451 Smyth Road
Ottawa, ON K1H 8M5

Urban Design Brief

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Prepared by Parkin Architects Limited

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1. Introduction

1.1 Project Overview

This design brief aims to outline the design considerations for a new Advanced Medical Research Facility (AMRC) at the University of Ottawa. This new academic research facility will provide state of the art laboratory and office facilities, solidifying the University's status as a national and international centre of excellence for medical research. The AMRC will be located at the north-west corner of the 451 Smyth Road site, adjacent to the existing Roger Guindon Hall (RGN) and south of the Ring Road.

The project has been designed with the new City of Ottawa Official Plan (OP) policies in mind, as well as the requirements of the City's Zoning By-law and of University of Ottawa. As per a virtual meeting with the City that took place on September 14, 2023, the development is categorized as a High Economic Impact Project.

The project is located on the north portion of the University of Ottawa campus. It provides on-site vehicular parking as well as bicycle parking (both covered and exposed), and connections to an existing bike path and pedestrian walkways are envisioned. The project will be serviced by internal University of Ottawa shuttles as well as City buses. Additionally, the proposed site plan will feature an expanded service court to accommodate the needs of both RGN and the new AMRC.

The project aims to bolster the University of Ottawa's standing in the medical research community, providing expanded and cutting-edge facilities for the ACVS that currently takes place in the RGN, as well as ample laboratory and office space for both University of Ottawa programs and external tenants. The proposed building features approximately 2,573 m2 of designated ACVS space, 6,940 m2 of laboratory space (including shell space), 3,700 m2 of office space, and a 483 m2 atrium that spans floors 2 through 6 and acts as the collective heart of the building. A service connection on the ground floor and a pedestrian connection on the second floor ensure that the AMRC integrates seamlessly with the existing RGN.

The following design brief outlines how the proposed project will meet the requirements of the City of Ottawa.

1.2 Project Statistics

The primary uses of the AMRC include teaching laboratories, ACVS, and office spaces.

ACVS is located on the ground floor as it connects to existing ACVS in RGN. Additionally, its placement on the ground floor allows for a more secure zone, since ACVS has limited access to public. The new ACVS program in AMRC is required to function independently during future RGN renovations. ACVS's design also foresees minor renovations to RGN to accommodate additional program requirements. Building services that require access to ACVS, such as Shipping and Receiving (S/R), are located on the ground floor and connected to RGN's S/R area.

The upper levels are dedicated to labs and their support spaces. Amenities and Public Spaces are located at L2 and extend outwards to include a rooftop patio above the SW canopy, which is accessible; a connection to RGN is also provided on the same level. The atrium and innovation hub on Level 2 creates a dynamic gathering space that showcases contemporary research and innovation practices taking place at uO. The atrium extends vertically through floors 2 to 6, and transparency is maintained between the two towers. Open collaboration spaces and meeting rooms are provided throughout floors 2 to 6, fostering the exchange of ideas between all building users. Level 3 to 6 are shell spaces for future labs and support spaces. The tables below and to the right provide statistics related to general building characteristics, uses per floor and respective gross area, and vehicular and bicycle parking spots available.

General Characteristics:

Information	**Result**
Building Height	39.1 m
Storeys Above Grade	6
Storeys Below Grade	1
Building GFA (City of Ottawa Definition)	13,726.17 m2
Building GFA (OBC Definition)	29,548.91 m2
Site Area (451 Smyth Rd. Site)	204834.211 m2
GFA (City of Ottawa Def.) of existing + proposed buildings on site (451 Smyth Rd. Site)	141,749.17 m2
FSI	0.69

Total Gross Floor Area (GFA) by AMRC per level:

Level	Use	Area (sq. m)
B1	Storage, Building Operation and Services	1,567.93
1	ACVS, Entrances	5,839.45
2	FOM Research, Core Facilities, Innovation Hub (Shell), Atrium	4,272.42
3	FOM Research, Core Facilities, Innovation Hub (Shell)	3,566.92
4	Lab (Shell)	3,566.51
5	Lab (Shell)	3,575.10
6	Lab (Shell)	3,584.28
7	Building Operation and Services	3,576.31
	Total	**29,548.91**
	Link to RGN	72.32
	Roof	4,139.17

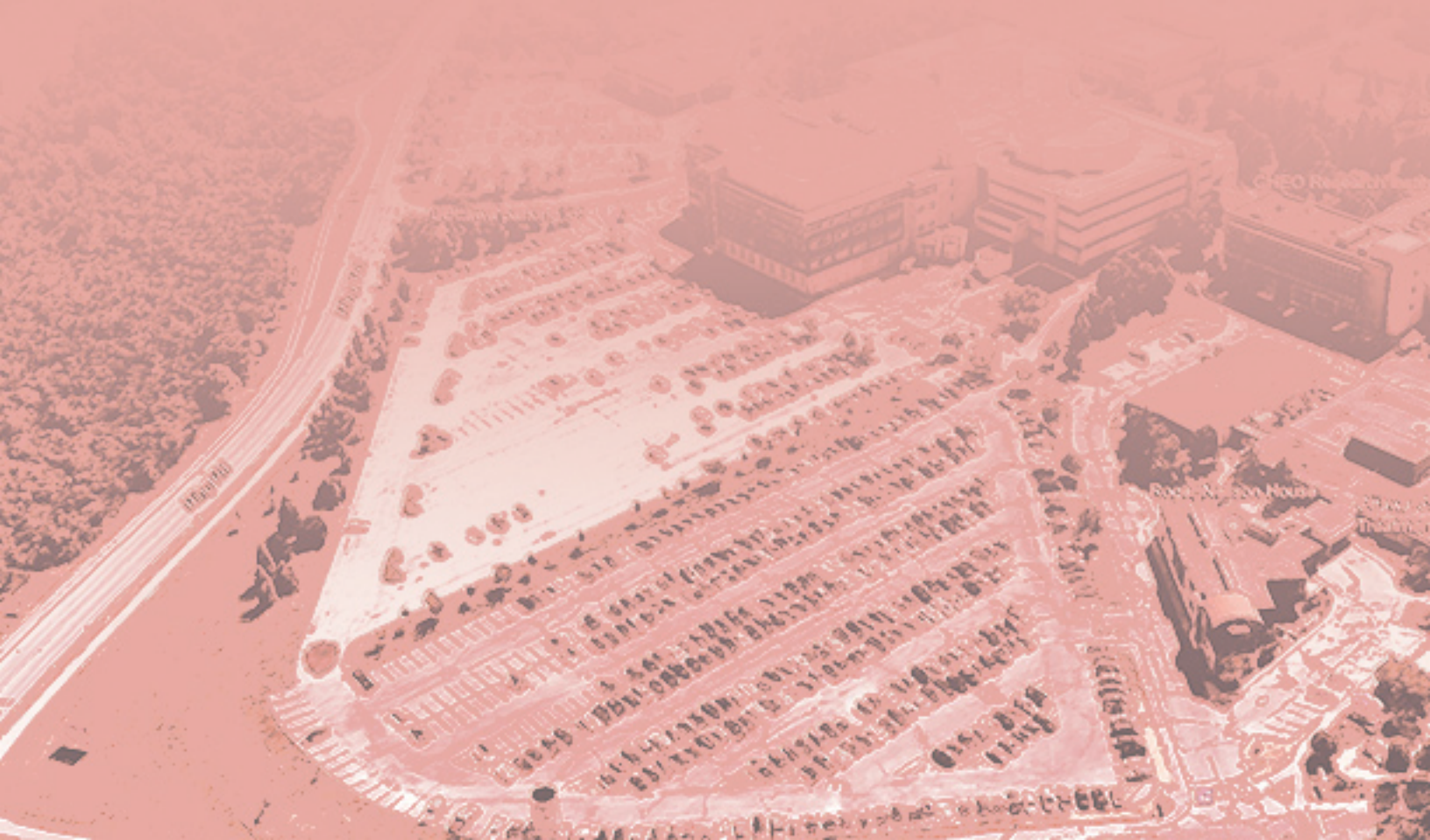
Vehicular Parking Spots:

Existing Spots	**Lot Name**	**Staff Spots**	**Visitor Spots**	
	TOHRC	63	191	
	CCW	70	280	
	Lot H (tb demolished)	300	61	
	Main Lot	373	0	
	Garage	413	326	
	Metered Parking	0	21	
	Total by type:	*1,219*	*879*	
			Total Exist. Spots:	2,098
New Spots	**Lot Name**	**Accessible Spots**	**Staff/Visitor Spots**	**+**
	Future AMRC Lot	6	120	
			Total New Spots:	126
New + Existing Spots	**Lot Name**			**= 2,224**
	Lot H			- 361
			Total Spots:	**1863**

Bicycle Parking Spots:

Existing Spots	**Building**	**Covered**	**Uncovered**	
	RGN	0	88	
	TOH	283	126	
	Total by type:	*283*	*214*	
			Total Exist. Spots:	497
New Spots	**Lot Name**	**Covered**	**Uncovered**	**+**
	Future AMRC Lot	60	152	
			Total New Spots:	222
New + Existing Spots	**Lot Name**			**=**
	RGN (tb demolished)			- 20
			Total Spots:	**699**

2. Site Design



2.1 Site Context

The AMRC is situated in north-west corner of the uO property lot and the OHSC campus, including CHEO. At the southern border of the site, Smyth Road acts as the main artery for the OHSC campus; the Ring Road encircles the perimeter of the campus and provides access on the northern, eastern, and western sides. A green belt on the north of the campus provides a landscaped buffer between the campus and surrounding neighborhoods, offering views to forested areas for many of the buildings on campus.

Due to the size of the 451 Smyth Road site, an area of work has been identified within the site confines. The zoning implications of the site at large have been considered extensively, and an effort has been made to align goals for the area of work with the overall site.

The placement and orientation of the building has been optimized to facilitate access to light and to simplify integration with the existing structures on site. Due to the proposed orientation of the AMRC, ample sunlight is expected to permeate the building via the expansive atrium glazing and entrance areas, as well as clerestory windows. A two-storey connection to RGN has been developed to facilitate movement and the sharing of knowledge between the two structures.

The AMRC will act as a landmark for drivers, pedestrians, and bikers alike – particularly those along the Ring Road and future AltaVista Parkway, where the AMRC will have a significant presence on the skyline and will add visual interest to what is currently a large parking lot.

Lot Coverage: Area of Work

Lot Area

Based on survey 2022-11-22 FILE NO. 623-22, property lines for 451 Smyth Road are reflected in the diagram to the right by the borders along the N and W edges of the highlighted area. The borders to the E and S delineate the area of work within the site. The size of the area of work is 24,460.32 m2.

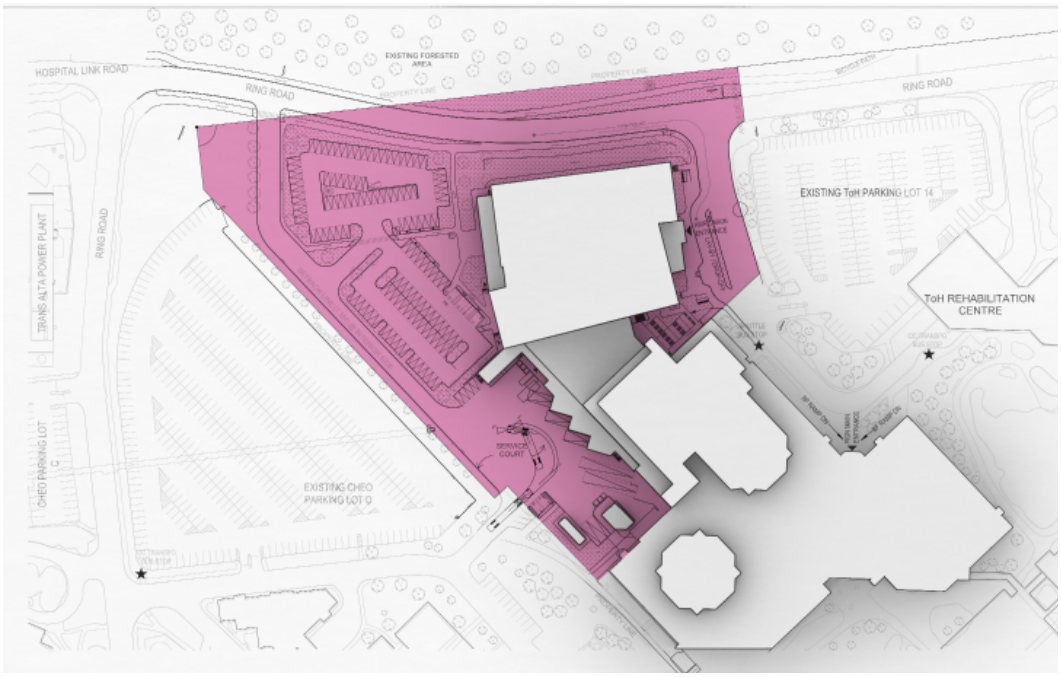


Diagram 1: Area of work

Building Footprint

The AMRC is a six storey structure with a mechanical penthouse; it features a one-storey connection to RGN with a second-storey connecting corridor above. Additionally, it features three new loading docks in the service area, as well as a hazardous waste area and an accessory generator structure.

The GFA of the AMRC, as per the City of Ottawa's definition of Gross Floor Area, is 13,726.17 m2.

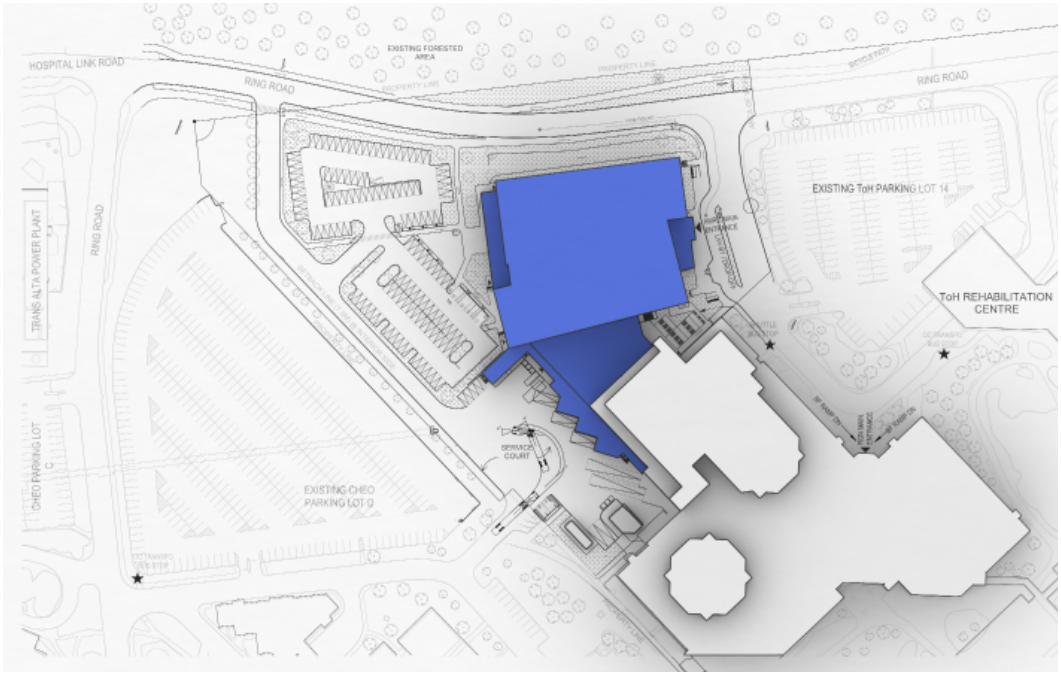


Diagram 2: Building Footprint (incl. canopies)

Vegetated Area

The percentage of area that is vegetated within the area of work amounts to 5502.69 m2. Given that the area of work is 24,078.02 m2, the percetage of vegetated area is 22.8%.

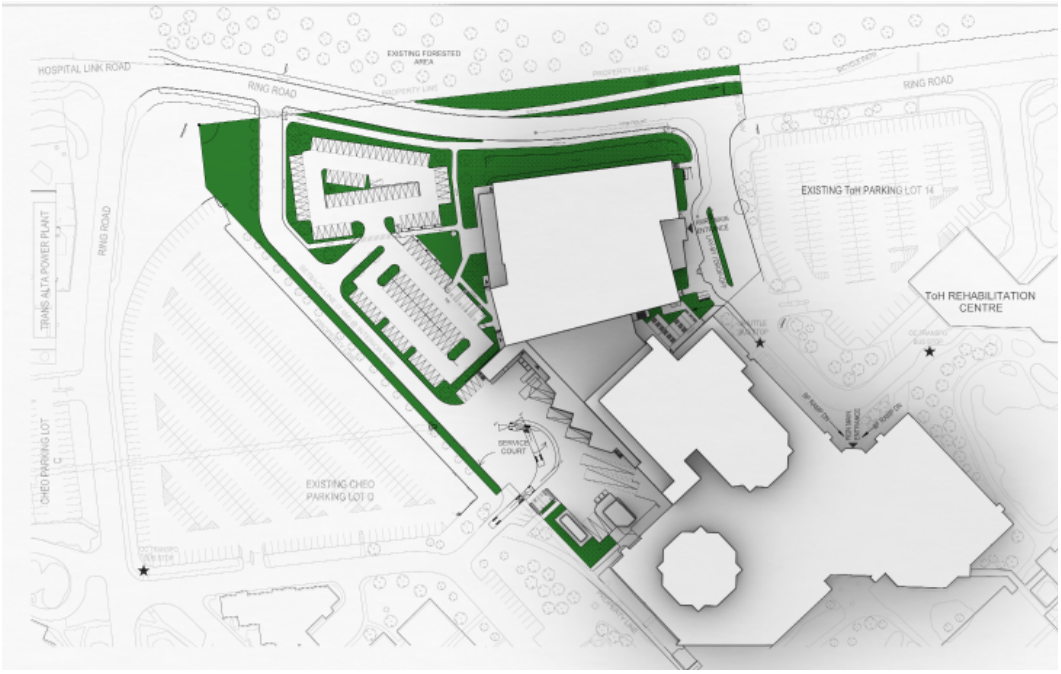


Diagram 3: Landscaped Area

Lot Coverage: 451 Smyth Road

Lot Area

Based on survey 2018-07-10 REF. NO. 101 - 15 (JG) GR, property lines for 451 Smyth Road are reflected in the diagram to the right. The area of the site is 204,834.211 m2.

Diagram 1: Site area

Floor Space Index (FSI)

The total Gross Floor Area of the existing RGN (27,387 m2) and new AMRC (13,726.17 m2) have been added to the sum of all other existing buildings on site (Oasis, Ottawa Hospital), multiplied by a factor of 0.8 to account for circulation space, M&E, and other areas exempt as per the City of Ottawa definition:

FSI = [(13,726.17 + 27,387 + (809.9 x 0.8) + (124,985 x 0.8))/204,834.211] = 0.69

Therefore, the proposed Floor Space Index (FSI) is 0.69 - less than the 1.5 FSI maximum.

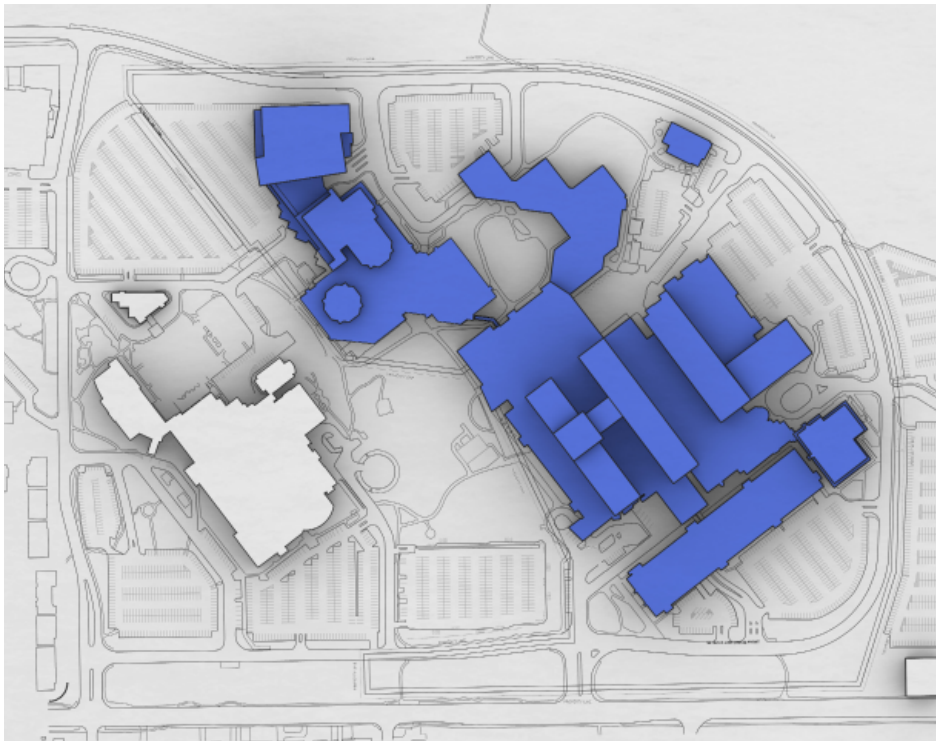


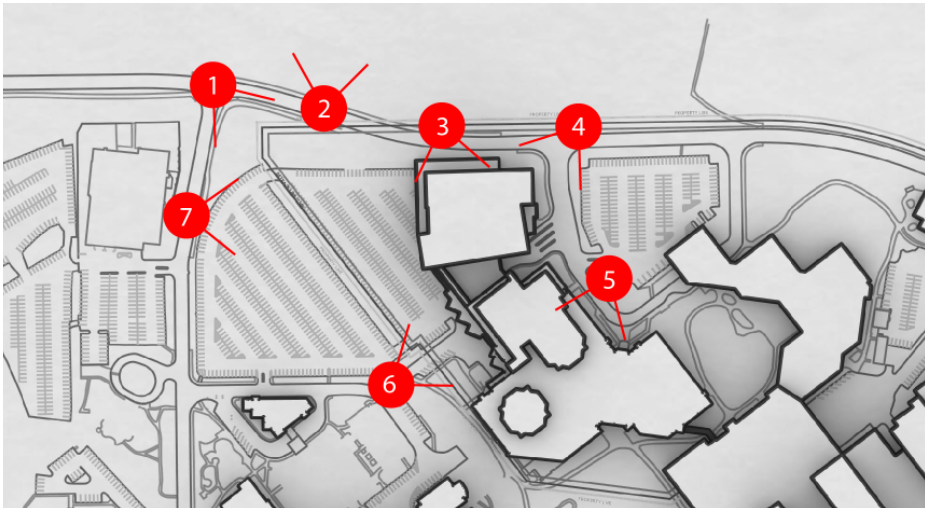
Diagram 2: Footprint of all buildings on site

Vegetated Area

The percentage of area that is vegetated within the site amounts to 50,036 m2. Given that site has an area of 204,834.211 m2, the percetage of vegetated area is 24%.

Diagram 3: Landscaped Area on site

Existing Site Context: Area of Work



1. View of NW corner of site from Ring Road

2. View of greenery N of the site

3. View of N face of RGN from Ring Road

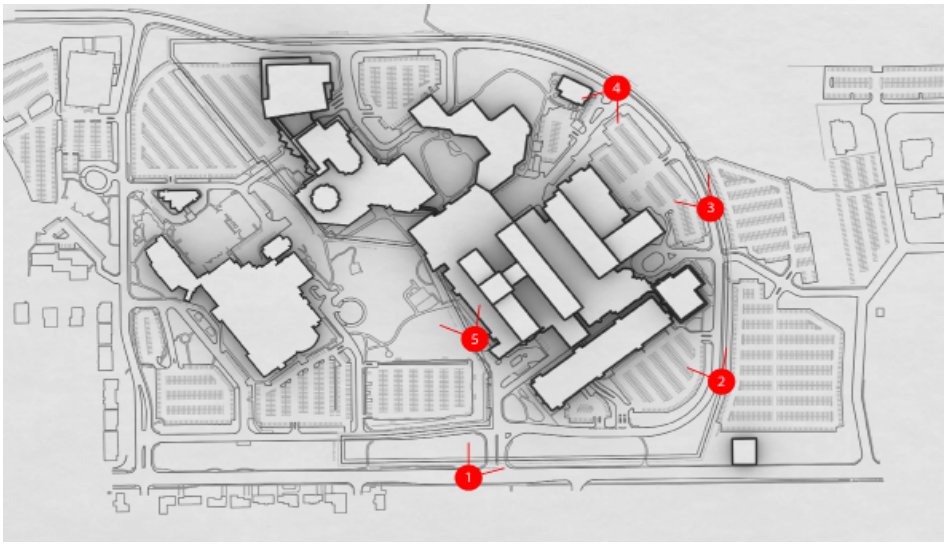
4. View of NE corner of site from Ring Road

5. View of SE corner of site and bus stop

6. View of SW corner of site from access road

7. View of SW corner of site from access road

Existing Site Context: 451 Smyth Road



1. View of entrance along Smyth Rd. (S site boundary)

2. View of Ottawa Hospital from Ring Road (SE site boundary)

Existing Site Context: 451 Smyth Road

3. Greenery & bike path along Ring Road (E boundary)

4. View of entrance to Ottawa Hospital Rehab Centre (NE site boundary)

5. View along W site boundary (Ottawa Hospital Admin + Admitting to the right)

Existing Site Features

Surrounding Site Elements

The future AMRC is located within a university campus that includes a hospital, and therefore the site already acts as a local landmark. To the north of the site, a dense grove separates the campus from a school, park and a residential neighborhood. To the east, south, and west, hospital (CHEO, TOH, TOHRC), academic (RGN, Oasis), and service (TransAlta) buildings along with their respective parking lots surround the area of work. Local natural features include the CHEO butterfly garden and central campus green space to the south of the area of work. Primary access points exist on the north and south sides of the site, with helicopter access points provided for various hospital facilities.

Surrounding Site Characteristics

The area of work is surrounded by the Ring Road on the north and west sides: it is a 2-lane road with a maximum speed of 40 km/hr. The road encircles the perimeter of the campus and provides access to various buildings on site - therefore, it functions more as a campus access corridor than a through street.

Adjacent Properties

Adjacent properties include Roger Guindon Hall (RGN) and The Ottawa Hospital (TOH) to the south, The Children's Hospital of Eastern Ontario (CHEO) and the TransAlta OHSC Cogen Plant to the west, and The Ottawa Hospital Rehabilitation Centre (TOHRC) and Oasis Childcare Centre (Oasis) to the east. TOH, CHEO, and TOHRC function as hospital buildings, whereas RGN and Oasis function as institutional/academic buildings.

Future & Current Developments

Numerous future developments are expected to take place within the campus over the coming years. The current long term vision of the campus foresees that the existing CHEO building will be demolished and replaced by a new children's hospital, a new academic building will be developed, and a 1Door4Care facility is currently under development. The Ottawa Hospital will be renovated and will expand into the area currently occupied by TOHRC, which will be demolished following decommissioning of the program. Additionally, a centralized future greenspace will act as a focal point of the campus.

Pedestrian views

View of west face from parking lot

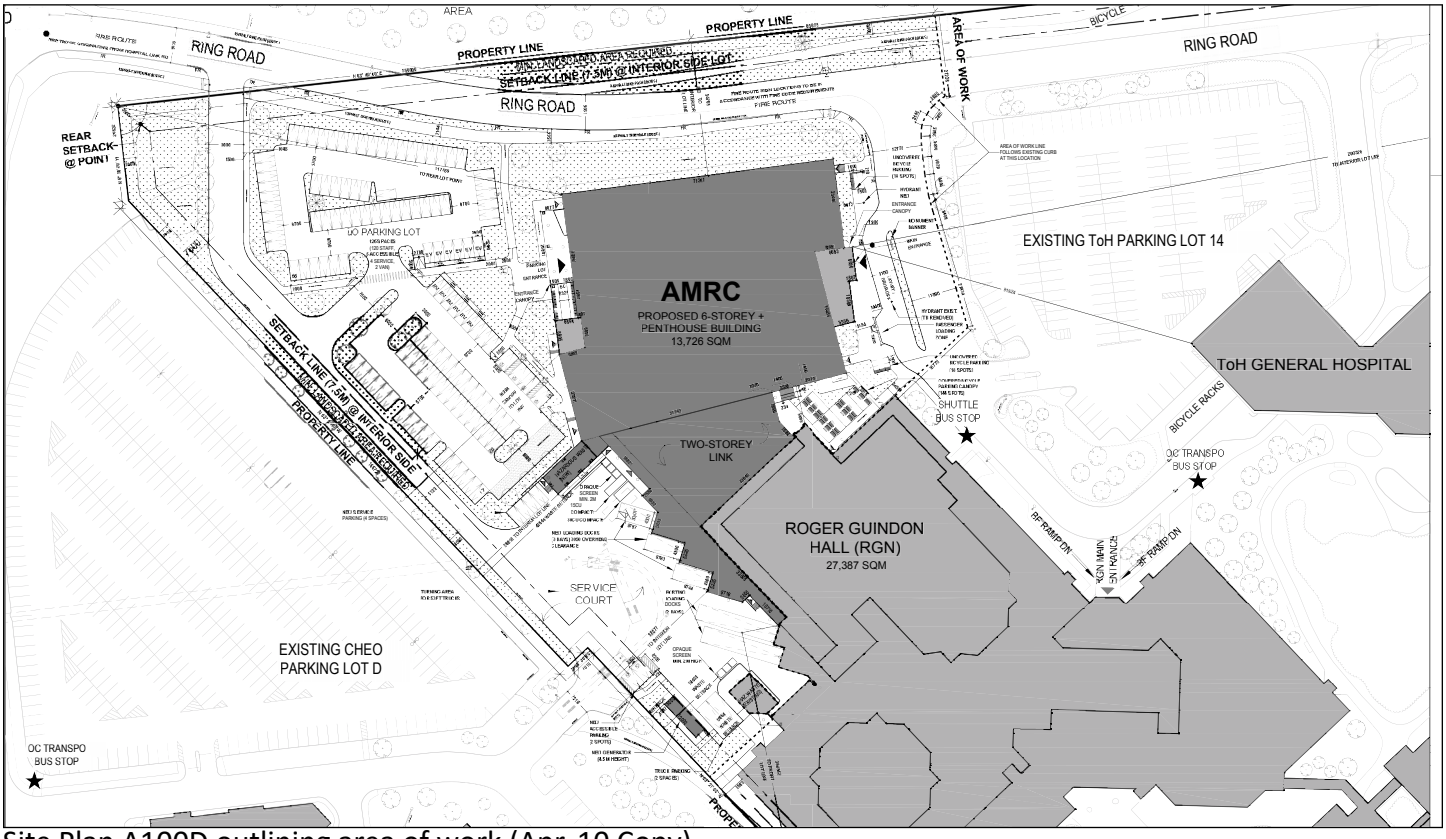
View of NW corner from Ring Road

2.2 Site Design

The site plan has been developed with consideration for many environmental, social, and physical factors such as available circulation and transport paths, integration with other buildings on site, existing natural site features, and zoning requirements. These elements have been carefully weighed to generate a site plan that provides a pleasant user experience, while meeting local and provincial regulations.

During the design, multiple challenges arose that required a careful balancing of various seemingly conflicting elements. Due to the limited area available, the challenge of meeting landscaped area requirements while also providing the required vehicular parking count resulted in multiple re-designs and continued collaboration with relevant contributors. Ultimately a site strategy was devised that met both of these requirements. Another challenge was posed by the Shipping and Receiving area; to streamline S/R operations, the existing RGN S/R area dictated the location of the new AMRC S/R area. However, this also created a limitation due to the compact area of RGN's service court in proportion to the equipment and features required for AMRC, as well as the encroaching visitor/staff parking requirements. Ultimately a solution was developed that compressed all of the required elements within the service court.

Two focal entrances, located on the North-East and South-West faces of the building, provide convenient access for users reaching the site from both directions. The North-East entrance is intended as a drop off area, and features connections to pedestrian, bicycle, and public transportation networks. The South-West entrance is intended as an access point for visitors and staff arriving by car, however it is also accessible by pedestrian and bicycle users and provides ample covered bicycle parking nearby.



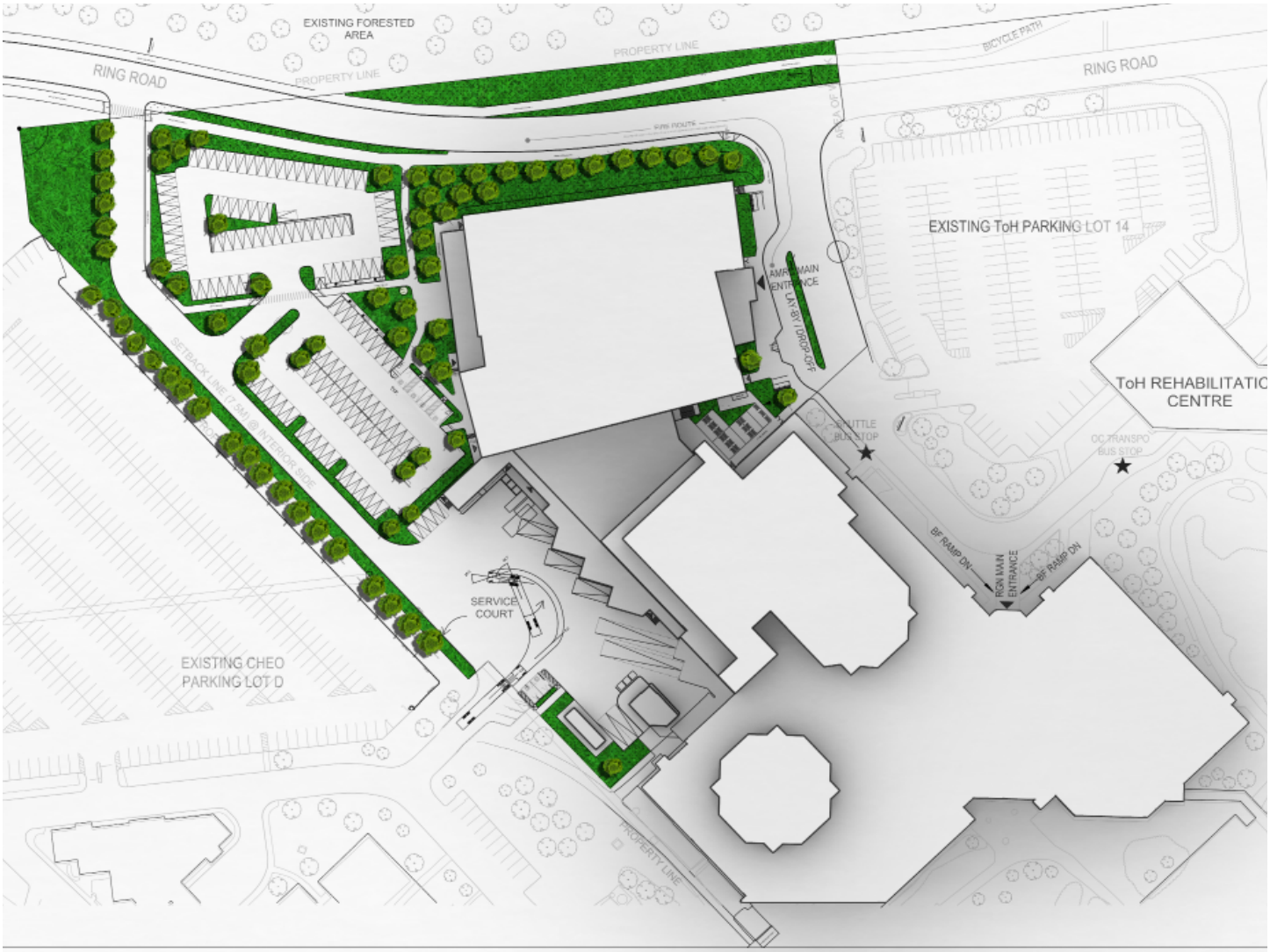
Site Plan A100D outlining area of work (Apr. 10 Copy)

Landscape Design

The landscape plan below outlines the areas of green space on the site, as well as proposed locations for trees and shrubs within the area of work. Due to the significant amount of work that will be required to transform the site from its current use as a parking lot into the intended use below, unfortunately no trees within the area of work will be able to be saved. Therefore, all of the trees and shrubs highlighted below will be new.

An effort has been made to use landscaping adorn the areas closest to pedestrian and bicycle pathways, as well as highly frequented areas close to the building itself. Additionally, landscaping will be used as a separation between certain areas of the site, both for privacy and aesthetic concerns (e.g. the trees that act as a separation between the service court and the visitor/staff parking lot).

The anticipated landscaped area within the area of work is 22.8%: this meets the zoning requirement of 15%.



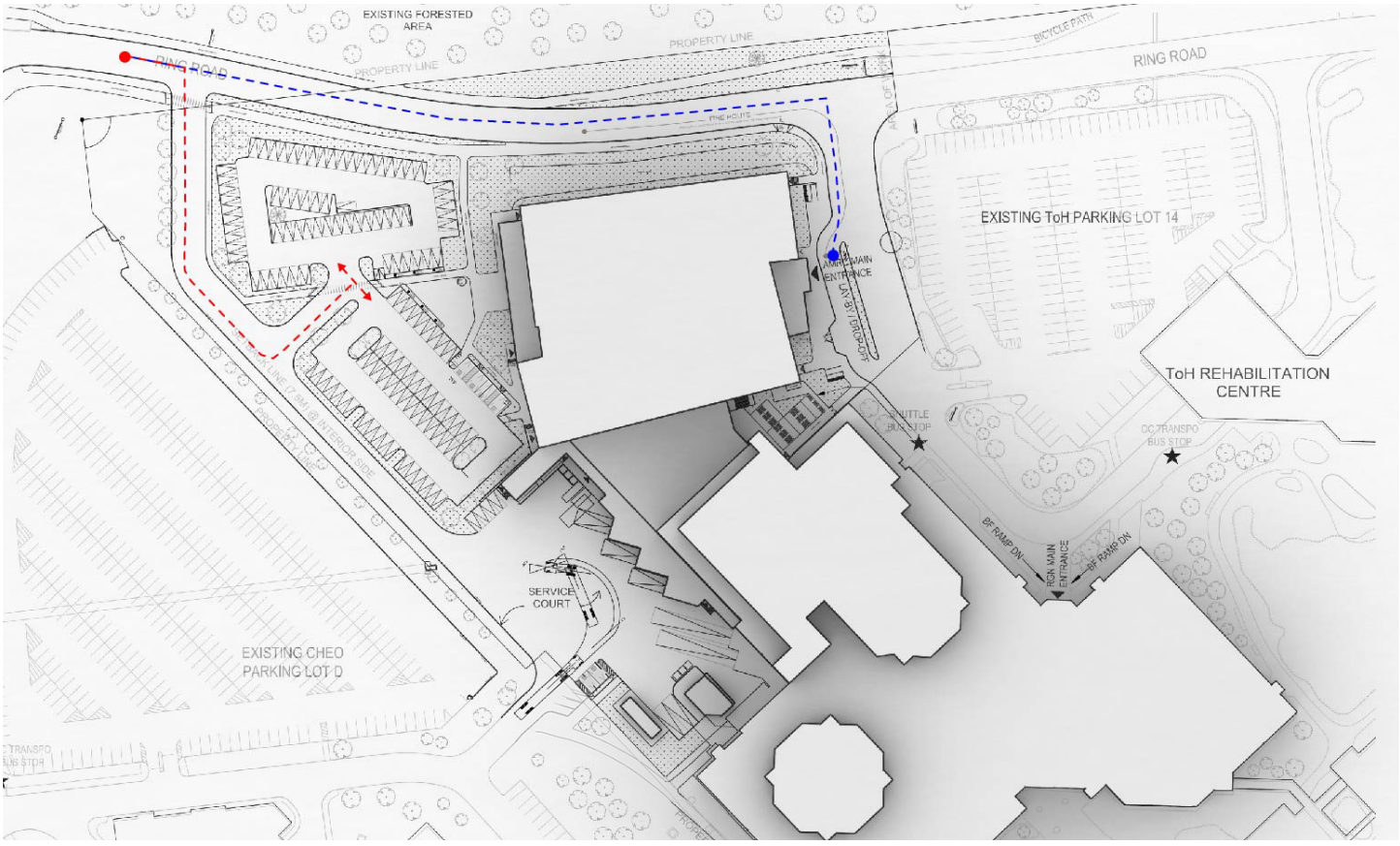
Landscape plan outlining green space and tree/shrub locations within area of work

2.3 Vehicular and Bicycle Access

Vehicular Access

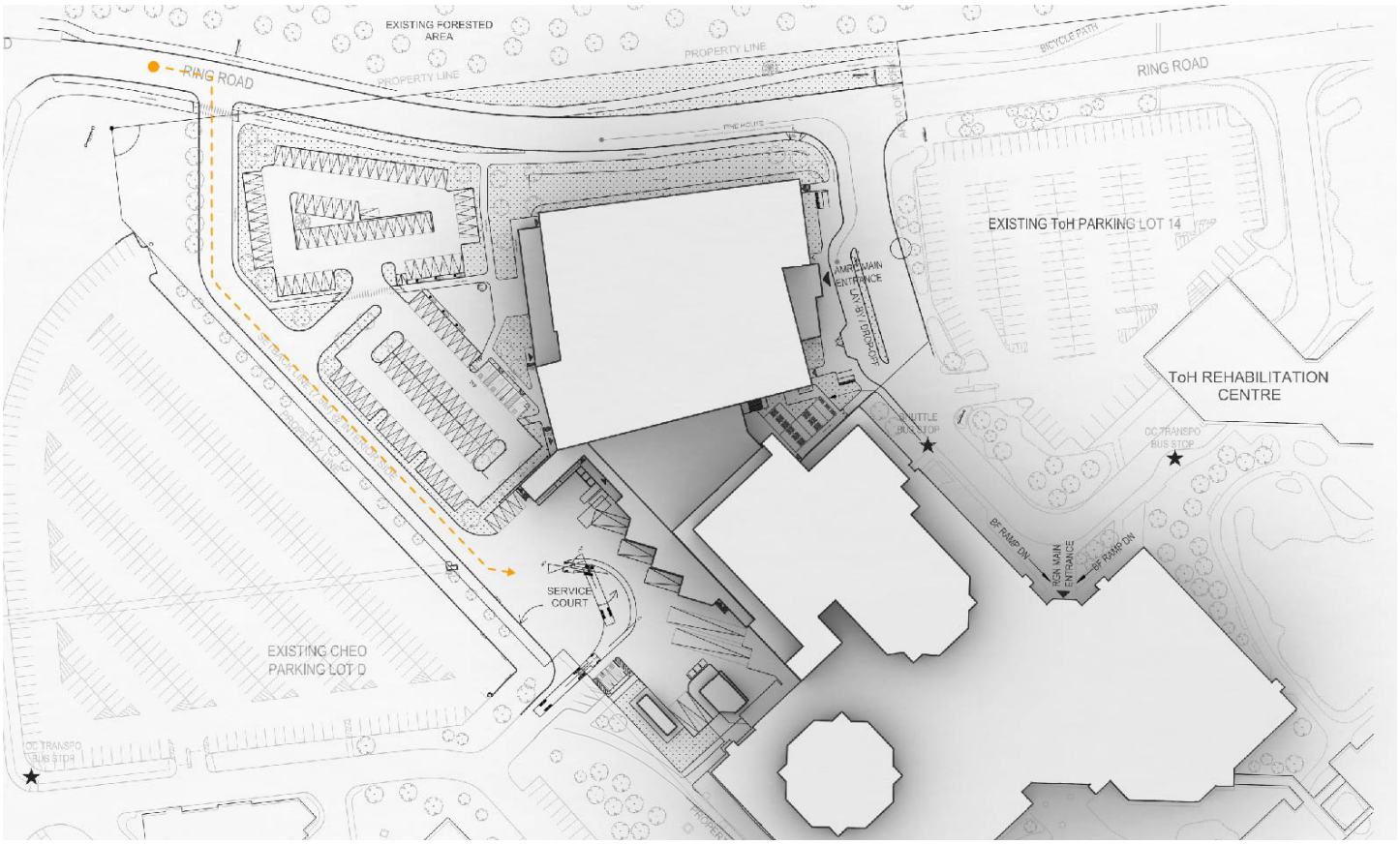
Visitor & Staff Access

An individual approaching the AMRC by car would either enter follow the Ring Road and access the drop-off area to the east of AMRC (path outlined by the blue line in the diagram below), or they would follow the Ring Road to access the visitor and staff parking lot to the west (path outlined by the red line); both entrances would be accessed off of the Ring Road and would be differentiated by signage. From the visitor and staff, an individual would then continue through the landscaped sidewalk areas to the south-west entrance, which is highlighted by a canopy. Visitors to the drop-off area would turn off of the Ring Road and immediately enter a driveway with a designated drop off bay, adjacent to the canopy-covered entryway.



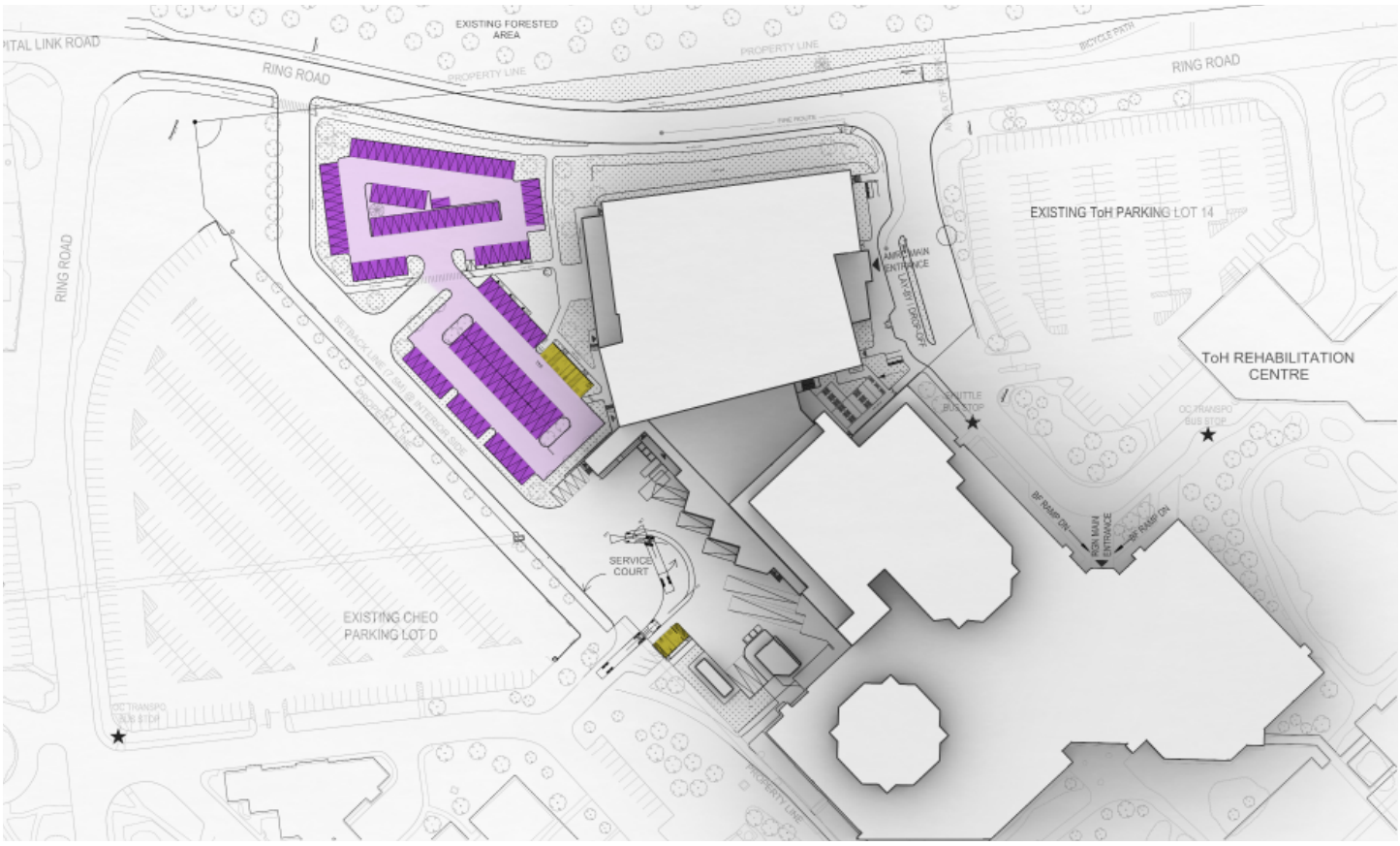
Service Access

Service and delivery vehicles would be directed by signage to continue past the visitor and staff lot, leading straight into the service court (path outlined by the orange line in the diagram below), which is adjacent to the existing RGN and CHEO S/R areas. The AMRC service court includes 3 new loading bays, a designated disposal area for animal bedding (ACVS requirement), two new compactors, one hazardous waste storage areas, and a ramp for sensitive deliveries. This amplifies the RGN's existing S/R area, which features 2 loading bays, one compactor, and one hazardous waste storage area. The loading area has been visually separated from the rest of the site as much as possible, through the orientation of the hazardous waste area, landscaping, and screens.



Vehicular Parking - Area of Work

The area of work site plan provides 126 vehicle parking spots, consisting of 120 staff spots and 6 accessible spots. Additionally there are 4 service spots and 2 van spots. In the diagram below, staff and accessible spots are highlighted in purple, whereas service spots are highlighted in yellow. The amount of spots provided exceeds the 103 spots requirement within the area of work, which was determined based on the Gross Floor Area of AMRC. Parking loads were calculated by dividing the Gross Floor Area (measured as per the City of Ottawa zoning definition) by 100, and then multiplying the result by the parking factor for post-secondary educational institutions (.75 per 100m2 of GFA). The Planning Rationale provides a break-down of various factors and calculations.

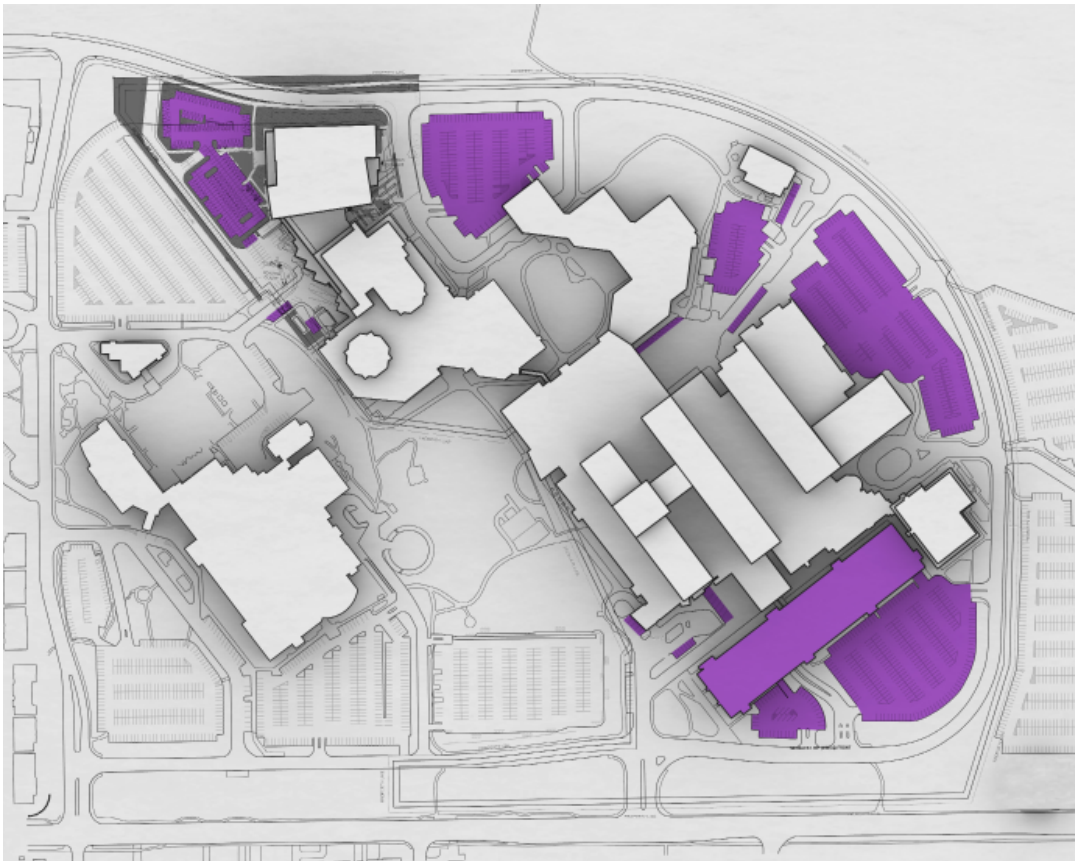


Vehicle Parking Spots within Area of Work:

Staff Spots	Accessible Spots	Service Spots	Total Spots
120	6	6	126 (132 incl. service)

Vehicular Parking - 451 Smyth Road Site

Looking beyond the area of work to the site as a whole, the new lot contributes 126 spots to the 451 Smyth site at large for a total of 1863 vehicle spots on site; this exceeds the 1720 spots required on the site. Parking loads were calculated by summing the estimated Gross Floor Area of all existing buildings on site and multiplying the total by a factor of 0.8 to exclude the approximate circulation and service area within these buildings; this number was then added to the AMRC's proposed floor area. The sum of new and existing buildings' GFA was then divided by 100 and multiplied by the City required parking rate for the various building' use. Although the AMRC's construction will eliminate the parking lot that currently exists on site and that provides 356 spots, the vehicle parking requirements for the site at large are still met. Given that additional parking is not required, the previously proposed satellite lot on the Peter Morand site is no longer being considered.



Vehicle Parking Spots within 451 Smyth Road Site:

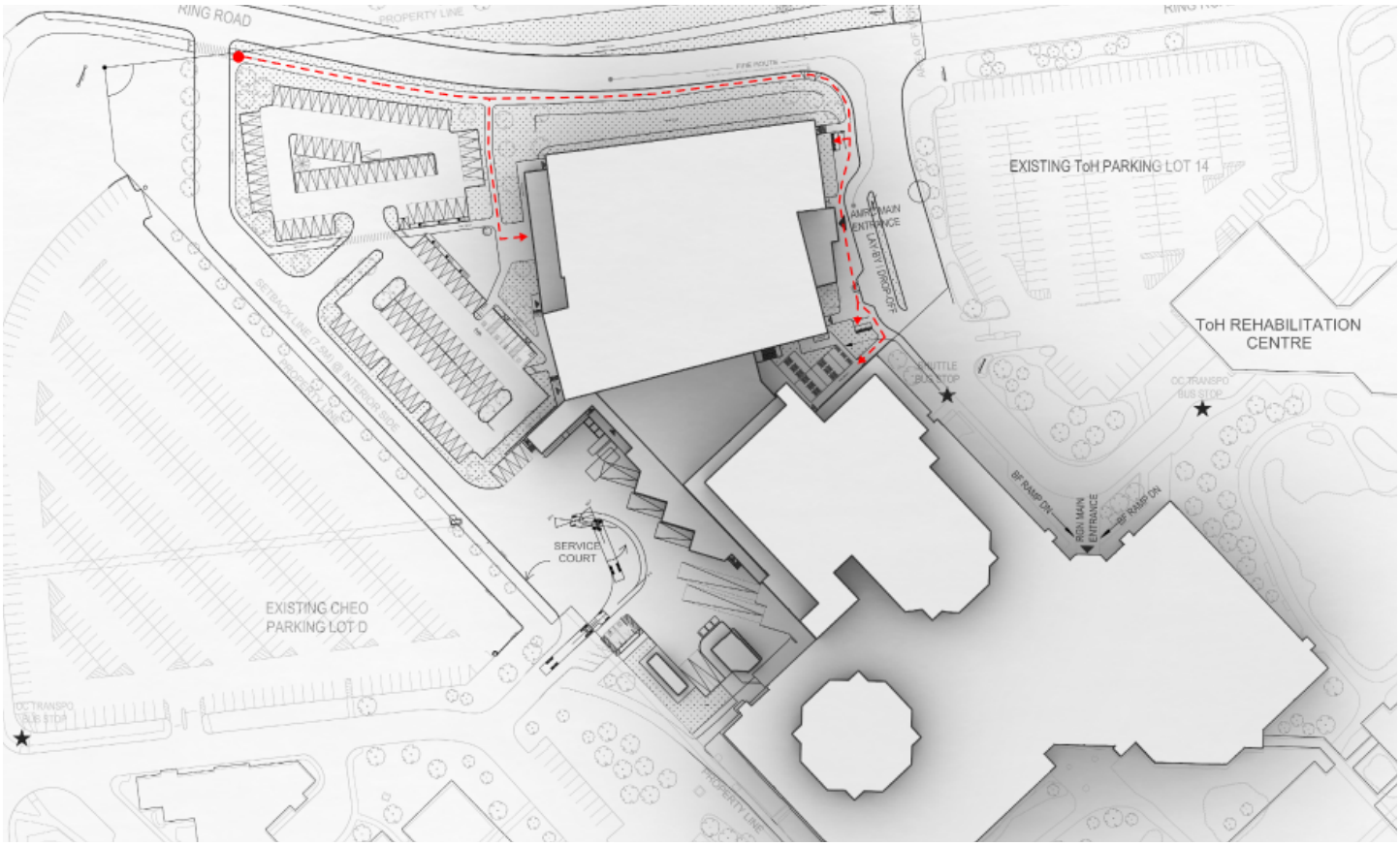
Existing Spots	New Spots (AMRC)	Spots to be eliminated	Total Spots
2098	126	361	1863

Vehicle Parking Spots by lot (new + existing):

TOHRC Lot	CCW Lot	AMRC Lot (New + Ex.)	Main Lot	Garage	Metered Parking	Total Spots
254	350	126	373	739	21	1863

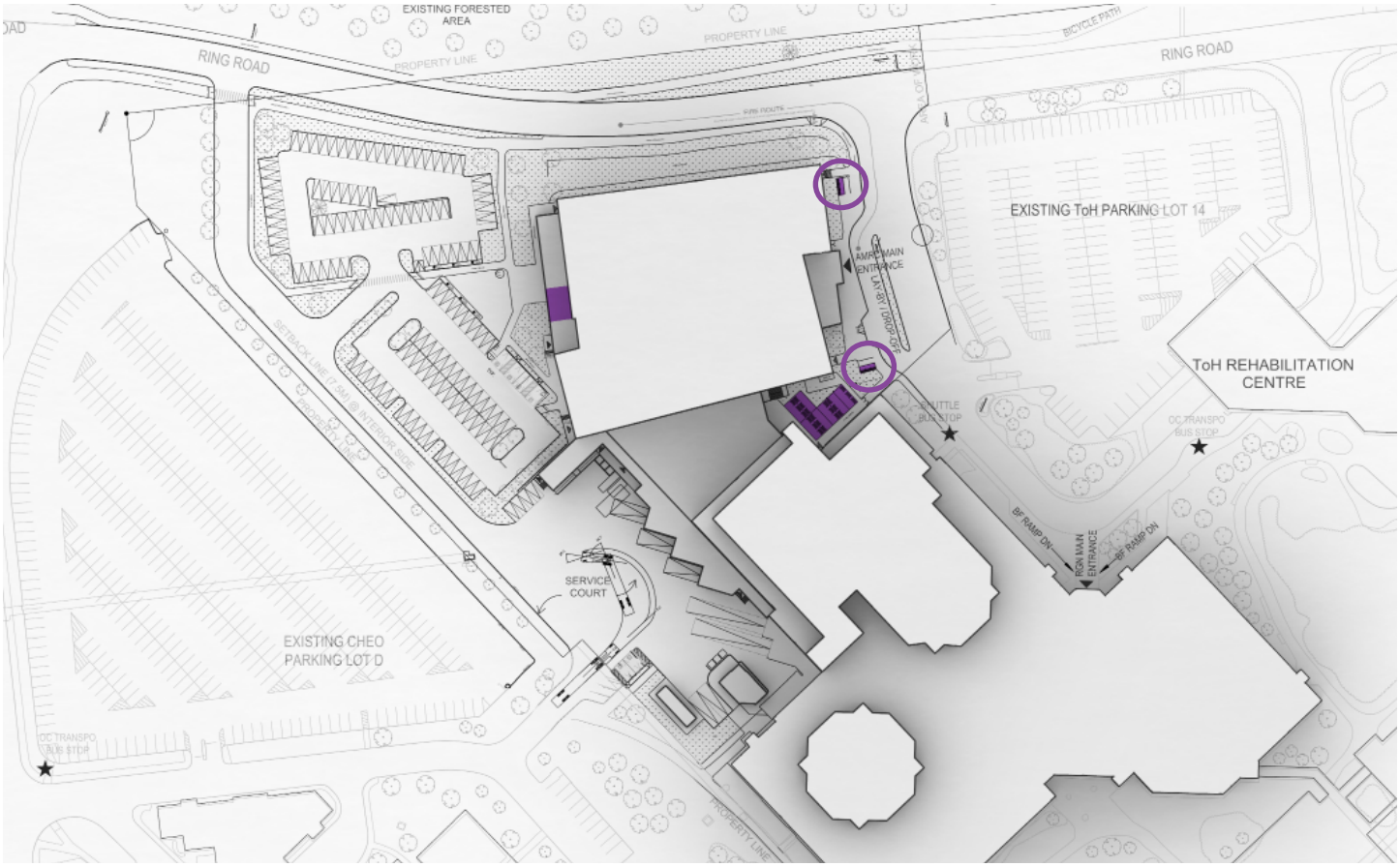
Bicycle Access

For those approaching by bicycle along the bike path to the north of the building, the cyclist would be able to observe the covered bike storage area at the north-west corner of the building from the bike path; additional bicycle parking would also be available within the landscaped areas adjacent to the NE entrance. Therefore parking is provided within view of both entrances. The path marked in red in the diagram below outlines the anticipated bicycle access trajectory:



Bicycle Parking - Area of Work

The AMRC accounts for 222 bicycle parking spots: 186 are covered spots located beneath the west canopy (highlighted in purple below) as well as between RGN and AMRC, conveniently located for access to occupants of both buildings, and 36 are uncovered spots located in landscaped areas surrounding the building (circled in purple below). Although the area of work only requires 55 bicycle spots, an effort was made to increase the amount of bicycle parking available in order to accommodate LEED requirements. By incorporating 222 spots, the site requirement of 267 spots has been met. Additionally, the LEED requirement of 53 uncovered spots and 143 covered spots for a total of 196 spots has been met. The changing and shower facilities required by LEED will be located in the RGN and areas have been selected for their future placement.



Bicycle Parking Spots within Area of Work:

Covered Parking	Uncovered Parking	Total Parking
186	36	222

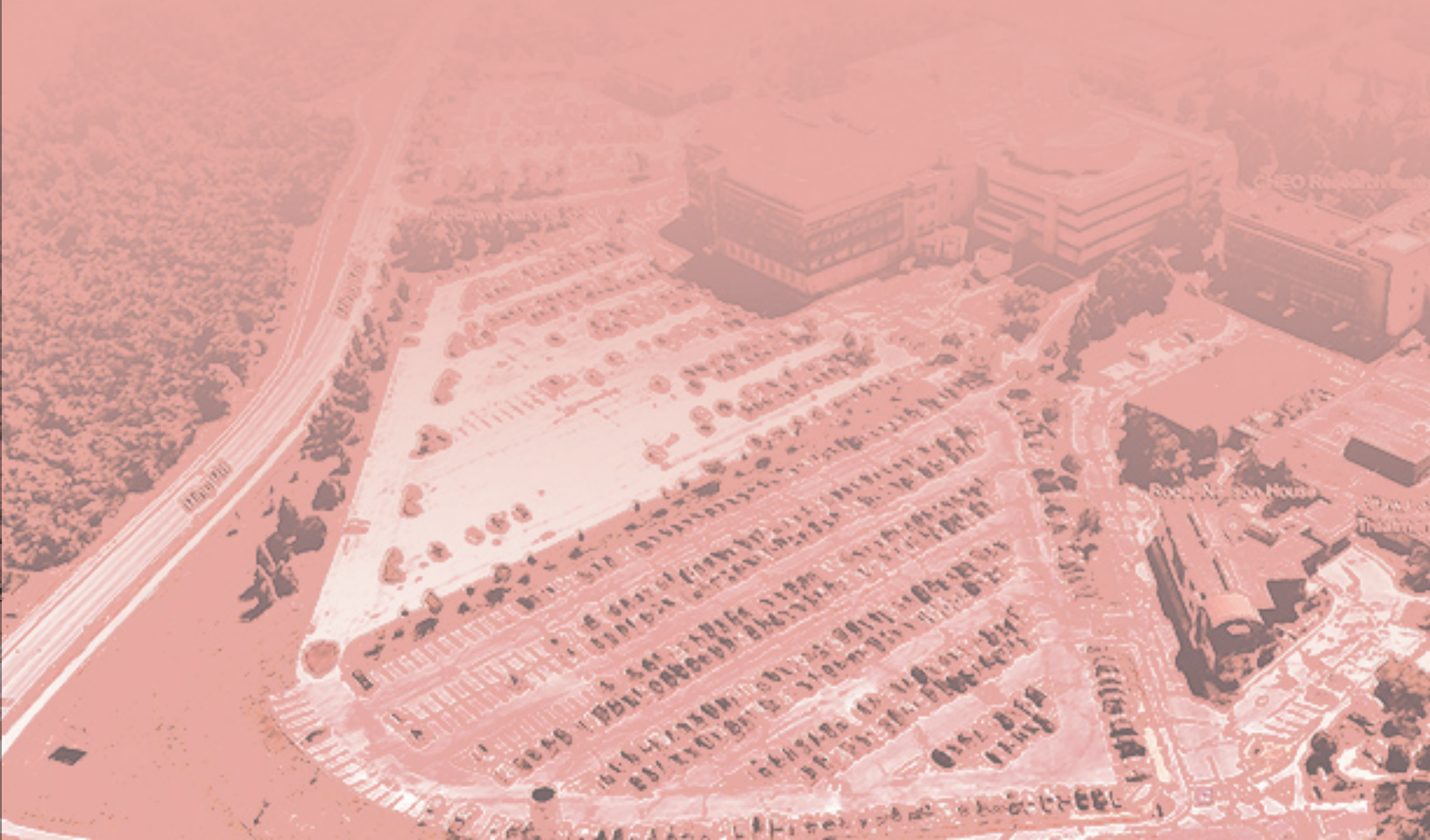
Bicycle Parking - 451 Smyth Road Site

Looking beyond the area of work to the site as a whole, the new lot contributes 222 spots to the 451 Smyth site at large for a total of 699 bicycle spots on site; this exceeds the 322 spots required on the site. Parking loads were calculated by summing the estimated Gross Floor Area of all existing buildings on site and multiplying the total by a factor of 0.8 to exclude the approximate circulation and service area within these buildings; this number was then added to the AMRC's proposed floor area. The sum of new and existing buildings' GFA was then divided by 100 and multiplied by the required parking rate for the various building' use. The ample amount of bicycle spots at AMRC and proximity to the bike path will ideally encourage building users to bike to the building rather than driving.

Bicycle Parking Spots within 451 Smyth Road Site:

Existing Spots	New Spots	Total Spots
477	222	699

3. Building Design



3.1 Design Intent

The AMRC aims to highlight uO's status as a nationally and globally recongnized centre of medical research excellence. A state of the art facility that incorporates cutting-edge equipment and design methodologies with help further uO's endeavor in achieving this goal.

The indicative design of AMRC was prepared by Dialog, and further developed by PAL during the RFP phase. PAL sought to streamline the design, analyzing the indicative design for inefficiencies, discrepancies, and potential value engineering opportunities to bring the proposal in line with the client's needs and objectives.

The design strategy aims to optimize the building's location on site, developing connections to nearby existing buildings and the campus at large. Additionally, it seeks to provide views to forested areas to the north and adequate natural illumination to all workspaces. The parti of the building is two towers connected by an atrium that spans vertically from Level 2 to 6. Research spaces connected by transparent and open collaboration spaces facilitate the penetration of light along the east and west facades.

The overall program may be broken down into three separate areas. The first is ACVS, which is located on the ground floor and is a secure zone; thus any non-ACVS user and public shall be directed to Level 2. The atrium on Level 2 is center of public space in the building. Collaboration and outdoor spaces like the accessible roof, accecssible from the atrium space, extend outwards from the atrium and are designed as rejuvenating spaces where users can take a moment to connect with nature, friends, or just relax. The atrium provides opportunity to design a culturally and socially diverse space enhancing the university experience of its users. It's also connected to RGN via a linked corridor to provide accessibility to occupants in RGN and create collision spaces for users across uO campus. Levels 2 (non-atrium space) through level 6 feature wet and dry labs, as well as meeting rooms and office space. The uppermost level is comprised of a spacious M&E penthouse that allows for future renovation and expansion opportunities.

3.2 Building Massing

The AMRC can be broadly divided into four main areas: ACVS, lab space, and the mechanical penthouse. ACVS is located on the ground floor so as to expand the RGN's existing ACVS, which is also located on the ground floor and which will be connected to the AMRC. Floors two through six feature wet and dry labs, as well as meeting rooms. Above the sixth floor, there is a mechanical penthouse that contains the equipment required to service the building. At the core of the building, spanning floors two through six, a central atrium provides light to the interior areas of program.

Diagram 1: ACVS

ACVS occupies the L1 floor - it features designated lab spaces, office areas, and animal holding areas that are accessible to designated personnel.

Diagram 2: Lab Space

Wet and dry labs occupy levels 2-6. There is also space devoted to offices and meeting rooms on these levels.

Diagram 3: Mechanical Space

L6 functions as a mechanical penthouse of the building - it is not considered a floor as per the OBC.

Diagram 4: Atrium

A central atrium spans L2-L6

Building Height Diagram

3.3 Facade + Cladding Design

The AMRC will have a prominent presence along the Ring Road and on campus: therefore, it is important that the exterior of the building complements the surrounding campus while also acting as a beacon for passerby.

A cladding strategy has been developed that features alternating cement board and metal siding sections, which creates a wrapping effect on floors 2-6. The towers and atriums are distinguished with different cladding materials outlined in the material board on page 36. At ground level, the exterior walls of the building are clad in brick, and punctuated by entrance canopies that feature angular combinations of ACP, brick, and metal grate. Feature elements of fritted glass at the SW entrance highlight the entrance and draw the eye towards the door (the pattern displayed below is illustrative and is expected to change).

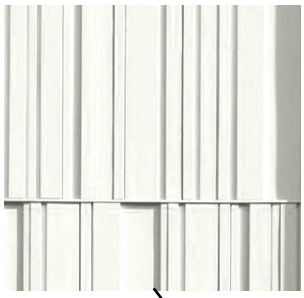
The visual progression from north to south, beginning with grey of the cement board and passing through the darkness of the atrium paneling into the light of the white siding, parallel the concept of the scientific method and the noble goals of medical research. Additionally, the variation in siding profiles and the sharp contrast of the shadows that they cast communicate a pattern similar to a DNA sequence. The monochromatic color palette further serves to emphasize this correlation.

Glazing has been carefully applied to meet energy targets while also providing sufficient natural light for building users. Due to the ground floor's housing of ACVS, windows are generally not present at the ground level, as the sunlight would disrupt the test animals. An exception to this exists along the NE corner of the ground floor, where a handful of windows provide light to offices. At the upper levels, standardized windows provide light to labs and meeting rooms, and a central atrium is illuminated by both a light well and a concentration of windows along the middle of the east and west facades.

Initially a red accent color was selected to complement uO's colors, and to create a sense of continuity between the indicative design and the design prepared by PAL. However, due to fading concerns and the client's preference, that color has been changed to white and an overall monochromatic color scheme.

Material Board

Aluminum Siding (White)



Cemfort
Real Concrete Panels

White
Blanc
ID 8317
(30, 29, 28, 26, 24, 22)

Metal Panels (White)

Aluminum Plate Panels
(Dark Grey)

Brampton Brick
Bonneville Twilight

3.4 Entrance Design

The AMRC can be accessed by two main entrances: the North-East entrance, located on the East face of the building, and the South-West entrance, located on the west side.

The NE entrance acts as the main entrance for fire-fighting purposes. It is intended as a drop-off area for individuals arriving by vehicle, however bike parking and access to public transportation is also available in close proximity. The entrance features a projecting vestibule and double-height welcome area, with a feature stair that directs users upwards to the atrium on level 2. Elevators are also provided to those who wish to access higher floors, or who have accessibility needs.

The SW entrance acts as the primary entrance for visitors and staff that intend to arrive by vehicle and park. The entrance features a large one-storey canopy that extends from the west face to the north face of the building. This canopy acts as a patio that can be accessed from L2. Below the canopy, ample covered bike parking is provided. The canopy has been designed to assist in breaking down the ground-level facade to a human scale, particularly for those traversing the bike path or Ring Road to the N/NW of the building.

SW Entrance
Note that pattern on glazing is illustrative and is expected to change.

3.5 Code & Zoning Requirements

OBC Requirements

The AMRC is classified as an A2 occupancy building with a D sub-occupancy. This classification was pursued due to the building's use as a primarily educational environment. Occupant loads have been determined based on total areas by use divided by their respective OBC factors, or with occupant loads advised by the architect (exclusively the case of the animal holding area on L1).

The AMRC falls under OBC section 3.2.2.24. *Group A, Division 2, up to 6 Storeys, Any Area, Sprinklered*. Due to a building height of less than 36m as per OBC definition (from grade to the floor level of the top storey), the AMRC is not a high building. The mechanical penthouse does not count as a storey as per OBC Sentence 3.2.1.1.(1); therefore only levels 1-6 count as storeys. The distance between grade and the floor level of L6 is 24.8m, which is less than 36m. Additionally, exit capacities have been considered in relation to high building classification. As per the OBC, a building is classified as a high building when "the cumulative or total occupant load on or above any storey above grade, other than the first storey, divided by 1.8 times the width in metres of all exit stairs at that storey, exceeds 300." Occupant loads on all storeys were summed and divided by a factor of 10.8 (equal to 1.8 multipled by the width of four 1.5m exit stairs); this yielded a result of 215 persons, which is less than the OBC threshold of 300. Therefore, the AMRC is not classified as a high building.

Additional code considerations include fire rating requirements and fire compartmentalization. Due to the AMRC's connection to RGN, a fire wall is required to ensure that the spread of fire between buildings is contained. Two 1hr fire sepearations (one on RGN side and one on AMRC side) will entend the length of the 2-storey connection that separates RGN from AMRC. Additionally, connecting passages and electrical rooms on L2 will be rated accordingly. Exits, vertical shafts, and floors have been rated according to OBC requirements.

Plumbing fixture requirements have been calculated based on occupant load and have been met on all floors. Considerations related to barrier free design and accessibility have been addressed, and universal washrooms, barrier free entrances, adequate widths of travel paths, turn-arounds, and door operators have been provided.

City of Ottawa Official Plan Policies

The design of the proposed AMRC facility has considered the urban design policies contained in the City of Ottawa Official Plan as follows:

Policy 4.3.2: *Design large-scale institutions and facilities to coordinate with the existing urban fabric, states"1) Development that will establish a new or expand an existing large-scale institution or facility shall be evaluated on the basis of all of the policies [a-g].*

The AMRC enhances the quality of the surrounding neighborhood and City as a whole by providing as much landscaped area as possible on site, especially along pedestrian and bike path corridors along the north and east edges of the site - this complements the existing grove to the north. Integration with existing pedestrian and bike paths that flank both sides of the Ring Road will facilitate circulation through the site and beyond,

and pre-existing transit routes will provide additional access to the AMRC. The glazed west entrance offer opportunities for art to be featured at entrance of the building.
Water, wastewater, and stormwater adequacy has been analyzed and reports have been provided. Details related to traffic and vehicular access may be found in the transportation impact assessment. The S/R area, which has been designed so as to expand and function alongside the existing RGN S/R area, will be carefully screened by landscaping and physical barriers to minimize visibility from the Ring Road and the rest of campus.

Policy 4.6.3: *Ensure capital investments enhance the City's streets, sidewalks, and other public spaces supporting a healthy lifestyle states: "Development and capital projects shall enhance the public realm where appropriate by using methods such as: curb extensions, curbside boulevards that accommodate wider pedestrian walkways, trees, landscaping, and street furniture. These enhancements will make streets safer and more enjoyable by dedicating more space to pedestrians, creating opportunities for relaxation and social interaction, and where necessary, buffering pedestrians from traffic."*

Landscaped buffers have been incorporated throughout the site design, and street furniture such as benches and tables will be included within these areas.

Policy 4.6.4: *Encourage innovative design practices and technologies in site planning and building design states: 3) "The installation of photovoltaic panels on expansive roof structures, such as large-format retail buildings and large-scale institutions and facilities are encouraged. Alternative rooftop designs or interventions that promote climate and energy resiliency such as greenhouses, green roofs or rooftop gardens are also permitted."*

The rooftop terrace above the west entrance will provide building users with access to outdoor space.

Policy 4.6.5: *Ensure effective site planning that supports the objectives of Corridors, Hubs, Neighbourhoods and the character of our villages and rural landscapes, states 3) "Development shall minimize conflict between vehicles and pedestrians and improve the attractiveness of the public realm by internalizing all servicing, loading areas, mechanical equipment and utilities into the design of the building, and by accommodating space on the site for trees, where possible. Shared service areas, and accesses should be used to limit interruptions along sidewalks. Where underground parking is not viable, surface parking must be visually screened from the public realm."*
4) "Development shall demonstrate universal accessibility, in accordance with the City's Accessibility Design Standards. Designing universally accessible places ensures that the built environment addresses the needs of diverse users and provides a healthy, equitable and inclusive environment."

The AMRC aims to minimize conflict between vehicles and pedestrians and to improve the attractiveness of the site by providing as much vegetation as possible despite parking constraints. S/R area has been provided with a dedicated access route so as to minimize disruptions to visitors and pedestrians. An effort has been made to visually shield the main parking lot from the Ring Road with landscaping, and to shield both the Ring Road and the parking lot from the S/R area. Accessibility standards and the needs of various users have been considered in all aspects of site design.

City of Ottawa Zoning Requirements

In order to facilitate the proposed development, a Minor Zoning By-law Amendment to the to the City of Ottawa Zoning By-law 2008-250 is required. The entire property at 451 Smyth Road, including the AMRC development site is currently zoned Major Institutional Zone, Urban Exception 402, Floor Space Index 1.5, Schedule 144 (I2[402] F(1.5) S144).

Urban Exception 402 applies to the site and includes the following site-specific provisions:

· Minimum front yard setback is 46 metres;
· No parking is permitted within the front yard setback; and
· Parking spaces provided within Area A on Schedule 144 may be used to fulfill parking requirements for development occurring subsequent to February 29, 2004 at 501 Smyth Road.

The Minor Zoning By-law Amendment proposes to modify Urban Exception 402 to grant relief from zoning requirements related to landscape buffers. The existing additional provisions in Urban Exception 402 would be maintained. The proposed Minor Zoning By-law Amendment would seek to facilitate the proposed AMRC development through the addition of the following provisions to Urban Exception 402:

· No requirement for a 3 m landscape buffer along the rear lot line; and
· A reduction in the minimum required width of a landscaped buffer of a parking lot abutting a street from 3 m to 1.146 m.

Urban Design Directive

Comments were received from City Urban Design staff via the Feedback Form issued on October 26, 2023. Responses to these comments are as follows:

9) **Staff encourage the applicant to consider site development in the context of a larger master planning process for the hospital. Staff understand that there has been some consideration for master planning with their site partners, and Staff look forward to reviewing the materials once they are provided.**
The OHSC Committee oversees current and future visions for CHEO, uO, TOH, and others. Permission would need to be granted by the OHSC to provide documentation. The AMRC design has considered future plans.

10) **Staff encourage the applicant to explore an on-site parking solution in the form of below-grade or structured parking as the current off-site solution is almost 700 metres away from the site. Staff understand that a shuttle service is being explored and look forward to reviewing this more closely as part of the formal submission.**
Due to parking requirements being met on site, the Peter Morand Lot is no longer being pursued.

11) **For any surface parking areas, staff encourage the applicant to consider permeable surfaces and planting along the perimeter and throughout the parking areas. Clear pedestrian connections are also needed.**
Planting along the perimeter and in parking areas has been implemented, and permeable pavement will be considered and reviewed with the design team and client.

12) **Staff appreciate the consolidation of pick-up and drop off for the building and the location of loading. Staff would like to see the loading area screened from Ring Road as much as possible.**
The loading area will be concealed by the hazardous waste facility and the use of screens and landscaping.

13) **Staff encourage the applicant to retain and enhance as much of the landscaping along Ring Road as possible.**
While the retention of existing trees on site will not be possible due to the extensive work that will take place, the reintroduction of landscaping is absolutely a priority.

14) **Staff look forward to reviewing the sustainability strategy for the project and encourage the university to excel beyond LEED Gold if possible.**
Please see Section 3.6 of this document for a detailed sustainability strategy.

15) **Staff look forward to reviewing the building elevations and materials selections for the campus addition.**
In addition to the details provided in section 3.3 of this document, elevations will be provided to the City.

3.6 Sustainability Considerations

Sustainability is a cornerstone of the PAL design approach and a crucial aspiration of uO's development strategy. Therefore, sustainability considerations have heavily influenced the design of AMRC.

A typical laboratory may use five times as much energy and water per square foot as a typical office building if designed conventionally. Labs are also very energy demanding due to their nature of use. Therefore, sustainability in lab design has presented the team with many opportunities and challenges. Highly efficient M&E systems are incorporated in the building to support the modern and innovative equipment in this industry. Adaptations in a modular lab such as the plug-and play provide a flexible space with seamless flow of changing configurations. In addition, concerns guiding modern laboratory design include sustainability which may be addressed through passive design and water conservation strategies, waste management, and biophilic design. All these strategies contribute to the development of an efficient and pleasant laboratory space, that has been shown to have positive effects on productivity, recruitment, and wellness.

Beyond lab design, design envelope strategies have been implemented to reduce the load on HVAC, operating costs, and provide adequate daylight and ventilation to improve indoor environmental quality as well as occupant comfort. A full monitoring and status information system will be provided to the client to better understand the energy usage of the building, thus providing insight into any inefficiences.

The design aims for LEED Gold, and therefore a number of LEED-defined credits will be pursued to achieve this goal. It is anticipated that all prerequisites will be met, and the remaining credits will be pursued in accordance with the goals and priorities of the client as they relate to design considerations. Should it be feasible, the project will explore all manners in which to build a more sustainable development within the allowed budget.

The design of AMRC will additionally consider the safety of the wildlife and birds in its surroundings. The design minimizes glazing for the first 7-8m in building height due to animal research requirements, providing by consequence a very bird safe design. Windows will be provided with window treatments or bird safe fritting as per the City of Ottawa guidelines up to 16m and for the first 4m above the roof terrace. Exterior finishes will minimize reflective/mirrored surfaces, and cement board, aluminum plate panels and metal siding will all be selected with natural and coloured finishes respectively. All windows are broken up into punch windows, with the exception of strip windows in the expression of the Atrium along the East and West facades. Mechanical louvers will be placed at a distance from glazing, and will be made of opaque or translucent non-reflective material that has apertures no greater than 50 mm and a solid-to-void ratio of no less than 50 per cent.

Parkin Architects Limited

20 James Street
Suite 200
Ottawa, ON K2P 0T6

WSP

2611 Queensview Drive
Suite 300,
Ottawa, ON, K2G 8K2