00		\$0
95.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$0.00		\$0
95.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m2	\$0.00		\$0

TOTAL FOR EQUIP. & FURN. - Institutional Equipment	1.00	25,614	m2	\$40.68		\$1,042,056
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E1090 - Other Equipment

96	Planetarium equipment for 60' (18.3m) dia tilted dome, provided by Lord including:					Excluded
96.1	- display system					
96.2	- projection dome screen					
96.3	- scaffold for installation of dome screen and loudspeakers					
96.4	- seating					
97	Extra over for structure to support dome screen, 60' (18.3m) dia 30 degree tilted dome (estimated weight 16,000ka). assumed 25ka/m2					Excluded

TOTAL FOR EQUIP. & FURN. - Other Equipment	0.00		m2	\$0.00		\$0
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LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
E20 FURNISHINGS						
E2010 - Fixed Furnishings						
98	Window treatments, motorized operation, assumed to 5% of glazed area to new building (office only)	169	m2	\$236.00	\$39,872	
99	Window treatments, motorized operation, assumed to 5% of glazed area to PODs	0	m2	\$236.00	\$0	
TOTAL FOR EQUIP. & FURN. - Fixed Furnishings		0.01	169	m2	\$236.00	\$39,872
E2020 - Movable Furnishings						
100	Movable Furnishings (Furniture and accessories, Movable rugs and mats, Movable multiple seating etc)					
100.1	Zone A Public Spaces / Amenities					
100.2	Building Entry and Visitor Amenities - New Building	1,714	m2	\$307.66	\$527,346	
100.3	Building Entry and Visitor Amenities - Renovation	762	m2	\$307.66	\$234,376	
100.4	Education (Science School) - New Building	242	m2	\$615.32	\$148,629	
100.5	Education (Science School) - Renovation	0	m2	\$615.32	\$0	
100.6	Workshops and Maker Spaces - New Building	743	m2	\$615.32	\$457,319	
100.7	Workshops and Maker Spaces - Renovation	418	m2	\$615.32	\$257,242	
100.8	Demonstration Spaces - New Building	565	m2	\$615.32	\$347,562	
100.9	Demonstration Spaces - renovation	260	m2	\$615.32	\$160,062	
100.10	Planetarium and Cinesphere - New Building	0	m2	\$311.14	\$0	
100.11	Planetarium and Cinesphere - Renovation	0	m2	\$311.14	\$0	
100.12	Zone B Display Areas					
100.13	Exhibits - Permanent and Temporary - New Building	6,132	m2	\$307.66	\$1,886,441	
100.14	Exhibits - Permanent and Temporary - Renovation	2,044	m2	\$307.66	\$628,814	
100.15	Zone C Collection Support					
100.16	Exhibit Support Spaces - New Building	1,059	m2	\$307.66	\$325,840	
100.17	Exhibit Support Spaces - Renovation	0	m2	\$307.66	\$0	
100.18	Zone D Building Support					
100.19	Administrative - OSC - New Building	1,301	m2	\$2,905.22	\$3,778,620	
100.20	Administrative - OSC - Renovation	0	m2	\$2,905.22	\$0	
100.21	Administrative - Support - New Building	163	m2	\$2,905.22	\$472,328	
100.22	Administrative - Support - Renovation	0	m2	\$2,905.22	\$0	
100.23	Building Support - New Building	678	m2	\$2,905.22	\$1,970,280	
100.24	Building Support - Renovation	232	m3	\$2,905.22	\$674,754	
100.25	Building Grossing, including:					
100.26	Reno-Non Program (Bridges)	1,626	m2	\$0.00	\$0	
100.27	Reno-Program (Cinesphere)	1,830	m2	\$0.00	\$0	
100.28	New-Non Program (New Bridge to POD#5 - approx. 152m longx3.96m wide-2 storey + 115m lonx3.96 wide-2 storey)	0	m2	\$0.00	\$0	
100.29	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - New Building	5,799	m2	\$0.00	\$0	
100.30	Estimated primary circulation, M&E spaces, including estimated structure and exterior walls - Pods	46	m3	\$0.00	\$0	
TOTAL FOR EQUIP. & FURN. - Movable Furnishings		1.00	25,614	m2	\$463.40	\$11,869,612
F. SPECIAL CONSTRUCTION AND DEMOLITION						
F10 SPECIAL CONSTRUCTION						
F1010 - Special Structures						
101	Renovation budget for cinesphere provided by Altus 103810 - OPEW Cinesphere, Class D, Rev 1, November 15, 2021 - \$8,601,119 (before 10% const. contingency) - escalated bv 10%					Excluded
TOTAL FOR SPEC.CON.S. & DEMO. - Special Structures		0.07	1,830	m2	\$0.00	\$0
F20 SELECTIVE BUILDING DEMOLITION						
F2010 - Building Elements Demolition						
102	Demolition of existing buildings, including:					Excluded
TOTAL FOR SPEC.CON.S. & DEMO. - Build. Elem. Demo.		0.47	11,937	m2	\$0.00	\$0

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
<u>F2020 - Hazardous Components Abatement</u>						
103	Hazardous components abatement					Excluded
	TOTAL FOR SPEC.CON.S. & DEMO. - Hazard. Comp. Abat.	0.00	0	m2	\$0.00	\$0

G. BUILDING SITEWORK

G10 SITE PREPARATION

G1020 - Site Clearing

104	Clear and grub site, including building footprint					Excluded
105	Site erosion control					Excluded
106	Site protection (temporary fast fence)					Excluded
107	Mudmat					Excluded
	TOTAL FOR BUILDING SITEWORK - Site Clearing	0.00		m2	\$0.00	\$0

G1030 - Site Demolition and Relocations

108	Demolition of existing site elements					Excluded, assumed by Others
	TOTAL FOR BUILDING SITEWORK - Site Demo. and Reloc.	0.00	0	m2	\$0.00	\$0

G1040 - Site Earthwork

109	Building Footprint rough grading including:					Excluded	\$0
109.1	- removal and disposal of existing asphalt, curbs etc					Excluded	
109.2	- allowance for dewatering					Excluded	
109.3	- dispose excess material off site to an approved disposal site					Excluded	
109.4	- proof roll after rough grading					Excluded	
109.5	- fine grade impacted site area					Excluded	
110	Site Wide rough grading including:					Excluded	\$0
110.1	- removal and disposal of existing asphalt, curbs etc					Excluded	
110.2	- machine excavation to achieve desired sub-grade elevations, assumed 500mm depth					Excluded	
110.3	- existing material to be disposed off site					Excluded	
110.4	- rough grade and proof roll					Excluded	
	TOTAL FOR BUILDING SITEWORK - Site Earthwork	0.00		m2	\$0.00	\$0	

G1050 - Hazardous Waste Remediation

111	Hazardous waste remediation					Excluded	
	TOTAL FOR BUILDING SITEWORK - Hazard. Waste Remed.	0.00	0	m2	\$0.00	\$0	

G1060 - Site Buildings

112	Allowance for pump station to use lake water for condenser water as per Mechanical		1	LS	\$1,000,000.00	\$1,000,000	
	TOTAL FOR BUILDING SITEWORK - Site Buildings	1.00	25,614	m2	\$39.04	\$1,000,000	

G20 SITE IMPROVEMENTS

G2010 - Roadways

113	Excluded						\$0
	TOTAL FOR BUILDING SITEWORK - Roadways	0.00		m2	\$0.00	\$0	

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
<u>G2020 - Parking Lots</u>						
114	Excluded					
	TOTAL FOR BUILDING SITEWORK - Parking Lots	0.00	m2	\$0.00		\$0
<u>G2030 - Pedestrian Paving</u>						
115	Granite Mosaic (smooth) walkway					Excluded
116	Hardscape, assumed 40% of remaining site area (Entry Plaza, Car/Taxi/Valet Drop-off)					
116.1	- Granite unit pavers to vehicular layby, assumed 50%					Excluded
116.1	- Granite Mosaic (smooth) for pedestrian, assumed 50%,					Excluded
117	Granite curbs (straight and curved)					Excluded
	TOTAL FOR BUILDING SITEWORK - Pedestrian Paving	0.00	m2	\$0.00		\$0
<u>G2040 - Site Development</u>						
118	Outdoor Structures and Spaces, including:		1 LS	\$355,000.00		\$355,000
118.1	Adventure Playground		1 LS	\$250,000.00	\$250,000	
118.1	Dedicated Storage (Adventure Playground)		1 LS	\$5,000.00	\$5,000	
118.1	Exterior Service Loading Area		1 LS	\$50,000.00	\$50,000	
118.1	Exterior Refuse Bins		1 LS	\$50,000.00	\$50,000	
119	Allowance for preparation services and support to outdoor exhibits	929	m2	\$500.00	\$464,500	
120	Allowance for building identification signage, pylon signage		1 LS	\$55,000.00	\$55,000	
121	Allowance for wayfinding signage		1 LS	\$100,000.00	\$100,000	
	TOTAL FOR BUILDING SITEWORK - Site Development	1.00	25,614 m2	\$38.05		\$974,500
<u>G2050 - Landscaping</u>						
122	Sod and topsoil					Excluded
123	Feature landscaping to mark Entrance					Excluded
124	Large stature deciduous canopy street trees					Excluded
125	Small stature deciduous trees					Excluded
	TOTAL FOR BUILDING SITEWORK - Landscaping	0.00	m2	\$0.00		\$0
<u>G30 SITE MECHANICAL UTILITIES</u>						
<u>G301 - Water Supply</u>						
126	Allowance for service connections for water supply and distribution		1 LS	\$150,000.00	\$150,000	
	TOTAL FOR BUILDING SITEWORK - Water Supply	1.00	25,614 m2	\$5.86		\$150,000
<u>G302 - Sanitary Sewer</u>						
127	Allowance for service connections for sanitary sewer systems		1 LS	\$150,000.00	\$150,000	
	TOTAL FOR BUILDING SITEWORK - Sanitary Sewer	1.00	25,614 m2	\$5.86		\$150,000
<u>G303 - Storm Sewer</u>						
128	Allowance for service connections for storm sewer systems		1 LS	\$250,000.00	\$250,000	
	TOTAL FOR BUILDING SITEWORK - Storm Sewer	1.00	25,614 m2	\$9.76		\$250,000

LEVEL IV

No.	Description	Quant.	Unit	Rate	Sub Total	Total
<u>G304 - Fuel Distribution Systems</u>						
129	Allowance for service connections for fuel distribution systems		1 LS	\$50,000.00	\$50,000	
	TOTAL FOR BUILDING SITEWORK - Fuel Distribution Systems	1.00	25,614 m2	\$1.95	\$50,000	
<u>G3050 - Special Plumbing Systems</u>						
130	Allowance for service connections for special plumbing systems		1 LS	\$50,000.00	\$50,000	
	TOTAL FOR BUILDING SITEWORK - Special Plumbing Systems	1.00	25,614 m2	\$1.95	\$50,000	
<u>G40 SITE HVAC UTILITIES</u>						
<u>G402 - Hydronic Distribution Systems</u>						
131	Hydronic Distribution Systems		1 LS	\$1,200,000.00	\$1,200,000	
	TOTAL FOR BUILDING SITEWORK - Hydronic Distribution Systems	1.00	25,614 m2	\$46.85	\$1,200,000	
<u>G50 SITE ELECTRICAL UTILITIES</u>						
<u>G501 - Electrical Distribution</u>						
132	Allowance for service connections to building distribution equipment		1 LS	\$10,000.00	\$10,000	
	TOTAL FOR BUILDING SITEWORK - Electrical Distribution	1.00	25,614 m2	\$0.39	\$10,000	
<u>G502 - Site Lighting</u>						
133	Lighting System (fixtures and transformers, poles, wiring conduits and ductbanks etc.)				Excluded	
	TOTAL FOR BUILDING SITEWORK - Site Lighting	0.00		\$0.00	\$0	
<u>G503 - Site Communication and Security</u>						
134	Site Communication and Security				Excluded	
	TOTAL FOR BUILDING SITEWORK - Site Comm. and Security	0.00		\$0.00	\$0	
<u>G504 - Other Site Electrical Utilities</u>						
135	Allowance for incoming service connection		1 LS	\$30,000.00	\$30,000	
	TOTAL FOR BUILDING SITEWORK - Other Site Elect. Utilities	1.00	25,614 m2	\$1.17	\$30,000	

Appendix N
Attendance Projections for OSC

Confidential and Privileged Advice to Government

ONTARIO SCIENCE CENTRE RELOCATION

Revised Attendance Projections

December 2022

Lord Cultural Resources is a global professional practice dedicated to creating cultural capital worldwide.

We assist people, communities and organizations to realize and enhance cultural meaning and expression.

We distinguish ourselves through a comprehensive and integrated full-service offering built on a foundation of key competencies: visioning, planning and implementation.

We value and believe in cultural expression as essential for all people. We conduct ourselves with respect for collaboration, local adaptation and cultural diversity, embodying the highest standards of integrity, ethics and professional practice.

We help clients clarify their goals; we provide them with the tools to achieve those goals; and we leave a legacy as a result of training and collaboration.

Our Toronto office is located within the traditional territory of many nations, including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples. Toronto is home to many diverse First Nations, Inuit, and Métis peoples. Our New York office is located on the traditional lands of the Lenape peoples. We encourage you to acknowledge the presence of the people who came before, wherever you are.

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Ontario Science Centre Relocation – Attendance Projections

1. Introduction and Core Assumptions

The following document provides a revised projection of attendance (revised from June 2021) for the opening three years of operation of the Ontario Science Centre if located at Ontario Place. The projections are derived using a combination of quantifiable comparable data and contextual and qualitative analyses.

The attendance projections take into account updated assumptions from the initial projections in the June 2021 Attendance Projections report and the updated December 2022 Functional Program. The updated Functional Program, developed in collaboration with the Ontario Science Centre, identifies all spaces and their functions – programs and exhibitions, administration, back-of-house and others - that are anticipated for the proposed complex. Each space is accompanied by a corresponding net area value.

To determine attendance projections, exhibition spaces are used for comparability. Per the OSC Functional Program, Engagement Spaces (flex exhibition and programming spaces) is being applied to benchmark. The net area for the OSC Engagement Space is 109,550 sq. ft.

On-Site Attendance Projections

To prepare attendance projections first requires a reasonable definition of who would or would not be defined as a visitor. For the purposes of this analysis, a visitor to the Ontario Science Centre is someone who will attend the exhibitions, participate in programs, visit the Cinesphere at the Ontario Place site.

Persons who attend day and evening events, regardless of whether it is an OSC or a third party event, are also included in the definition as a visitor as they would be categorized as part of an “indirect paid” admission category, along with program participants and members. As there is no dedicated rental space for events contemplated for the new facility, OSC will consider the temporary exhibit hall, lobby, Cinesphere and student intake spaces as potential spaces for rentals.

Not included in the definition of a visitor are staff, volunteers, service and delivery people. Also excluded would be those who enter the building only for retail or food service in a free admission zone. And while outreach programs and digital access are vitally important to the institution, they are not included in the on-site attendance projections.

Other important considerations and assumptions in preparing the attendance projections are as follows:

- There is no one simple formula that leads to accurate attendance projections because motivations to be first time and repeat visitors depend on the visitor experience, visitor service, perceived value for time and money, and other factors. Ratios and formulas have been used based on the experience of comparable or similar institutions elsewhere and

existing institutions/attractions in Toronto, including the 2019 (pre-COVID) OSC operations. These ratios help to inform our judgment and experience.

- The experience of comparable institutions is central to attendance projections but there is rarely exact comparability. In the case of the OSC, the most useful benchmarks are modern science centres (not science museums – which include collections) within similar regional population areas and located at a downtown or waterfront site.
- Also considered are attendance levels for the main year-round and charged admission attractions in Toronto.
- In utilizing data from other museums and attractions there are a variety of definitions of what constitutes a visitor and no complete certainty that the comparative attendance figures reported are accurate. For example, some museums or science centres double count the same visitors attending permanent exhibitions, temporary exhibitions and large format theatre shows as two or three different visitors. Some will use infrared counters to count every person coming through the entrance even if staff, volunteers, or delivery people. Fortunately, these and other attendance exaggerations are not common but they do happen.
- To take weaknesses inherent in ratios and formulas into account, we offer our judgment regarding the impact on attendance of a variety of key largely qualitative factors.
- The attendance projections do not assume a phasing of the new facility at Ontario Place. It is assumed to open all at once. As such, the attendance projections reflect a common pattern in which the curiosity and novelty factor and media attention results in very high opening year attendance levels. In using data from existing science centres, all are well established and therefore serve as benchmarks for Year 3 as a stabilized attendance year that will be representative of subsequent years of operation.

2. Comparative and Quantitative Analysis

The following is a series of benchmarking data points that when analyzed collectively informs a baseline attendance figure. This together with the determination of qualitative factors in the section will determine the projected attendance for the OSC.

Benchmarks for Stabilized Year

The following benchmarks that help to inform attendance projections for a stabilized year of operation (Year 3) are as follows:

Based on Extrapolations from Comparable Science Centres

The other science centres identified to offer comparability to the Ontario Science Centre are located in U.S. and Canadian cities with regional populations of at least 2 million residents and located in downtown or waterfront locations. Those selected were the science centres in San Francisco, Miami, Dallas and Columbus in the U.S. and Montreal and Vancouver in Canada. The reported 2019 attendance figures for all comparables, and therefore prior to COVID, were utilized.

The extrapolations for on-site attendance below are based on both the size of the exhibition space and the regional resident population.

- **Extrapolation from Visitors per Sq. Ft. of Exhibition Space:** The following table summarizes reported on-site attendance and total exhibit space for the selected comparables to create a ratio of visitors per sq. ft. The average size of the exhibition space at the selected comparable science centres is 69,000 net sq. ft. compared to the current OSC 134,000 net sq. ft. and the assumed 109,550 net sq. ft of Engagement Space at an Ontario Place site. The average visitors per sq. ft. ratio emerging from the comparable science centres is 13.03 visitors per sq. ft. When applied to the 109,550 net sq. ft. of exhibition/programming space assumed for the future OSC it leads to an attendance estimate of a rounded **1,430,000 on-site visitors in the stabilized Year 3**.
- **Extrapolation Based on Regional Population:** In addition to visitors per square foot of exhibition space, we also consider a ratio of visitors per 1,000 regional residents within the Metropolitan Statistical Area (MSA) population in the U.S. and Census Metropolitan Area (CMA) in Canada. The following table indicates an average of 217.62, which applied to the approximately 5.928 million residents in the Toronto CMA in 2020 suggests **a stabilized attendance of a rounded 1,290,000 visitors**.

Benchmarks from Selected Science Centres							
Name of Museum	Admission Basis	Stabilized Attendance Estimate	Building Size (Sq.ft.)	Exhibition Space (Sq.ft.)	Metro (MSA) Population	Visitors per SF Exhibition Space	Visitors per 1,000 MSA Population
Exploratorium, San Francisco	Charged	833,868	217,000	75,000	4,729,484	11.12	176.31
Phillip and Patricia Frost Museum of Science, Miami	Charged	728,738	250,000	47,200	6,198,782	15.44	117.56
COSI, Columbus	Charged	761,130	329,740	123,210	2,106,541	6.18	361.32
Perot Museum of of Nature and Science, Dallas	Charged	950,396	180,000	60,000	7,540,371	15.84	126.04
Montreal Science Centre, Montreal	Charged	617,850	80,000	37,000	4,098,927	16.70	150.73
Science World, Vancouver	Charged	920,663	132,350	71,300	2,463,431	12.91	373.73
Average		802,108	198,182	68,952	4,522,923	13.03	217.62
OSC 2019	Charged	885,000	568,000	134,000	5,928,040	6.60	149.29

Based on Extrapolation from Existing OSC

Visitors per Sq. Ft. Figures of Exhibition Space at the Existing OSC Applied to the Assumed Engagement Space in the New Facility:

Utilizing the 885,000 pre-COVID 2019 attendance for the current OSC in 134,000 net sq. ft. of exhibition space leads to a ratio of about 6.60 visitors per sq. ft. Applying this ratio to the planned 109,550 net sq. ft. of Engagement Space in the new facility at Ontario Place leads to an attendance estimate of a rounded **723,000** on-site visitors in the stabilized Year 3. While this ratio considers the quantity of the Engagement Space it does not consider the quality of the new exhibitions and programs to be offered.

Based on Average Attendance at All Major Charged Admission Attractions in Toronto

There are a number of major cultural, family and tourist attractions in Toronto that are worthy of analysis with respect to attendance. Except for the Toronto Zoo, these attractions are within

the downtown core and/or close to the waterfront. Excluded is Harbourfront Centre because it encompasses a multitude of free and charged opportunities and its attendance figure includes double counting. Included are the CN Tower and Ripley's Aquarium in this method because they are located downtown.

The 2019 reported attendance at the Art Gallery of Ontario (AGO) was 951,000 visitors. This figure was gathered at a time when the AGO offered free admission to everyone aged 25 and under. Comparing the AGO figure to the number of visitors reported by the Ontario Science Centre is questionable. Accordingly, we have used the approximately 700,000 attendance figure for the AGO before it introduced the substantial free admission.

The average annual attendance of these attractions is a rounded **1,362,000** as outlined in the following table. This method is weak because it assumes that the OSC will achieve the average attendance of the other selected attractions in Toronto on the basis of an Ontario Place site and other qualitative enhancements discussed below. It also leads to an unrealistically high attendance estimate in our judgment because it includes private sector attractions that do not require the focus on education as do the OSC and other public museum-related institutions.

Benchmarks from Selected Attractions in Toronto	
Name of Attractions	Reported Attendance
Ripley's Aquarium	2,068,000
CN Tower	1,500,000
Royal Ontario Museum	1,340,000
Toronto Zoo	1,200,000
Art Gallery of Ontario*	700,000
Average	1,361,600
2019 OSC	885,000
*Attendance before admission was made free to all 25 and younger.	

Based on Main Public Education-Focused Attractions Only in Toronto

Excluding the private sector Ripley's Aquarium and CN Tower, which do not have the same requirements for a focus on education relative to the OSC and other public museum-related attractions, the average attendance is about **1,080,000**, as seen in the following table.

Benchmarks from Main Public Attractions Only	
Name of Attractions	Reported Attendance
Royal Ontario Museum	1,340,000
Toronto Zoo	1,200,000
Art Gallery of Ontario*	700,000
Average	1,080,000
2019 OSC	885,000
*Attendance before admission was made free to all 25 and younger.	

Based on Estimate that Excludes the Toronto Zoo

Attendance at the Toronto Zoo is primarily because of the outdoor Zoo exhibitions and attendance is very much weather dependent and so less relevant a comparison to the Ontario Science Centre than either the Royal Ontario Museum or the Art Gallery of Ontario. The following table therefore excludes the Zoo and focuses only on attendance levels and exhibition spaces for the ROM and AGO as applied to the assumed 109,550 net sq. ft. of exhibition space for the OSC at Ontario Place.

The average ratio of visitors per sq. ft. of exhibition space of the ROM and the AGO is 5.34 visitors per sq. ft. Applied to the assumed 109,550 net sq. ft. for the OSC it leads to an attendance estimate of about 585,000 visitors.

Benchmarks from ROM and AGO Only			
Name of Attractions	Reported Attendance	Exhibition Space	Visitors per Sq. Ft.
Royal Ontario Museum	1,340,000	253,000	5.30
Art Gallery of Ontario*	700,000	129,900	5.39
Average	1,020,000	191,450	5.34
2019 OSC	885,000		
* Before when all visitors 25 and younger were free			

Benchmarks from ROM and AGO Only	
Name of Attractions	Reported Attendance
Royal Ontario Museum	1,340,000
Art Gallery of Ontario*	700,000
Average	1,020,000
2019 OSC	885,000
*Attendance before admission was made free to all 25 and younger.	

Average of All Methods

As stated, all of the methods used have weaknesses, but are nonetheless critical in establishing attendance parameters for the future Ontario Science Centre at Ontario Place. The average of the ratios leads to a rounded attendance figure of 1,080,000 visitors in a stabilized Year 3 of operation.

Averaging Ratios Based on 109,550 Sq. ft. of Engagement Space	
Ratio/Method. Based On:	Projected Stabilized Attendance
Selected Comparable Science Centres -Exhibition Space	1,430,000
Selected Comparable Science Centres - Regional Population	1,290,000
Attendance to OSC Engagement Space of 109,500 Sq. Ft.	723,000
Average Attendance at Selected Major Attractions	1,362,000
Average Attendance at Public Museum-Related Attractions	1,080,000
Attendance at ROM and AGO Only Based on Exhibition Space	585,000
Average	1,078,333

3. Qualitative Analysis

The ratios above suggest about 1,078,000 total visitors in the stabilized Year 3. Other qualitative factors set out below help to refine the analysis and guide our judgment further to suggest either higher or lower attendance for the OSC at Ontario Place in comparison to the current suburban OSC site:

Main Market Segments:

- Proximity to the Suburban Young Family Resident Market:** This is the core market for the OSC. Ontario Place is a longer travel distance for more suburban families than the current OSC site. The market data indicate that in 2020 the population within a 10 km. radius of Ontario Place was about 1.10 million compared to the 1.54 million population within a 10 km. radius of the existing OSC site. This will likely have a somewhat negative impact on attendance and especially on repeat visitation and membership levels from among the suburban young family market.

- **Proximity to School Group Markets:** As with the young family market that resides primarily in suburban locations, Ontario Place will require more travel time by school buses for most schools, with associated concerns about traffic delays. This will be a somewhat limiting factor for attendance among more distant school groups.
- **Proximity for Tourist Markets:** Very positive is access by tourist markets staying in downtown hotels and driving from day trip cities along the QEW like Hamilton and Buffalo, and those combining trips to Niagara Falls or Niagara on the Lake. In addition, there will be greater likelihood of crossover visits with waterfront and downtown sports, cultural and entertainment venues. The tourist market should increase substantially at an Ontario Place site but resident and school markets will continue to be larger.
- **Visitors to Complementary Attractions at Ontario Place:** Positive for attendance, especially by older teenagers and young adults, is proximity to music concerts and the other planned attractions at Ontario Place.
- **Proximity to Downtown Convention, Conference and Business Markets:** This is especially positive for venue rentals attendance. The OSC trade and consumer show business at the Enercare Centre and other facilities at Exhibition Place will also contribute positively to venue rentals.

Access and Parking:

- **Access by Automobile:** As indicated above with respect to suburban resident and school markets, there will be greater concerns regarding downtown traffic and travel time that will limit attendance levels.
- **Access by Public Transportation:** Until implementation of subway or light rail links to Ontario Place this will be a limiting factor on potential attendance.
- **Availability and Cost of Nearby Parking:** Without dedicated OSC parking there is no opportunity to control prices and offer discounted or free parking to members. This is another limiting factor on attendance.

Other Features and Other Assumptions Associated with Future OSC:

- **Enhanced Exhibitions:** It is not only the size of the exhibition space that will affect attendance levels but also the quality and appeal of enhanced exhibitions offering more recent interpretive methods and technology and that aligns with the vision of the OSC for the future.
- **Large Format Theatre:** The Cinesphere offers up to 600 seats, which exceeds the capacity of the existing OmniMax but the capacity is rarely likely to be reached. The increased seat count at the large format theatre is therefore a neutral factor.
- **Planetarium:** The OSC at Ontario Place does not include a planetarium at this stage in planning. A larger capacity planetarium (larger than what is offered at the current OSC) and one with a larger screen would be a positive factor for attendance, especially for school group visits and special programs for teenagers and young adults. A planetarium would also provide opportunities for greater venue rentals.
- **Outdoor Visitor Experiences:** The OSC offers great outdoor experiences at its current location (Cohon Family Nature Escape). The OSC at Ontario does not include a major

outdoor visitor experience at this stage of planning. An outdoor experience would have a positive impact on attendance.

- **Admission Charges:** It is assumed that admission charges will remain as they would at its current location and would have no impact on attendance.
- **Operating Schedule:** It is assumed that operating hours will remain mostly as they currently are now. It is likely that the OSC would extend hours for Cinesphere (presumably for non-mission related content) use beyond the regular hours of the exhibitions at OSC and perhaps introduce evening hours for one night a week during the summer to take advantage of concert goers. These extended hours would have a positive impact on attendance particularly for teenagers and young adults.

4. Conclusions

Overall, based on our analysis, experience and judgement, the new OSC at Ontario Place will generate the most significant excitement and interest among visitors in the opening year. By Year 3 we expect the attendance at the OSC to stabilize. Assuming 109,550 sq. ft. of Engagement space, we expect attendance to stabilize at about 1,000,000 visitors per year.

As is common with the opening (and the reopening as would be the case for OSC) of major cultural attractions, curiosity factor and media attention will push opening year attendance between 15% and 20% higher than the long term stable visitor attendance. Year 2 attendance will moderate but still be higher than Year 3.

OSC is contemplating additional visitor experiences that is currently not included in the Functional Program. These experiences are an immersive state-of-the-art planetarium, an outdoor, adventure playground and play structure and an indoor, interactive large scale transformative immersive experience. These additions, if included as part of the overall OSC experience, would have a positive impact on attendance.

In summary, our final projections of attendance levels at a relocated and expanded Ontario Science Centre at Ontario Place assuming 109,550 sq. ft. of exhibition space are as follows:

Year 1: 1,150,000

Year 2: 1,050,000

Year 3: 1,000,000

Appendix O
Interim Report for Revenue Opportunities, Cost Reductions &
Benefits of Relocating

Confidential and Privileged Advice to Government

ONTARIO SCIENCE CENTRE RELOCATION

**Final Report
Revenue and Cost Reduction
Opportunities and Benefits of
Relocation**

Updated and Revised - December 16, 2022

Lord Cultural Resources is a global professional practice dedicated to creating cultural capital worldwide.

We assist people, communities and organizations to realize and enhance cultural meaning and expression.

We distinguish ourselves through a comprehensive and integrated full-service offering built on a foundation of key competencies: visioning, planning and implementation.

We value and believe in cultural expression as essential for all people. We conduct ourselves with respect for collaboration, local adaptation and cultural diversity, embodying the highest standards of integrity, ethics and professional practice.

We help clients clarify their goals; we provide them with the tools to achieve those goals; and we leave a legacy as a result of training and collaboration.

Our Toronto office is located within the traditional territory of many nations, including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples. Toronto is home to many diverse First Nations, Inuit, and Métis peoples. Our New York office is located on the traditional lands of the Lenape peoples. We encourage you to acknowledge the presence of the people who came before, wherever you are.

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BACKGROUND

Lord Cultural Resources had been commissioned by Infrastructure Ontario initially in 2020 to explore a reimagined Ontario Science Centre, including potential relocation, as an opportunity to achieve both the OSC's modernization and sustainability objectives, and the government's vision for Ontario Place as an exciting, year-round destination for local and international visitors alike.

The study included:

- Translating the OSC vision to create a functional program
- Producing a high-level concept design of a relocated OSC at Ontario Place
- Developing order-of-magnitude capital costs (Class D estimates)
- Identifying revenue and cost savings opportunities, benefits of modernization and relocation, and delivery models
- Estimating attendance for a relocated OSC at Ontario Place

Updated study:

In 2022, Lord was recommissioned to update the study to include a revision to the functional program and a re-evaluation of revenue and cost reduction opportunities.

CONTENTS OF REPORT

The following Interim Report includes revisions and updates to the initial report developed and delivered in June 2021. The areas for review are as follows:

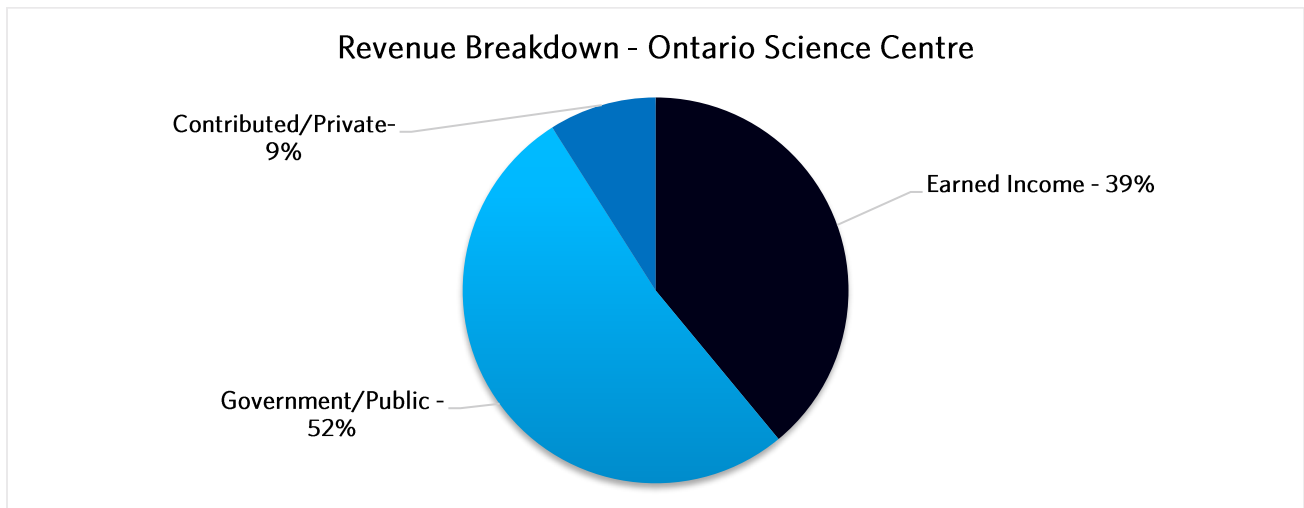
1. Preliminary Revenue Opportunities
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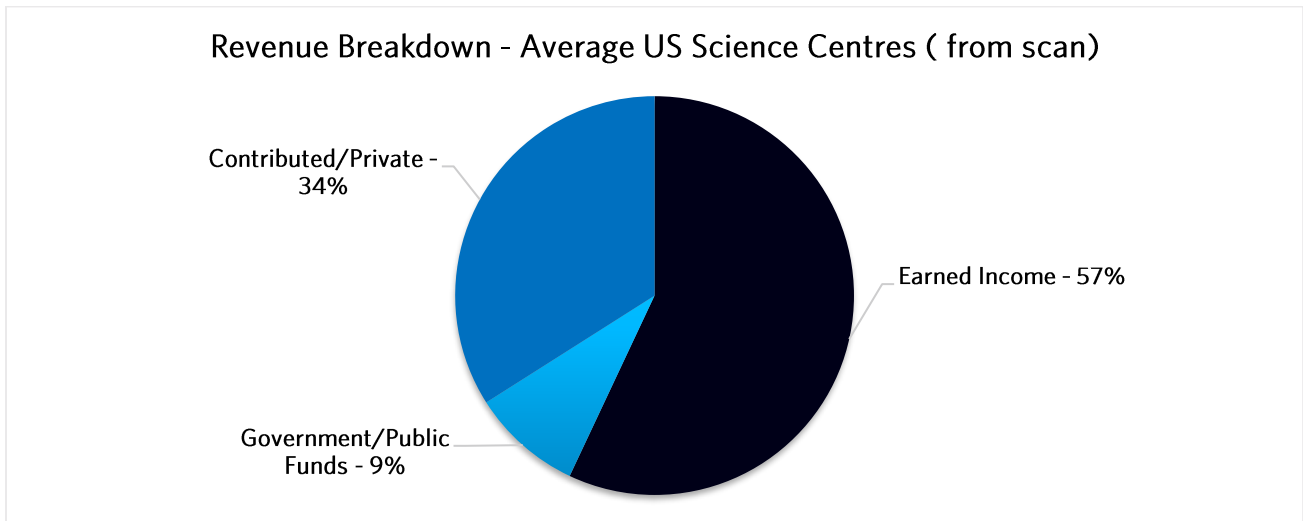
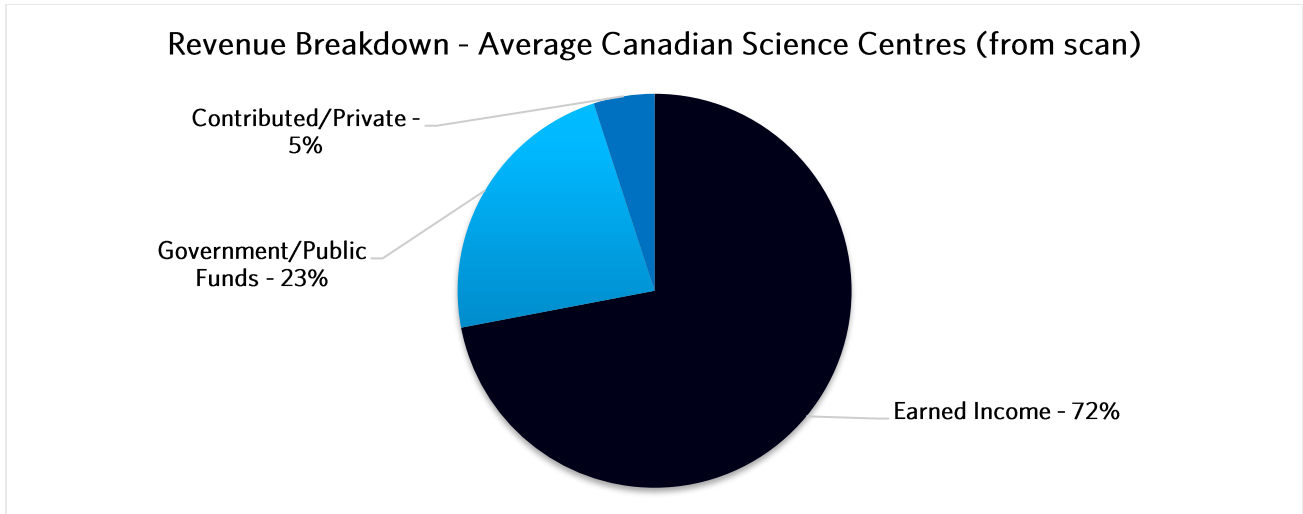
1. PRELIMINARY REVENUE OPPORTUNITIES

Revenue for science centres, as it is for other museum types, is derived through the following streams:

1. Earned Revenue - includes revenue through admissions, third party venue rentals, public programs, retail (on-site and on-line), food service (ie cafes, restaurants) and memberships. Museums can also derive income through loans of temporary exhibitions (that is, ones development by the institution themselves) and some museums may derive earned revenue through parking admissions.
2. Contributed Income (private funds) - includes sponsorships and donations - annual and special gifts and fundraising events
3. Government- includes direct annual funding from local, provincial/state or federal governments. It also includes operating grants at the various levels of government.

The following is a breakdown of the three revenue streams by percentage for the OSC, the average for Canadian science centres and the average for US science centres for 2019 (Pre-COVID._





The following are preliminary revenue opportunities for a relocated Ontario Science Centre at Ontario Place.

PUBLIC FUNDING

As outlined above, the Ontario Science Centre currently receives substantial public operating funding. As an agency of the Province of Ontario, the OSC received in 2018-2019, \$15.8 million in direct funding from the Province - 42% of the OSC’s total operating revenue - in addition to an occupancy grant of \$3.9 million to cover rent, taxes, maintenance and some operating costs. In 2020-2021 and 2021-2022, the OSC received a 22% increase to the direct contribution made by the Province of \$19.3 million (60% of total operating revenue) in addition to stabilization funding of \$4.7 million for COVID relief.

It is assumed that the OSC will remain an agency of the Province of Ontario and continue to receive annual operating funds when it relocates to Ontario Place. The amount the OSC will receive from the Province for operating is yet to be determined. It is likely, however, that the occupancy costs at a new Provincially-owned site and smaller building will be reduced and that the OSC will be able to operate as it had pre-COVID and therefore assumed that the occupancy grant the Province provides to the OSC will be reduced and stabilization funding unnecessary. It is likely the OSC will continue to apply for project and program grants as they have in the past.

CREATING THE CONDITIONS FOR MORE VENUE RENTALS INCOME

The OSC currently derives revenue through events and rentals including private functions, corporate meetings and others. There are some limitations with the current rental spaces and therefore OSC is unable to optimize the revenue that could be derived from them.

The new OSC at Ontario Place would benefit greatly from flexible, multi-functional spaces that could also be used as rental opportunities. While there is no exclusively, dedicated rental venue contemplated for the OSC at Ontario Place, other spaces can be rented including the temporary exhibit hall, lobby, student intake space, pod spaces and the Cinesphere. The new location will increase access to downtown corporate offices, conventions (nearby Enercare Centre) hotels, condo residents and other market segments that are primarily adults not accompanied by children.

Interviews conducted in a variety of cities over the years focused on potential rentals at science centres indicated a common comment that they are considered “kid’s places” far less appropriate for corporate meetings, weddings and other “higher end” events than art and history museums. Science centres that are in downtowns are much more successful in generating rentals income, and those with waterfront sites are particularly successful.

While the Ontario Science Centre name/brand should not be considered for modification at an Ontario Place site, there are opportunities to design the new lobby and other spaces as mentioned above, to appeal to corporate, wedding and other higher end renters. This could include consideration of rooftop rentals opportunities in the new building or the existing pods that offer a very special view of both the lake and the urban skyline.

INCREASING ATTENDANCE AND REVENUES FROM YOUNGER CHILDREN

Science centres are not children’s museums, whose age focus is increasingly limited to 0-10 or even 0-8 because 11-12-year-old and older children are not defining themselves as children and generally do not wish to be in the same space as younger children. The age focus for science centres generally starts at age 5-6 and extends to adults not accompanying children but peaks at age 7-12.

Children’s museums are often very successful in attracting very young families, and experience high levels of repeat visitation. The following table from the American Alliance of Museums shows that children’s museums trail only zoos/aquaria and science centres/museums in attracting large numbers

of visitors and in generating a higher percentage of operating funds from earned sources (admissions, retail, food, rentals, programs, memberships) compared to other museum types.

Latest Data Comparing Sources of Operating Income by Museum Type	Art Museums	Children's Museum	History/ Historic House/Site	Natural History/ Anthropology	Science/ Technology Centre/ Museum	Multi-Disciplinary	Arboretum/ Botanic Garden/ Nature Center	Zoo/ Aquarium	Total Sample/ Weighted Average
Sample Size	209	36	408	31	31	100	27	15	857
Earned Income	26%	52%	35%	42%	57%	33%	45%	59%	35.1%
Private Donations/ Sponsorships	42%	33%	33%	28%	31%	35%	31%	25%	35.0%
Investment/Endowment Income	16%	2%	12%	9%	2%	8%	10%	4%	11.4%
Government Income (All State)	17%	13%	21%	22%	10%	24%	14%	12%	19.3%
Source: American Alliance of Museums, Museum Board Leadership 2017: A National Report									
Sample Size	156	18	279	32	25	71	N/A	17	671
Reported Attendance	44,878	130,870	11,500	58,176	357,103	58,500	N/A	208,574	26,500
Source: Financial Survey of the American Alliance of Museums, 2009									

There is no children’s museum in Toronto. The closest children’s museums in southwestern Ontario are in Hamilton and London. The Ontario Science Centre recognized the need for science-focused education and play for younger children many years ago, implementing KidSpace. It quickly proved to be very popular and was expanded, but is still relatively small. Other science centres/museums that include children’s museum components include the Perot Museum of Nature in Dallas, COSI in Columbus and the Fort Worth Museum of Science and History.

The OSC could consider a further expansion to KidSpace at the new facility to widen the market to younger children and also reduce the likelihood for a separate children’s museum to be implemented in Toronto. Ideally this would include a separate ToddlerSpace for one- and two-year olds. These could all be accommodated potentially in the allocation for the Engagement Space planned for the new site. A substantial OSC outdoor play/exhibit space is also being considered at Ontario Place to serve all children.

A greater focus on younger children will increase repeat visitation levels and therefore the motivation for membership. An additional focus on very young children should also be reflected in the merchandise the OSC will sell in the retail store. Birthday party opportunities for children under four years of age should also be considered.

Admissions are currently free to children two and under. A more substantial children’s museum component that will include a toddler’s space could allow for admissions to be charged for one- and two-year olds.

MEMBERSHIPS, DONATIONS AND SPONSORSHIPS

MEMBERSHIPS

Science centres are among the most successful museum types in generating earned income because they are mass market attractions with relatively high levels of attendance and repeat visitation. The desire for repeat visitation, especially among children, creates the demand for membership.

The OSC reported \$1.8M in memberships in 2019 (substantially dropping during the Pandemic). The trend for membership levels and revenues at the OSC, like attendance, has been declining in recent years reflecting demographics and limited capital reinvestment. Photos associated with prices and benefits of membership in OSC marketing material, only depict young families and how long they have been members, which is good, but there are no images of, for example, a senior couple or individual student. Additional images should be considered also showing adults and seniors not accompanying children.

Benefits are set out in a variety of lower and upper level categories with lower level categories referred to as Lunar, Planetary and Stellar (\$125 to \$275 per year) and Upper as Galactic and Cosmic (\$500 and \$1,000). Benefits increase with higher prices. Noteworthy is that all include a 10% discount on OSC restaurants but there is no reference to a discount on retail.

The upper level Galactic and Cosmic membership categories refer to “help make a difference” but there is no clarity regarding how the amounts paid for two cardholders and up to four guests make a difference. One idea that might be considered is that guest passes at upper levels could be distributed through social service agencies and religious institutions to provide free admission to those who need it. The donor would understand how they are making a difference to providing access to those in need and receive a tax receipt for doing so.

Whereas adults expect change to motivate repeat visitation, children enjoy familiarity. An increase in the size of KidSpace in the future OSC could help to motivate more repeat visits and therefore the value of membership among the young family market.

An Ontario Place site and modification to admission charge categories to put those 18-24 years old in the youth ticket category (13-24) as well as programming oriented to young adults should increase attendance and the value of memberships for this age cohort. Similarly, there should be an opportunity to increase membership levels among adults and seniors not accompanying children, but levels would likely be modest relative to the core young family market.

RETAIL AND FOOD SERVICE

RETAIL

Retail is an important source of revenue to support the operating costs of science centres. While revenue levels have long depended on attendance, there has been a trend to more on-line sales as well. Retail at the OSC currently is modest with about 400 sq.ft. independently run kiosks. A larger sized retail presence at Ontario Place is contemplated. Consideration should be given to the substantial competition from Amazon and other on-line retailers for products that are very similar to

those sold at the OSC. The COVID-19 pandemic has increased consumer confidence in on-line purchases so that the likelihood is that the trend to more on-line sales will increase.

While the new OSC will increase its physical footprint at Ontario Place, they will also increase their focus on a virtual retail presence for on-line shopping.

FOOD SERVICE

While not a substantial revenue generator, visitors expect food opportunities. In some cases, where science centres are located in downtown or commercial locations with nearby food opportunities, food service is limited, including integrating “grab and go” food service inside retail stores. This creates staffing efficiencies and also exposes more visitors to retail products. Where food service is concessioned, which is the norm, it allows the supplier to eliminate their on-site staffing costs, thereby creating opportunities to sell the grab and go items to the Centre at lower cost. This in turn, allows for somewhat lower prices for visitors, thereby increasing sales and visitor satisfaction.

For the Ontario Science Centre at Ontario Place the idea of limiting food service to grab and go within a retail store is likely impractical unless there will be substantial fast food and full-service restaurants or cafes within the new precinct. It is expected that there will be food service opportunities at Therme, however it will be contained within the complex. The OSC is therefore planning for a sit-down cafeteria, similar to what they have currently, and located within the Pods. An additional satellite location is planned for the new building.

DONATIONS AND SPONSORSHIPS

The OSC reported revenues from donations and sponsorships in 2019 of about \$3.4M, accounting for about 9% of total operating income (understandably this number was about half in 2021 and 2022). This is fairly typical for Canadian science centers with a range of 7-9% from donations and sponsorships, very much reflecting the fact that financial support for museums and science centres in Canada is largely from government sources, while in the United States it is mostly private funding. This is because of the different tax laws and traditions in each country.

Whereas donations are motivated largely by philanthropy, sponsorships are motivated very much by the seeking of a return on investment in exposure of a company brand to as many visitors as possible. If higher attendance at an Ontario Place site is achieved, it will help lead to more sponsorships.

Many science centres in the United States and some in Canada, namely the Montreal Science Centre, have established independent foundations. Foundations are registered charities, and they are created to raise money to direct funds for specific initiatives such as exhibitions, research and outreach programs.

One of the challenges facing the Ontario Science Centre is that as an agency of the Province, some potential private funders perceive that it is well looked after by the provincial government and does not need much financial support from private sources. A relocation to Ontario Place should help to mitigate that challenge by raising the profile and visibility of OSC and being seen to meet a wider need of enhancing Ontario Place as a year-round destination for residents, school groups and tourists.

Identifying “causes” also motivates private support. Zoos, including the Toronto Zoo, have addressed this issue by focusing on its important conservation role.

New and continuing OSC initiatives such as science literacy or science capital and a science focused workforce are among the motivators that should be addressed along with climate change. Another, given a waterfront location, could relate to fresh water.

2. PRELIMINARY COST REDUCTION OPPORTUNITIES

STAFFING

The largest single expense for any cultural institution including science centres is staffing. Typically staffing costs (salaries and benefits) for science centres are in the 40-50% range of overall expenses. The current OSC staffing is approximately 60% of total expenses for the institution.

Without knowing the specific operations – that is exhibitions, activities and programs at the new OSC – it is not yet possible to know the potential impacts on staffing. We do know, however, that the new complex at Ontario Place which will include the pods, Cinesphere and a new building will be substantially smaller than the current facility at Don Mills and Eglinton.

A smaller building/complex could potentially have an impact on front and back of house staffing as well as maintenance, janitorial and security. There is less building to operate and maintain and therefore fewer staff may be required.

OCCUPANCY COSTS

The OSC currently pays \$4.7m in occupancy costs, or \$8/sq.ft. at the Don Mills location. Occupancy costs include utilities, repairs and maintenance, building insurance and security systems. This is on the high side of the spectrum for occupancy costs but not surprising given the age and the condition of the building.

Occupancy costs should be reduced substantially at the Ontario Place location. The overall size of the complex will be smaller, and it is assumed that the new building and the renovated pods will be energy efficient resulting in lower utilities costs with less building to heat, cool and power.

SHARED SERVICES

The vision for a reimagined Ontario Place will include an exciting all-season family attraction, a four-season music and entertainment venue. Without knowing the details of each of the new tenants at Ontario Place, there should be some opportunities to share services and costs with OSC's site neighbours that could include security and maintenance. Further shared services could include joint marketing and promotion, joint admissions and Ontario Place passes.

3. BENEFITS OF RELOCATION

ONTARIO SCIENCE CENTRE – CURRENT CONDITIONS AND CHALLENGES

CURRENT CONDITIONS

The Ontario Science Centre opened in 1969 and is considered a pioneer in the “second wave” of science centres - focused on hands-on, interactive learning.

It is located in the mixed-used, planned community of Don Mills, one of Toronto’s earliest suburbs at the southwest corner of Don Mills and Eglinton Avenue East. The OSC had become a key to placemaking for a burgeoning and coming-of-age city in its then suburban location.

Designed by renowned architect Raymond Moriyama, the brutalist style 568,000 sq.ft. complex is comprised of three main buildings connected by a series of bridges and escalators that follow the contours of the Don River valley. The building sits on 55 acres of land, the majority of which is environmentally sensitive ravine lands.

CHALLENGES

Over 50 years later the OSC is an aging building and capital and operating costs for repairs and maintenance as well as utility costs are substantial each year, and will continue to increase. According to the 2016 Ontario Science Centre Modernization Business Case, deferred maintenance costs (accumulative to 2025) had been estimated to be over \$147 million.

The current building is 568,000 sq.ft. – roughly double or larger than the size of most science centres that have been built in the last 5-10 years and too large for OSC’s needs. The building is largely inefficient with oversized corridors and circulation spaces and back of house functions.

OSC has excessively high occupancy costs - a function of an oversized and inefficient facility. The Province currently subsidizes the occupancy costs; this in addition to the operating grant the Province gives the to OSC for operations.

The OSC had consistently attracted in the range of one million visitors annually with attendance levels varying by the popularity of temporary exhibitions, school disruptions and other factors. In 2010

attendance was about 1.3 million and has declined to less than 900,000 annual visitors. Declining attendance has had a direct negative impact on earned revenue over the same period.

ONTARIO SCIENCE CENTRE – RELOCATION OPPORTUNITIES AND BENEFITS

ICONIC SITE

Opened in 1971, Ontario Place was created as a symbol of the province’s economic and cultural prosperity. As a unique and accessible waterfront site coupled with ground-breaking modernist architecture, Ontario Place quickly became one of the great iconic cultural and tourist destinations in the world. Millions of visitors participated in myriad entertainment and cultural activities which included live music, exhibits, a Children’s Village play area and the world’s first IMAX theatre – the Cinesphere. However due to increased competition and declining attendance, Ontario Place was forced to shut down in 2011 – save for a few remaining activities including the Budweiser Stage, Cinesphere, outdoor events and the Trillium Park and William G. Davis Trail.

Despite the closures, Ontario Place remained a familiar and iconic landmark. And with the province’s planned revitalization, Ontario Place is intended to return to the status it once enjoyed. The Ontario Science Centre will have the opportunity to not only be a part of this rejuvenation but will be an anchor within an established and well-known site.

WATERFRONT LOCATION

Not only is Ontario Place an iconic and symbolically important site for the province of Ontario but is one of the great waterfront locations. Urban waterfront locations’ natural beauty and connectivity to nature is a natural draw for residents and tourists. The OSC will benefit from a waterfront location for a number of reasons. First is the increased visitation to the site. The second is the revenue generating opportunities through third party events and functions (the waterfront is a premium location for events). The third reason is the programming opportunities for OSC – incorporating the environment including Lake Ontario into OSC programming.

TOURISM

A relocated Ontario Science Centre to Ontario Place will benefit from Toronto’s substantial tourist market – 28 million in 2019 – with a significant portion of tourist visits to the downtown and waterfront. Additionally, a revitalized Ontario Place is certain to increase the tourist draw to Toronto, thus creating additional markets for hotels, retail and restaurant facilities. Given its relatively isolated location for tourists, the current OSC is challenged to attract a larger share of the tourism market. As discussed earlier an Ontario Place site will help to build the tourist market for the OSC, something they have not been able to achieve to any significant degree at its current location.

CULTURAL AND ENTERTAINMENT CLUSTERING – A NEW PRECINCT

Ontario Place is planned to be a new cultural and entertainment cluster within which Ontario Science Centre will be “the” cultural anchor. Highly successful cultural attractions are often part of a cluster offering resident visitors and tourists a variety of offerings and experiences.

The preliminary vision for Ontario Place estimates 5.5 million visitors (excluding OSC visitors) to the precinct by 2030 with a combination of an all-season family attraction – a definite synergy with the OSC’s kids and family focus - a four-season music and entertainment venue and an outdoor all-season adventure play zone. The OSC will certainly benefit with the huge increase in visitation to the precinct (something the current OSC does not have).

PRECINCT PARTNERSHIP OPPORTUNITIES

The new and current tenants at Ontario Place will provide valuable partnership opportunities for the OSC. There could be opportunities for cost sharing that include maintenance and security for example. Additionally OSC could partner with the tenants for joint programming and marketing, cross promotions and discounted admissions.

HERITAGE AND CULTURAL VALUE

Aside from being an iconic landmark, Ontario Place is also an important heritage site of significant cultural and historic value and was added to the list of Provincial Heritage Properties in 2014. An important part of the site is the architecture – the distinctive pods, bridges and Cinesphere – which will be preserved and adaptively reused to become part of the new Ontario Science Centre. New purpose-built space will also be required to accommodate all the needs and requirements of the OSC but it can be substantially smaller than the existing OSC building. However, the OSC will also benefit from association with the Cinesphere, pods and walkways in the eyes of the public, media and potential sponsors and funders.

BUILDING TO SUIT

The relocation of the OSC provides the opportunity to design and right-size a facility that meets the centre’s current and anticipated needs. A new complex, which would include the pods and bridges) would be smaller, but more importantly would function more efficiently, thereby reducing maintenance and other operating costs.

PUBLIC TRANSIT

The OSC at Ontario Place will benefit from the planned rapid transit initiative to the area. The 15 station Ontario Line will connect the current Ontario Science Centre to Exhibition Place and Ontario Place through a mix of at-grade (surface) track, elevated guideways and underground tunnels.

SUSTAINABILITY

The Ontario Place location should provide greater opportunities for the OSC to increase earned revenue to support its long-term sustainability. It should also increase the likelihood for donations and sponsorships.

4. GENERAL PRINCIPLES FOR FUNCTIONAL PROGRAMMING

The following are the general principles for functional programming:

- Functional programming is a collaborative process that seeks to find shared common goals across institutional mission, user needs, facility requirements and budget constraints.
- Jointly created by all stakeholders, the program is the comprehensive roadmap designed to equip museum staff with the knowledge and confidence to communicate the needs of their building,
- The functional program is a data-driven, recommendations-based document that outlines and quantifies the spaces and adjacencies necessary to meet the functional requirements of the subject institution.
- Functional program will make recommendations for types, quantities and sizes of required rooms and spaces. These recommendations should be confirmed by client and architect teams prior to commencing design.
- Space allocation will identify net areas for interior spaces only.
- An estimate of gross area and total building area will be provided. This will be based on professional experience. It is assumed that gross area will be 1.4 times net area. Gross area includes horizontal and vertical circulation, mechanical and service spaces, wall thicknesses and washrooms.
- The space program identifies exterior program areas but does not assign a net area to these spaces.
- The space program will also sub-classify museum zones for interior spaces, determined by whether spaces are public or not and whether they contain collections or not.

Appendix P
OSC+ Components

OSC + Component no. 1:
Immersive Experience

OSC+ ACTIVITY – IMMERSIVE EXPERIENCE

CONTEXT

The relocation of the Ontario Science Centre as part of the Ontario Place revitalization will require a reduction in the size of the building/square footage, requiring a rationalization of the current activities. Some aspects of the current offerings cannot be included in the functional plan and yet are core to the overall experience and should be contemplated within the relocation project.

ACTIVITY DESCRIPTION

Current state - The Ontario Science Centre offers unique, interactive large scale transformative immersive experiences that the entire family can enjoy. The TELUS Rainforest at the current site is one example of a large scale immersive experience. This space in the Living Earth exhibit hall is dedicated to engaging visitors about biodiversity and unique characteristics of plants and animals living in a rainforest.

As you walk into the Rainforest you will notice immediately that it is very hot and humid. To create a replica rainforest the climatic conditions must also be created so that the visitor immediately feels like they are experiencing the wonder of being in another part of the world. The temperature change along with the smell of plants, water and soil catch your attention and transport you immediately. Butterflies and birds are flying throughout the space and you can hear the buzzing of insects and frogs. As you move further into the space you traverse a rocky pathway lined with enormous trees and saprophytic plants populating the space much as it would in Costa Rica. Everywhere you look you see things that remind you that you are no longer in a building in Toronto. There is a small wooden bridge that brings you adjacent to a large waterfall and you can see the fish swimming beneath your feet. As you explore the space further you discover featured rainforest animals – the poison dart frogs. Spectacular colours help you learn about the natural features these creatures have to warn predators away from seeing them as a tasty treat.

The functional program created for OSC@OP does not currently contemplate the opportunity for a large immersive space that replicates the experience of the TELUS Rainforest. This creates a gap in the overall science centre experience. Most notable science centres that are considered world-class include this unique and visceral experience as part of their offering. Such experiences integrate mind, body and emotion and offer a powerful learning opportunity that can engage all types of learners.

RATIONALE FOR INCLUSION

Immersive spaces are critical features in science centers. The experience allows you to learn on a whole new level by being fully transported to another environment to experience all that you would in that space and that what the visitors sees or feels is genuine and captivating. Visitors engage with all their senses and are curious about all that is around them. This inspires them to learn more and pursue their curiosity.

Immersive experiences can be incredibly influential with visitors. These types of experiences don't compare to what you can experience at home or at smaller facilities, these experiences require world class attention to detail and creativity to have the highest impact.

More and more immersive spaces are being created by using digital tools or try to put the visitor into feeling like they are in a diorama or walking through a giant version of the item you are exploring. These experiences are also valuable but do not replace an immersive and authentic environment where many senses are being stimulated. The person has to feel as though they really experienced what it would be like to be in the actual environment being created. We feel it is essential for a visitor to engage with all their senses, smell, sound, touch as well as what you see. This approach is essential to truly feel like they have experienced a slice of something so true to life that it creates a memory and -- feeling stays with and inspires them long after they leave.

This type of space generates interest and is in itself a compelling reason to visit. It creates opportunities for special programming that can drive attendance. It also attracts revenues through sponsorships.

EXPECTED IMPACT

A unique and fully immersive experience is what helps create a world class tourist destination. Visitors will return time and time again to experience something they would not be able to experience in their own lives. These experiences are what make the museum experiences so unique and memorable. These types of experiences are also often captures in visitor photos and shared on social media to allow grassroots marketing to promote the unique experience. Inspiring a visitor by creating a novel transformative experience that allows them to explore using all their senses is an incredible opportunity to reach visitors of all ages, all learning and skill levels. These experiences are universally appealing and different cultural lenses can be applied to deepen connections to the natural world.

APPROXIMATE SIZE AND COSTING

Space assumption:

3,000 square feet (as the current OSC TELUS Rainforest)

Assumes that space is incorporated into the new OSC facility

Costing:

Space – \$2,130,000 (3,000 sq. ft. at \$710 per sq. ft.)

Exhibitry - \$2,400,000 to \$3,000,000 (\$800 to \$1,000 sq. ft.)

Total Cost: \$4,530,000 to \$5,130,000

INSPIRATION

California Academy of Science has a 4 storey rainforest filled with plants, free flying birds, fish and butterflies.

<https://www.calacademy.org/exhibits/osher-rainforest>

Earthquake simulator <https://www.calacademy.org/exhibits/earthquake-life-on-a-dynamic-planet>

Gardens by the Bay, Singapore immersive gardens and cloud forest

<https://www.gardensbythebay.com.sg/>

Exploratorium Fog Bridge <https://www.exploratorium.edu/exhibits/fog-bridge-72494>

Dynamic Earth – Underground Mine Experience <https://www.sciencenorth.ca/dynamic-earth#underground>

Butterfly Conservatory - <https://www.niagaraparks.com/visit/attractions/butterfly-conservatory/>

<https://www.niagaraparks.com/visit/attractions/journey-behind-the-falls/>

OSC + Component no. 2:
Outdoor Experience

OSC+ ACTIVITY – OUTDOOR EXPERIENCE

CONTEXT

The relocation of the Ontario Science Centre as part of the Ontario Place revitalization will require a reduction in the size of the building/square footage, requiring a rationalization of the current activities. Some aspects of the current offerings cannot be included in the functional plan and yet are core to the overall experience and should be contemplated within the relocation project.

ACTIVITY DESCRIPTION

An adventure playground and iconic climbing/risky play structures throughout a large defined space. Some activities will be for all ages and include large-scale experiences that are iconic both visually and experientially. Some experiences will be specifically for children and create an area for fun and adventure.

It will be designed for use all year long, with some areas free and others pay-to-play. It will complement the other activities on the OP site but also be a destination unto itself.

It will take advantage of the natural environment and beautiful lakefront location.

The design of the area specifically for children will be guided by research in early learning and the development of 21st century skills that include collaboration, perseverance, creativity, and problem solving. It will also support the mental health and wellbeing of children – correlation with helicopter parenting, overly safe play spaces, opportunities to help build a space for kids to explore and experiment without parental interaction or suggestion, without being observed – necessary for child growth and development.

RATIONALE FOR INCLUSION

Risky play and free-choice learning are at the core of children's development and necessary for critical thinking development. The Ontario Science Centre at Don Mills road includes this kind of play through its existing outdoor spaces such as the Science Plaza at the front of the building (formerly called TELUSCAPE); the Cohon Family Nature Escape, rated one of the most popular experiences by our visitors; and the (seasonal) facilitated nature walks to the wetlands behind the science centre.

The new OSC@OP has limited outdoor space envisioned in the current plans. The opportunity to create an Adventure Park for families, school groups, children and others visiting the OP

precinct will allow for the OSC to continue to engage its audiences in outdoor play. This will also allow for cohesion of experiences on the OP site with the experiences created and managed by a trusted and beloved Ontario brand – the Ontario Science Centre.

EXPECTED IMPACT

The overall OSC experience will be limited without including outdoor fun and science-based experiences. This space will be an opportunity for revenue generation through one-time user fees, multi-passes, memberships and sponsorships. In addition, partnerships with post-secondary institutions focused on how children learn through play/adventurous play will support impact studies and could create revenue opportunities through research grants.

The space will be designed to be visually iconic, and create another must-see destination at the OP site.

It will support Toronto and the revitalized Ontario Place as a tourism destination for people from across the province and beyond.

It will increase accessibility of activities at Ontario Place (both the reality and the perception of such) for the public.

APPROXIMATE SIZE AND COSTING

Size assumption:

6.4 acres (278,783 sq. ft.)

Former EcoRecReo site

Costing:

\$70 to \$140 per sq. ft.

Including play structures and surfacing

Total Cost: \$19,400,000 to \$39,000,000

INSPIRATION

<https://www.youtube.com/watch?v=FOSXJfe3uGo> Telus Spark (Edmonton) Junkyard Playground

Governer's Island Adventure Playground NYC <https://www.youtube.com/watch?v=dZxjZfpK8Qo>

<https://www.blogto.com/city/2017/09/adventure-playground-toronto-history/>



Hanoke Open Air Museum, Japan





(old waterslide tower idea)



Children's Museum of Denver Adventure Forest



City Museum, St. Louis

OSC + Component no. 3:
Planetarium

OSC+ ACTIVITY – PLANETARIUM

CONTEXT

The relocation of the Ontario Science Centre as part of the Ontario Place revitalization will require a reduction in the size of the building/square footage, requiring a rationalization of the current activities. Some aspects of the current offerings cannot be included in the functional plan and yet are core to the overall experience and should be contemplated within the relocation project.

Planetariums are invaluable tools for science communication and sharing the riches of the night sky with everyone. There are more than 1,000 planetariums in North America alone. There is currently no public major sized planetarium in Toronto.

ACTIVITY DESCRIPTION

Planetariums are designed for discovery and exploration and draw our imaginations to new worlds and possibilities. **An immersive state-of-the-art modern New Planetarium is core to the science centre experience and we are proposing that we build a large planetarium (90 ft).** The rationale is that at this size, the New Planetarium would be the largest of all planetariums or giant dome theatres in North America, and in fact, the largest in the Western Hemisphere that warrants world-class attention and will be a landmark for Toronto. Only one other planetarium in North America comes close: the planetarium at Liberty Science Centre in Jersey City, NJ, has a diameter of 89 feet. The next largest comparable planetarium in the US or Canada is at the renowned Griffith Observatory in Los Angeles, which has a diameter of 76 feet.

RATIONALE FOR INCLUSION

Unique, Inspirational Environment: Every planetarium immerses visitors in a 3-D environment that evokes realism. The sight of stars appearing in a dark sky, now being lost to light pollution in many areas, immediately captures attention and evokes awe. As cities expand, the lack of personal contact with nature is producing negative psychological effects. A planetarium's night sky is a powerful, memorable, and soothing image which encourages learning. Immersion sparks a viewer's creativity, interest, and engagement, aspects of education's affective domain. At one time anyone could go into their backyard and look up and see the stars but kids living in cities don't get to see the stars with the same clarity due to light pollution and this experience helps them feel more inspired to seek out darker spaces for optimal viewing.

The night sky view is our connection to a broader universe. The planetarium offers some guidance for us to understand what we are seeing when we are awe-struck looking above us. It

has the potential to influence behavior and spark curiosity long after the visit as it helps to connect the person with what they are actually seeing when they look up at night.

Place for Inquiry-based Learning: Inquiry-based learning is a teaching strategy and learning method that prioritizes student questions, ideas, and analyses. The planetarium environment triggers learner curiosity in ways that normal classrooms cannot. Students are able to discover sky changes that are parts of important long-term cycles, including day and night as a result of Earth's rotation, differences in the daytime paths of the Sun during different seasons, lunar phase and position changes during a month, and planet movement among the fixed stars. Acceleration of these sky changes, so that they occur in a convenient student-visit time period, provides exceptional opportunities for learning astronomy with inquiry procedures.

Help for the Difficult Learner: The planetarium experience can be an important gateway to learning for children who dislike learning in formal environments. Additionally, live planetarium programs benefit learners with short attention spans.

A Positive Social Environment: The planetarium is a place where diversity and equality can be promoted, particularly when facilitators use interactive techniques. Live programming provides the opportunity for participants to connect with each other and the presenter. Also, accommodations have been developed for people with disabilities: the visually and hearing impaired, those with autism spectrum disorder, people with intellectual disabilities, and more.

EXPECTED IMPACT

Impacting Communities: Planetariums are not just for young learners. They welcome everyone from the community to attend public events. Many community groups and professional organizations visit the planetarium for lifelong learning experiences. Many STEM-related issues affect our planet today. It is the public who must have the capacity to understand these issues to make informed decisions and encourage powerful, global impact. Planetariums inform the public on these matters.

The recognition of First Nations contributions to science has been on the rise in recent years. In astronomy, instead of teaching constellations and stories from the Greeks and Romans, we will need to start teaching the star stories of the people who have lived on this land for thousands of years. Some of those stories are part of how Indigenous people made sense of the world around them—a form of science separate from, but with kinship to, the enterprise of observation, prediction, and questioning built around what we call the scientific method. It is important that no one underestimates the importance stars and the night sky plays in the daily lives of Indigenous people from around the world.

A state-of-the-art spectacular planetarium has the potential to engage researchers as scholars interested in engaging with the public. This would allow strong partnerships with Universities in Toronto and Southern Ontario and even internationally.

Revenue Generation: Planetariums can be programmed and ticketed separately during the day and rented out for private, social and corporate events.

A new planetarium would be a significant naming opportunity for a corporate or philanthropic sponsor, generating notable revenues.

A planetarium can be visually iconic, and create another must-see destination in Toronto for people from across the province and beyond.

APPROXIMATE SIZE AND COSTING

Space assumption:

1,100,000 cubic feet (LED screen)

or 1,150,000 cubic feet (projection screen)

- Assumes that ticketing, lobby and washroom space are within main OSC facility

- Assumes 90 foot screen and 285 seats

Costing:

LED Screen

- Building shell and fit out - \$23,277,000

- Equipment costs - \$14,690,000

- Seating - \$330,000

Total LED cost - \$38,297,000

Projection Screen

- Building shell and fit out - \$22,452,000

- Equipment costs - \$5,410,000

- Seating - \$330,000

Total LED cost - \$28,192,000

INSPIRATION

Shanghai Astronomy Museum Planetarium

<https://www.ennead.com/work/shanghai-astronomy-museum>

Hayden Planetarium

https://www.yelp.ca/biz_photos/hayden-planetarium-new-york-2

OSC + Component no. 4:
Fabrication Facility

CONTEXT

The relocation of the Ontario Science Centre as part of the Ontario Place revitalization will require a reduction in the size of the building/square footage, requiring a rationalization of the current activities. Some aspects of the current offerings cannot be included in the functional plan and yet are core to the overall experience and should be contemplated within the relocation project.

ACTIVITY DESCRIPTION

Fabrication facility that supports the creation of exhibitions and individual experience elements for display/use at the Ontario Science Centre as well as created for external clients to support revenue generating activities that extend the OSC brand throughout the province, country and internationally.

A facility would include equipment to support the work of the various departments or 'shops' including woodshop, paint shop, and finishing shop, as well as those associated with graphic production and electronics. The facility would also require a space where exhibits can be prototyped, assembled, tested, repaired, and crated for shipping.

A loading dock is required to facilitate the transport of finished products.

RATIONALE FOR INCLUSION

Fabrication facilities currently exist at the Ontario Science Centre's Don Mills location. This is considered a shared resource for the organization to fulfil its mandate (the creation of exhibitions is included in the Act for the Centennial Centre of Science & Technology) and to support renewal and revitalization of the onsite experiences. The work supports revenue generation through sales to other science centres worldwide that include individual exhibit experiences to the creation 5000+ square foot exhibitions for permanent installation as well as exhibitions that are rented to science centres and museums in North America and beyond for time-limited periods for a rental fee.

The revenue associated with sales and rentals of exhibitions is \$2.5-3M annually (pre covid). Revenue opportunities also exist with the ability to respond to provincial and federal grants that include the creation of physical experiences. The work also supports the revenue generated through admissions to the Centre as renewed and new exhibit experiences drive attendance and membership sales.

The functional plan for the OSC@OP does not include space for fabrication. A space for this function of the OSC work is required. Ideally there is some proximity to the OP precinct, but this is not required.

APPROXIMATE SIZE AND COSTING

Infrastructure Ontario engaged CBRE to undertake a market scan for suitable industrial properties to house the fabrication facility with the following parameters:

- In the GTA within close proximity to a 400-series highway
- 24 foot clear ceilings
- Minimum 30,000 sq. ft.
- Drive-up and Dock-level doors for loading and unloading of materials and exhibits
- Long-term lease

CBRE has identified a total of 9 currently available listings in Mississauga, Vaughan, Richmond Hill, Scarborough and Toronto. They are all at minimum 1 km and at most 4 km from a 400-series highway.

Lease prices ranged from \$14 to \$23 per sq. ft. Based on these psf ranges, a 30,000 sq. ft. facility would lease for between \$420,000 to \$690,000 per year.

Excluded from the above lease costs is the fit-out cost for the fabrication facility. This would be one-time cost and will be determined at a later date dependant on the facility selected to house the fabrication facility.

EXPECTED IMPACT

Ability to have the full capabilities to conceptualize, design and fabricate exhibitions is consistent with the OSC mandate and will allow the revenue streams associated with this activity to continue. The newly established Digital department will allow for integration of new approaches to exhibition design and fabrication that is expected to create a new customer base that will grow revenues.

In addition, there are opportunities to consider how a stand-alone fabrication facility can extend the impact and support the priorities of the OSC (being a hub, financial sustainability) through exploration of:

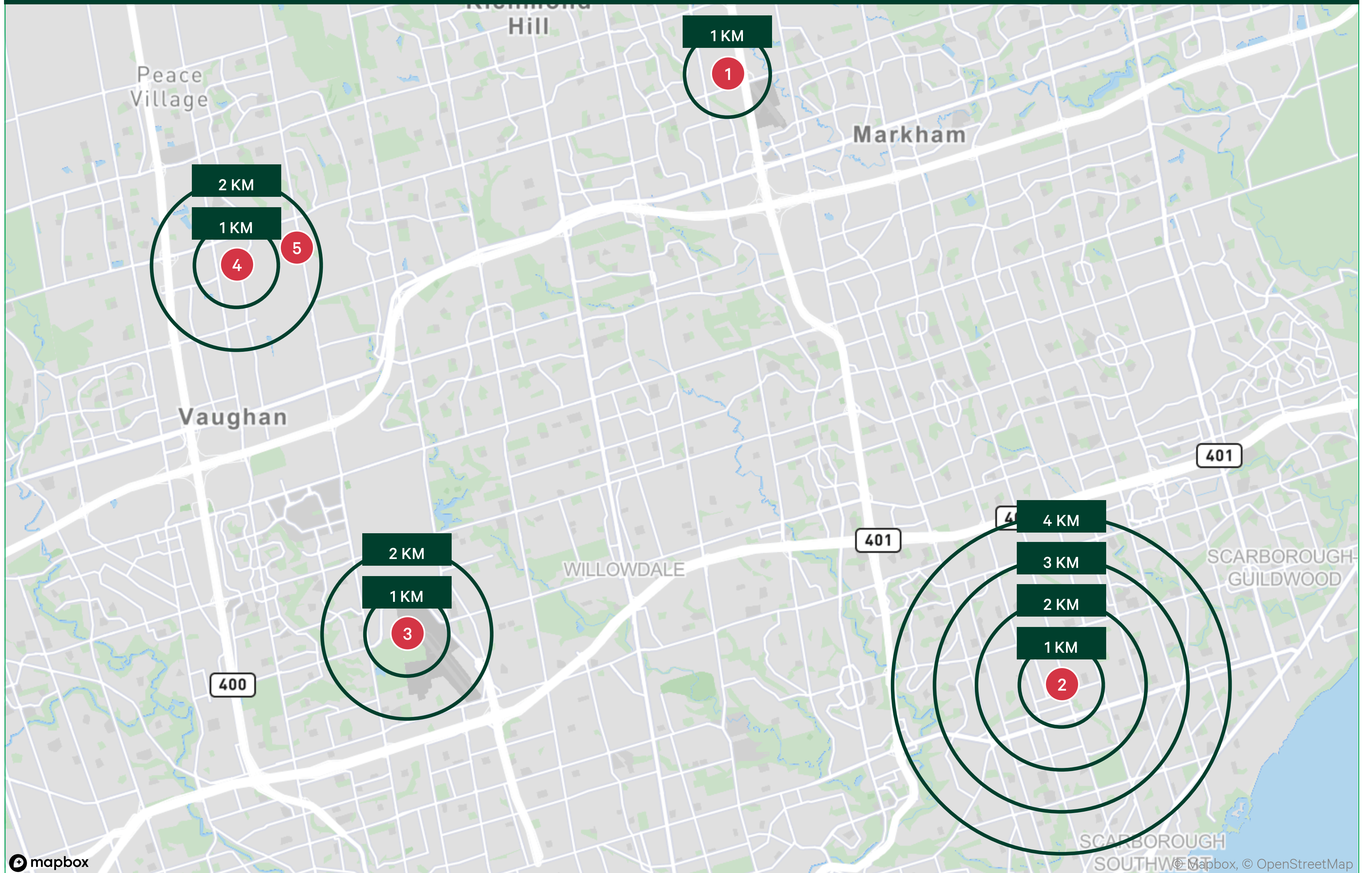
- coordination with the Ministry of Education for secondary school cooperative education placements and integration into the curriculum associated with trades.
- partnerships with post-secondary institutions for increased student experiences (access

to equipment, apprenticeship placements, etc) such as skilled trade programs at colleges such as George Brown and Seneca and art/design/technical production programs at universities such as OCADU and Toronto Metropolitan University.

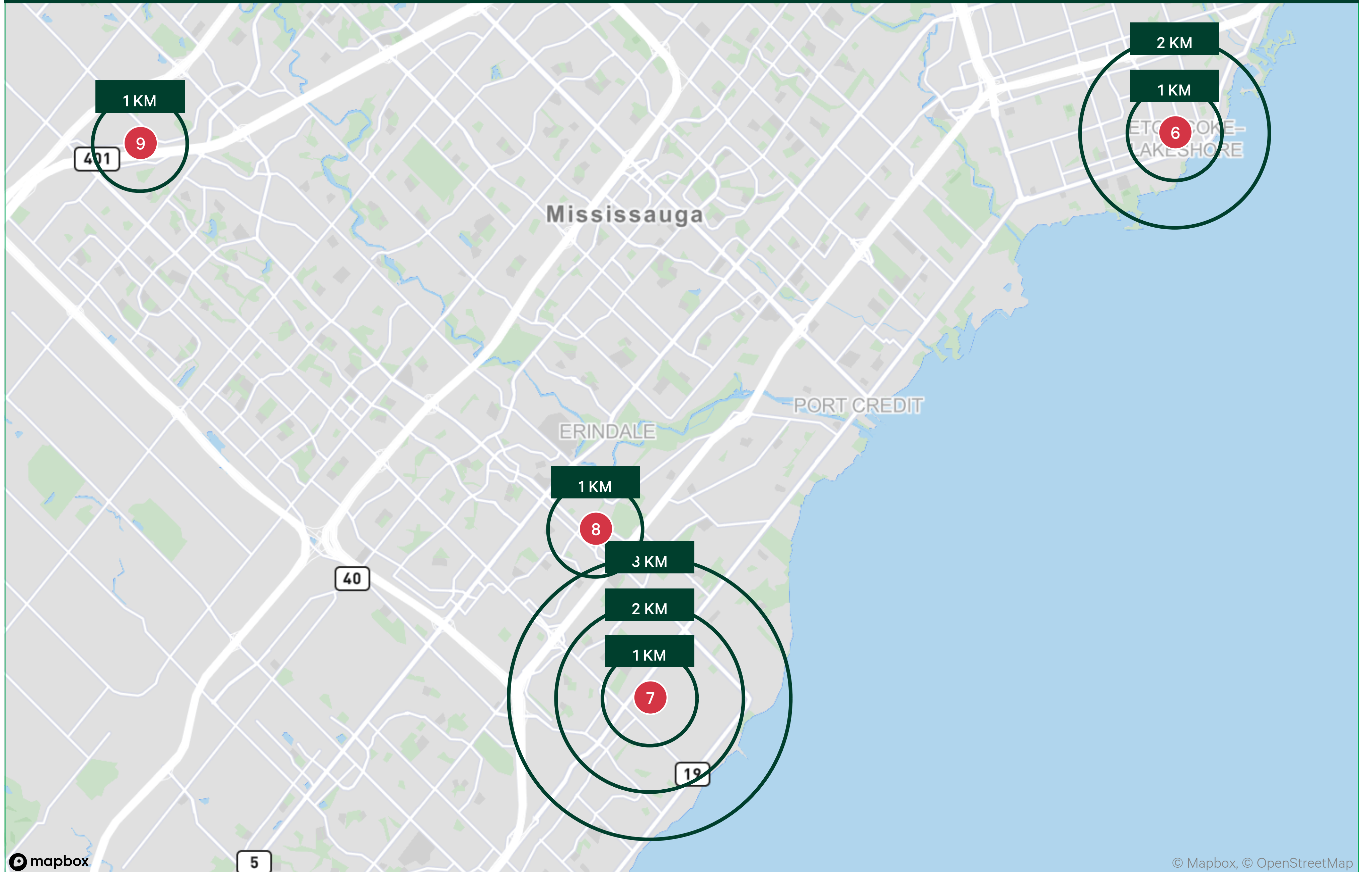
- partnership with Skilled Trades Ontario and the Ministry of Labour, Immigration, Training and Skills Development to support goals associated with career development and re-skilling of Ontarians to support economic strength

In addition to revenue associated with the above, additional revenues could be seen through provincial and federal grants as well as private organizations and foundations for whom skilled trade development is a priority.

North East



South West



Map no.	Address	City	SF	Clear Height (24'+)	Base Rent/ SF / annum	TMI / SF / annum	Truck Level Doors	Drive-In/Ground Level Doors	Availability Date	KM from Highway	Comments
North East Map											
1	50 Vogel Road, Units 6-7	Richmond Hill	32,337	24	\$17.00	\$4.42	4	1	Apr-23	1.1	CBRE Listing. Various divisible options but Landlord would prefer at least a three year deal. TTC Access. Large yard for additional car and trailer parking, CBRE Listing.
2	1120 Birchmount Road	Scarborough	220,465	35	\$14.00 - \$16.50	\$3.20	16	1	Immediate	4.8	
3	Downsview Airport	Toronto	Multiple 90,000 SF hangars side by side	90	\$18.00-\$20.00	\$4.75 (est.)	N/A	Ground Level	Immediate	3.8	Multiple airplane hangars available for lease. Can be modified as required to support the required size. No structural columns within the hangars. Transit access. No TMI is current available so estimate included.
4	51 Graniteridge Road	Vaughan	33,638	24	\$18.00 + escalations	\$4.85	4	1	Jun-23	2.2	Close to public transportation routes.
5	4030 Keele Street	Vaughan	31,000	24	\$22.74 (Gross)	N/A	4	2	01-Aug-23	4	Amp electricity can be increase.
South West Map											
6	60 Birmingham Street, Bld 1	Toronto	157,710	36	\$20.00-\$22.00	\$4.50	32	2	Q2 2023	2.4	Q2 2023 construction complete. Various divisible options. Excellent connection to Mississauga Transit & Go Station.
7	2520 Royal Windsor Drive	Mississauga	132,988	36	\$18.00 + escalations	\$3.85	28	3	Immediate	2.5	
8	2225 Erin Mills Parkway	Mississauga	30,311	24	\$19.00	\$4.00	2		Immediate	1	Possibility to add a drive-in door and office space. CBRE Listing.
9	2475 Meadowpine Boulevard	Mississauga	132,719	36	\$18.00 + escalations	\$3.75	25	2	Immediate	1.7	Various divisible options. Central to public transportation routes and two go stations. CBRE Listing.

Appendix Q
Interim Operating Estimates

Confidential and Privileged Advice to Government

Policy Objective:
Maintain an in-person OSC service offering, while scaling back programming/operating costs. Expedite decant from existing site.

Pros:

- Maintain an in-person OSC service offering, while scaling back programming/operating costs.
- Expedites decant from existing site to reduce risk.
- Provides sufficient time to either identify/lease space and complete fit-up or complete virtual fit-up and prepare pop ups.
- Allows sufficient time for staffing reductions resulting in surplussing.
- Interim operations could be leveraged as a communications and marketing opportunity to build anticipation for a new facility

Cons:

- Strategy accepts operational, health & safety risks by the program.
- Occupancy of existing site must terminate by March 31 2025.
- A reduction in programming or closure would likely result in negative stakeholder and public reaction

Option 1A: Decant to Alternate Space

	2022/23	2023/24	2024/25	2025/26	2026-27	2027-28	TOTAL
Capital	\$2.3M	\$1.5M					\$3.8M
Fit-up				\$11-22M			\$11-22M
Lease				\$2-5M	\$2-5M	\$2-5M	\$6-15M
Revenue Loss				\$7-8M	\$7-8M	\$7-8M	\$21-24M
Decommissioning					\$20-24M		\$20-24M
Operating Savings/Pressure	\$3.9M	\$5.6M	\$2M	-\$13-14M	-\$13-14M	-\$13-14M	-\$27.5-30.5M
TOTAL COST TO GOVERNEMENT							\$34.3-58.3M