## URBAN DESIGN BRIEF

2517293 ONTARIO INC.





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## 1.1 INTRODUCTION

MHBC Planning has been retained by 2517293 Ontario Inc. c/o Lexington Park Real Estate Capital Inc. to prepare an Urban Design Brief for the redevelopment located at the southwest corner of Huron Road and Strasburg Road in, Kitchener (hereinafter referred to as the "subject lands").

The subject lands have a total area of 3.416 hectares (8.441 acres) and are currently vacant. The subject lands located on the south side of Huron Road west of the intersection of Huron Road and Strasburg Road. The lands are designated as Mixed Use, Commercial and Natural Heritage Conservation in the City of Kitchener Official Plan and are located within a Community Node as identified on the Urban Structure Map in the Official Plan. This Brief has been prepared in support of an Official Plan Amendment (OPA) and Zoning By-law Amendment (ZBA) both of which pertain to the portion of the subject lands that is designated Mixed Use and zoned MIX-3.

The purpose of this Urban Design Brief is to describe the physical arrangement of the development proposal, provide insight as to why certain design decisions are appropriate given the site specific context and how the proposal is consistent with and supportive of City of Kitchener policies and design directives.

This Design Brief is supported by graphics and images prepared by the project architect, Martin Simmons Sweers Architects and has been updated to reflect the revised design concepts.

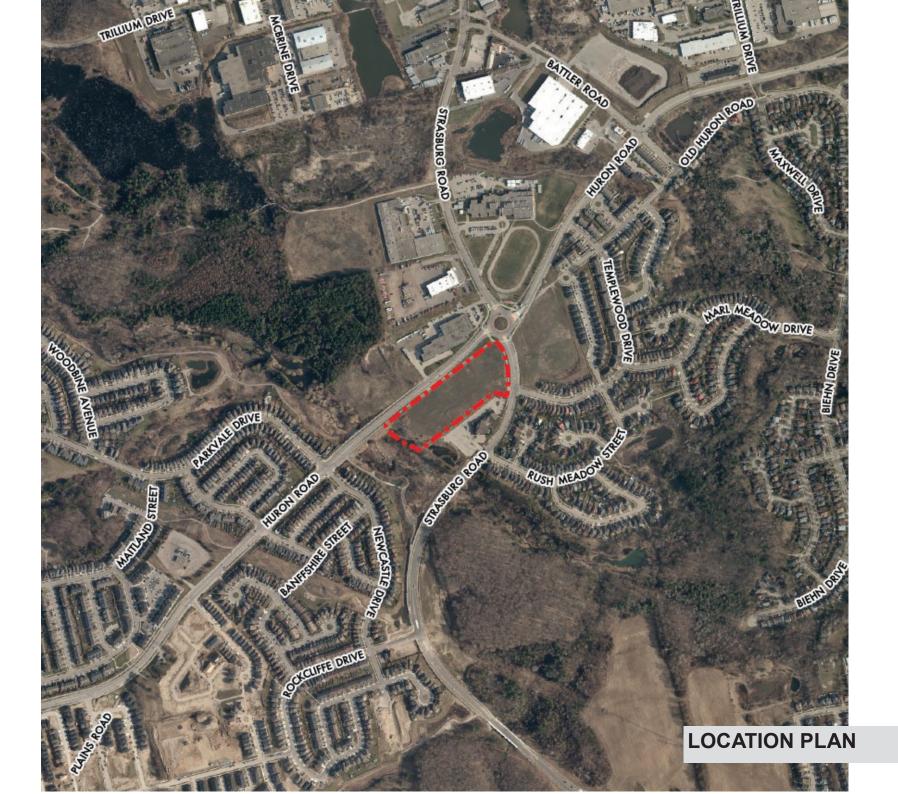
# 1.2 SUBJECT LANDS & CONTEXTUAL ANYLSIS

The subject lands are located within the Huron community, and located on an existing transit corridor. Existing transit stops are located at the intersection of Huron Road and Strasburg Road, immediately adjacent to the subject lands.

Currently vacant, the subject lands have an area of approximately 3.416 hectares (8.441 acres). The subject lands are rectangular in shape with approximately 348 metres of frontage on Huron Road and approximately 131 metres of frontage on Strasburg Road.

The subject lands slope significantly from the highest grade near the intersection of Huron Road and Strasburg Road to the lowest grade towards Strasburg Creek to the west and the existing church to the south.

The lands are located within a designated Comnunity Node, adjacent to an existing transit route, and along a multi-use pathway. Lands designated Community Node and adjacent to transit corridors are planned to support primary intensification within the urban boundaries. This stretch of Huron Road is an important thoroughfare and gateway to the community of Brigadoon and should provide height and densities supportive of the existing transit and active transportation networks that are in place.



The portion of the subject lands subject to the OPA and ZBA applications is designated Mixed Use in the City of Kitchener Official Plan, and zoned Mixed Use Three (MIX-3) with special provision 120 in the City's Zoning By-law 2019-051.

Uses that immediately surround the subject lands include the following;

**NORTH:** Employment uses are located directly to the north of the subject lands (on the north side of Huron Road and the west side of Strasburg Road). A vacant parcel proposed to be developed for mixed-use is also located on the north side of Huron Road. An existing secondary school (Huron Heights Secondary School) is located at the northeast corner of Huron and Strasburg Road.

**EAST:** To the east of the subject lands along the east side of Strasburg Road is a vacant parcel that is planned to accommodate commercial and/or mixed-use development. An existing residential subdivision is also located east of the subject lands. This neighbourhood is comprised of a range of residential uses including single detached, townhouse and multiple-residential developments.

**SOUTH:** Directly to the south of the subject lands is an existing church (Apostolic Christian Church Nazarean). Environmental features, including a large woodlot, are also located to the south (primarily east of Strasburg Road). Existing and emerging residential development is also located south and southwest of the subject lands.

**WEST:** Natural heritage features, including valleylands associated with Strasburg Creek are located immediately to the west of the site. Lands on the opposite side of the valley are developed as a residential neighbourhood. An existing multiuse trail is also located to the west.

As previously noted, the subject lands are located within a Community Node and along an existing transit route. Transit stops are currently located at the intersection of Huron and Strasburg Road with additional stops located to the west and east of the subject lands along Huron Road and the north along Strasburg Road. It is anticipated that once the Strasburg Road corridor is completed, transit will eventually be extended south along Strasburg connecting the Huron West and Doon South communities.

Existing multi-use trails run along both the Strasburg Road and Huron Road frontages of the subject lands. The Huron Road multi-use trail extends a significant distance to the west (approximately 2 kms), currently terminating at Fischer-Hallman Road.

The subject lands location within a Community Node and with direct access to services, existing transit and active transportation networks makes this site a prime candidate for development.

### 2.1 VISION & DESIGN OBJECTIVES

The project team envisions a unique development on the subject lands, sensitive to the adjacent low-rise residential neighbourhood, while achieving a transit supportive density and urban form. The vision for the development is to create a contemporary expression and celebration of the Huron and Brigadoon communities through architectural design that provides a landmark at the Community Node located around the intersection of Huron and Strasburg Roads.

The following design objectives provide direction that have guided the proposed development:

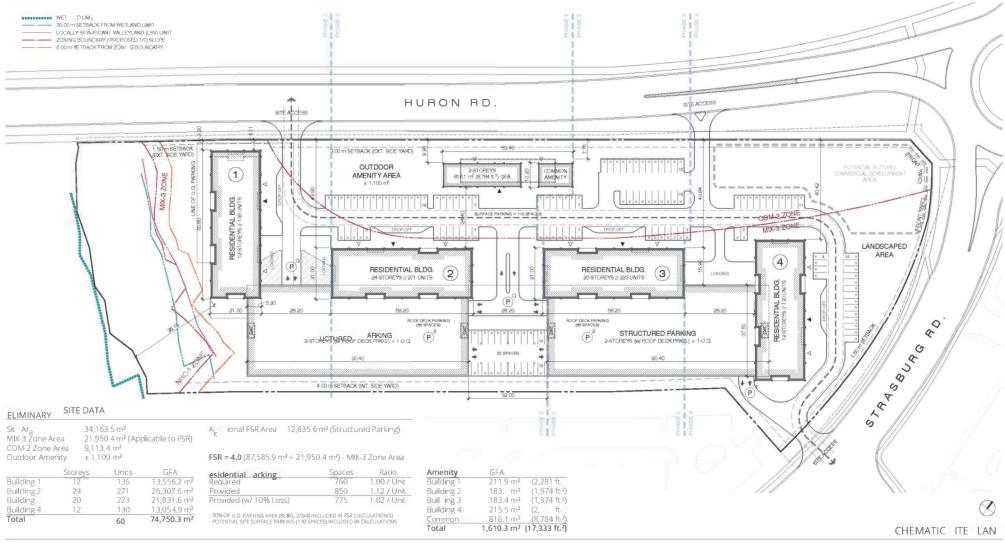
- Provide for development that will be supportive of transit investment in the Region and alternative transit modes, and will encourage future residents to walk to and from existing and planned residential, commercial, office and retail uses, services and public amenities.
- Through the future site plan process, create a strong visually appealing

Design and orient buildings within the Mixed Use portion of the subject lands to be sensitive to the residential uses on the opposite side of Strasburg Road.

• Introducing additional building height within lands designated Mixed Use and adjacent an existing transit corridor in a manner that is sympathetic to surrounding uses.

- Direct the tallest building where impacts on low rise residential areas are minimized.
- Achieve a high-quality of architectural design and construction that is innovative and timeless, contributing positively to the area and Kitchener's identity. Encourage contemporary architecture that complements rather than competes with the surrounding development.
- Provide a development that, through the combination of massing, orientation, enhanced landscape design, pedestrian entrances, architectural elements, detailing, and material selection, will result in a positive pedestrian experience along the adjacent street frontage, between buildings, and within the planned outdoor amenity spaces.
- Design a high quality pedestrian realm focused around the connections to the trail network and proximity to Strasburg Creek. Encourage additional retail and commercial opportunities along Huron Road.
- Create a development which incorporates sustainable design principles and techniques.





MARTIN IMMONS EERS Option 5B-1 Scale 1:1000 01/08/2023

# 2.2 DEVELOPMENT CONCEPT

The subject lands present a development opportunity along a major arterial corridor, supported by a mix of future commercial/service uses and existing employment lands uses in close proximity. The proposed residential towers subject to the OPA and ZBA applications) will contribute to a broader mix and range of housing types in the community. The existing vacant parcel represents an under utilization of lands that have been identified as a Primary Intensification Area.

The proposed development represents a significant investment opportunity along the Huron Road and Strasburg Road corridors. The proposed development will include design elements that contribute to the character of the corridor. Enhanced streetscaping will also be considered to further enhance the character and enforce the design vision to contribute to the development of the Community Node as a gateway to the Huron and Brigadoon communities.

#### Site Design

The proposed "campus style" site plan concept proposes to orient the Building 1 towards the natural features adjacent to Strasburg Creek. This building has been oriented to maximize views for future tenants, while still providing a building façade that faces Huron Road. The building façade facing Huron Road has been designed with a stepback above the third storey.

Buildings 2 and 3 have been oriented parallel to Huron Road. These buildings have been located to minimize impacts on the existing residential community to the east, with the two tallest buildings (Building 2 and 3) to be located central to the site. Building 4 is oriented perpendicular to Buildings 2 and 3, maximizing the view for the residents towards the landscaped area fronting Strasburg Road. Given the proximity of the industrial use to the north, no residential development can occur within the portion of the subject lands that is designated commercial. As such, all residential development (with the exception of Building 1) is, out of necessity located internal to the site. This allows for a transition of height and density towards the abutting streets.

#### **Built Form**

The proposed tall buildings would be classified as a 'large slab' in accordance with the City of Kitchener's Design Guidelines for Tall Buildings. Given that the subject lands' geometry and surrounding context, the proposed slender slab is an appropriate design solution.

The ground floor of each of the proposed tall buildings will have a floor-to-ceiling height of 4.5 metres compared to the 3 metre upper floors. The ground floor and the two storeys above will be treated with a cladding to provide rounding and distinction from the upper floors, forming the building 'base'. Architectural treatment of the building bases will assist in emphasizing the pedestrian scale.

The building mass of each of the tall buildings will be broken down through cladding, design articulation, large rhythm of windows, balcony projections, use of light and colour, and vertical and horizontal architectural elements. Overall an understated design is proposed with clean lines and a symmetrical grid.

#### Density

The development proposal will feature a total of units across buildings. There will be a mix of units including one bedroom units, two bedroom units, and three bedroom units. The proposed residential development has a FSR of 4.0.

#### Height and Massing

The massing proposed provides a contextually sensitive transition of building heights on the subject lands. Building height transitions from the low rise shared amenity space provided.



Above: Preliminary rendering illustrating how the 'base' of each building has been detailed to make it distinct from the storeys above. For Building 1 there is a three metre stepback above the base on the Huron Road frontage.

adjacent to the street frontages to an ultimate proposed tower height of 17 storeys (Building 2) and a height of 20 storeys Building 3). Buildings 1 and 4 which are closer to existing residential development are proposed at a height of 12 storeys.

The multifaceted articulated building facades respond to the scale of the community at different levels by breaking down the urban building typology through a clear reading of a base, middle and top while still achieving the simplicity intended in the building design.

#### **Siting and Setbacks**

Building1 is proposed to be oriented perpendicular to Huron Road. Building 1 is located within the limited portion of the Mixed Use designation that has frontage on Huron Road. This building has been oriented to take advantage of views to the adjacent natural features, including Strasburg Creek. Buildings 2 and 3 are proposed to be orientated parallel to Huron Road. Given the split designation and the prohibition of residential uses within the Commercial designation, these buildings are setback a considerable distance from Huron Road. Building 4 is perpendicular to Huron Road oriented to account for an improved view for the resident and conform with the required set backs from Strasburg Road. No amendments are required to the setbacks established in the zoning by-law.

#### **Style and Articulation**

The proposed buildings will reflect a contemporary architectural style defined using high quality materials and architectural detailing, while still achieving the cost effective design needed for a rental housing proposal. Balconies are integrated within the building which contributes to the simple and clean design aesthetic, while providing greater privacy for tenants. A grid of vertical and horizontal elements has been provided which creates symmetry and rhythm along the building façades.

The detailed building design of each building will be identified and determined through future site plan applications to be prepared for each phase of future development.

#### **Amenity Space**

Private and common amenity areas will be proposed to accommodate passive recreational activities and seating for residents. A two storey shared amenity, pace will be provided fronting Huron Road. Each residential unit will

feature an exclusive use balcony and or terrace. Additional space will be provided through a podium roof top terrace proposed as part of Building 1. Amenity areas will be detailed through the site plan stage.

#### Connections, Access and Public Realm

Two points of access on Huron Road are proposed, one of which will allow for full turn movements. The all turns access has already been accommodated for in the Huron Road design. The second access on Huron Road is located closer to the roundabout intersection and will function as a right in/ right out access. A third (full turn) access is proposed from Strasburg Road. This access has been aligned with Templewood Drive.

Pedestrian accesses are proposed throughout the development with multiple connections to the surrounding multi-use pathway. Pedestrian pathways will connect the various outdoor amenity space and will be provided to connect surface parking areas to buildings.

#### **Parking**

Dedicated space for secure bicycle storage will be provided within the proposed development. Vehicle parking is proposed to be provided in the form of one level of underground parking below the proposed apartments and two 2 storey above grade parking structures located to the south of the lot. Surface parking is also proposed and will serve the residential buildings. The proposed parking accommodates the required rates for residential and visitor parking.

#### **Fire and Safety**

The arrangement of the surface parking area with two accesses from Huron Road and a further access from Strasburg Road provides for adequate fire access to the subject lands.

The buildings and parking area will be sufficiently lit with building and landscape lighting to ensure safety and security across the proposed development.

#### Garbage

On-site waste disposal will be provided by indoor collection areas within each building. The location of these areas will ensure convenient access for residents and commercial uses. A private waste disposal contract is anticipated to maintain and service the indoor collection areas.

#### Landscaping

The site plan will feature enhanced landscaping utilizing both hard and soft landscaping elements. Landscaping will be used to break up the surface parking areas and to enhance the private outdoor amenity spaces.

The design of the buildings ground floor will ensure a positive relationship with the public realm and an attractive and engaging pedestrian experience within the site. All proposed materials will be high quality. Large sections of glazing will ensure permeability and high visibility out to the surrounding site.

#### **Wind and Shadow Impacts**

A Pedestrian Wind Study was prepared to provide an initial high-level assessment of the expected pedestrian winds around the subject lands. The Wind Study is included as Appendix A of this Brief. An additional detailed wind analysis will be undertaken at the final site plan stage if warranted. The wind study was updated to reflect the revised design concept.

A shadow study has been submitted with the application and is included in Appendix B. Given the buildings locations and orientation , there will be minimal shadowing impacts on the surrounding residential communities.

An in depth analysis of the Shadow and Wind Studies is included in Section 4.0 of this Brief.

#### **Transition and Compatibility**

The tallest tower identified as building 2 will be oriented to the rear of the property, and will be well setback from Strasburg Road (more than 36 metres at the closest point) as well as other surrounding land uses. Building 2 is oriented parallel to Huron Road and is proposed at a maximum height of storeys.

The building height steps down from 24 storeys (Building 2) and 20 storeys (Building 3) to 12 storeys (Buildings 1 and 4). At 12 storeys theses buildings can provide the density needed to support the existing transit and active transportation routes, while ensuring minimal to no impact on surrounding low-rise residential uses.

The proposed development is designed to ensure compatibility with the low density residential community opposite Strasburg Road while providing for intensification within an identified primary intensification area.





Above and Bottom Left: Preliminary renderings illustrating how height has been transitioned across the site with the tallest building located central to the development and furthest from the residential community east of Strasburg Road.



# 3.1 DESIGN RESPONSE TO CITY OF KITCHENER POLICIES AND GUIDELINES

The City of Kitchener Official Plan and City of Kitchener Urban Design Manual provide urban design policies and guidelines relating to development in the City. The following section of this Urban Design Brief reviews design policies and guidelines applicable to the proposed development and provides an analysis with regards to how the proposed design responds to the policies.

#### **CITY OF KITCHENER OFFICIAL PLAN (2014)**

The portion of the subject lands subject to the OPA and ZBA applications is currently designated Mixed Use in the City of Kitchener Official Plan. The subject lands are within a designated Community Node as identified on the Urban Structure plan of the Official Plan.

**Section 11** of the City of Kitchener Official Plan contains Urban Design Policies. It is intended that the Urban Design Policies will provide guidance and direction as the City grows, develops and evolves. The following section provides a summary of how the proposal meets the relevant policies from Section 11 (Urban Design) of the current Official Plan:

**11.C.1.11 Streetscape:** The City will support the character of streets through the coordination of site, building and landscape design on and between individual sites with the design of the street.

**Design Response:** Through the future site plan process new

landscaping will be provided along the Huron and Strasburg frontages. Consideration is being given to a large landscaped amenity area at the intersection of Huron Road and Strasburg Road which will mirror the similar landscape treatment at the Secondary School at the northeast corner of the intersection. Building 1 has frontage along Huron Road and this building, combined with a two storey shared amenity space and landscaping will assist in activating the public realm which further enhances the streetscape.

11.C.1.13, 14 & 15 Safety: The City will apply Crime Prevention through Environmental Design principles in the review of new developments, redevelopments and infrastructure projects to implement crime prevention strategies that will enhance the effective use of the space. Where feasible and in compliance with the other policies of this Plan, the City will ensure that the efficiency of emergency medical, fire, and police services be considered in the design of communities, neighbours and individual sites. Development applications will be reviewed to ensure that they are designed to accommodate fire prevention and timely emergency response.

**Design Response:** General CPTED considerations are analyzed in Section 3.2 of this Brief. The subject lands are located within close proximity to emergency services. Emergency services vehicles will be able to access the development from the surrounding road network and the buildings will be designed in compliance with the Ontario

building Code including aspects related to fire prevention suppression. The proposed amenity areas, walkway, and parking is located in a highly visible location with sufficient eyes on the areas from surrounding buildings.

11.C.1.16 Universal Design: The City will encourage new sites to be designed, existing sites to be redeveloped, the public realm and community infrastructure to be planned to be barrier-free and universally accessible by all citizens. In this regard, the City will enforce the Ontario building Code and other accessibility related legislation and regulations.

**Design Response:** The development is designed with accessibility in mind and in compliance with the Ontario Building Code in this regard. Pedestrian walkways will incorporate appropriate ramping if needed. Barrier free spaces will be provided throughout the site. Cross-walks demarcated with different materials and sidewalks at crosswalks will have tactile warning surfaces.

11.C.1.22 Shade: The City will require the provision of shade, either natural or constructed, to provide protection from sun exposure, mitigate the urban heat island, and reduce energy demands provided it does not generate unacceptable adverse impacts.

**Design Response:** The site has been designed to balance areas of shade and sun. Shade will be provided from architectural details incorporated into the building design, trees, and landscape features on site and in the surrounding area. Surface parking areas will be broken up to reduce amount of asphalt and provide as much landscaping as possible.

**11.C.1.30 Site Design:** Policy 11.C.1.30 includes a number of factors to be considered through the Site Plan Control Process.

**Design Response:** The various considerations included in Policy 11.C.1.30 will be addressed through the proposed design of the site, including improvements to the aesthetic quality of the site from the public realm; the provision of safe, comfortable and functional site circulation and lighting; and the provision of landscaping which enhances the proposed buildings and the streetscape.

#### 11.C.1.31 - 11.C.1.33 Building Design, Massing and Scale Design:

The Official Plan contains three policies related to Building Design, Massing and Scale Design. These policies encourage development projects to create attractive streetscapes and to contribute to rich and vibrant urban places. These policies encourage attractive building forms, facades and roof designs which are compatible with surrounding buildings. For new development, the policies encourage development which is compatible with the neighbourhood context and contributes to neighbourhood character. Architectural innovation and expression is also encouraged.

**Design Response:** The proposed development includes a cohesive architectural vision, and will provide a unique built form in the neighbourhood. The architectural design employed is proposed to be a contemporary style that will be complementary and a positive addition to the Node. The proposed development will improve the streetscape and will also enhance the surrounding public realm. The proposed development is designed to be compatible with the existing low density residential neighbourhoods in the area, while providing for intensification of the site. The massing of the buildings is designed to accommodate the change in grade across the subject lands and provide a transition in height to maintain compatibility adjacent to surrounding land uses.

#### 3.1.2 CITY OF KITCHENER URBAN DESIGN MANUAL—2019

In September 2019 Council for the City of Kitchener approved a new Urban Design Manual which contains Citywide design guidelines as well as more specific guidelines that apply to various types of development and/or various locations within the City.

The Urban Design Manual (UDM) consists of three parts. Part A contains guidelines for various land uses and built forms. Part B: Design Briefs contains supplementary guidelines completed through other studies. There are no Part B guidelines applicable to the subject site. Part C contains design standards. Applicable sections were reviewed during preparation of the development proposal.

Applicable guidelines from Part A are to be referenced in an Urban Design Report accompanying a Development Application, where required. For the purpose of this Brief we have reviewed the most relevant sections of the Design Manual: City-wide Design; Nodes & Corridors; and Design for Tall Buildings. Through the site plan process it is anticipated that the low-rise commercial guidelines will also be reviewed.

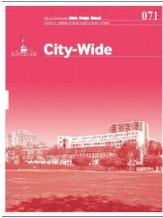
Section 9: Design for Tall Buildings is most applicable to the proposed development and the guidelines are reviewed in their entirety below. Section 1: City-wide Guidelines and Section 6: Nodes & Corridors are also applicable, however, there are a number of overlapping directives and guidelines from Section 9: Design for Tall Buildings.

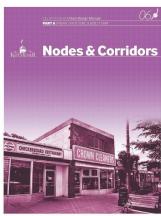
#### **CITY-WIDE DESIGN GUIDELINES**

The purpose of the City-Wide Design section of the Urban Design Manual is to set forth the universal design expectations which apply to all of Kitchener. This Section includes urban design objectives that are relevant to all geographies and building typologies and is divided into two sections: Community Design and Site Design. For the purpose of this brief we have focused on the Site Design guidelines which includes guidelines related to Built Form, Shared Spaces and Site Function with sub-categories within each of these two sections.

The Concept Site Plan design has appropriately considered the **Built Form (Massing)** guidelines as follows:

• The proposed development focuses height and mass where it minimizes impacts on surrounding lands. As









part of the overall development scheme, the tallest buildings are proposed to be located central to the property and furthest from low rise residential uses in the area.

- The full site development (including future commercial uses) allow for a substantial public realm opportunity.
- Massing techniques will be incorporated into each building including projections, recesses, variation in colour, materials and texture, all of which help to reduce and diversify the massing of each building.
- The buildings will be designed with elegance and simplicity and will have defined three storey bases to enhance the pedestrian experience within the development.
- The overall site is designed to create visual interest and to reinforce a human scale. This will be done through the provision of outdoor amenity areas (including patios at future commercial uses), well defined building bases and a transition of building height across the site.

- Primary building entrances will be located visible from and directly accessible from the internal pedestrian walkway system.
- All building elevations will be designed to provide transparency, architectural continuity and visual interest. No blank walls will be proposed. As a result of proposed windows and balconies there will be sufficient natural surveillance onto surrounding public streets and future proposed shared spaces.

The Concept Site Plan design has also considered the <u>Built Form</u> (<u>Materials & Uses</u>) guidelines as follows (it is noted that detailed design will be further refined through the site plan process required for each phase of development.

 All proposed buildings feature a contemporary design, meaning the buildings will be designed with a present-day building style, with varied architectural details, materials, colours and textures.

- Active uses (including residential and future commercial buildings directly accessible from the street) will be provide along the Huron and Strasburg frontages.
- A range of unit types and sizes are proposed.
- The design of buildings provides for pedestrian weather protection including covered building entrances.

The Concept Site Plan design has considered the **Shared Spaces** (Landscaping and Lighting) as follows (it is noted that detailed landscape plans will be required for each phase of development).

- Vegetation will be selected with regard to their tolerance to urban conditions including road salt and drought.
- Landscape and hardscape elements will be designed to provide colour, having regard for seasonal changes.
- Landscape areas will be provided between the buildings and the multi-use pathways. Where trees will be provided within landscaped areas, adequate soil volumes will be proposed.
- Lighting will be designed according to City standards and will be designed to minimize glare and light spilling onto surrounding areas.
- Lighting will be designed appropriate to the street character with a focus on pedestrian areas, including building entrances.
- Energy-efficient LED lights will be used and over lighting will be avoided.

The following describes the development proposal relative to the **Site Function (Vehicular Access & Parking and Driveway)** guidelines:

- Parking is provided in the form of surface parking as well as underground and structured parking within arking garage.
- Conveniently accessible and easily visible locations will be proposed for bicycle parking. This includes secure indoor bicycle parking.
- The design within the underground parking structure will avoid the creation of entrapment areas and dead end parking aisles.
- The driveway accesses to the proposed development will provide direct access from the street to the surface parking area and underground parking structure entrances.
- Proposed driveways do not conflict with transit stop locations.

#### TALL BUILDING DESIGN GUIDELINES

The Design Guidelines for Tall Buildings provides a set of targets and design elements that generally represent good design practice when dealing with tall buildings. However, the guidelines also recognizes that there is no "one-size-fits-all" set of standards and good design for tall buildings must be approached as a "best-fit" analysis and solution.

The guidelines state that "it is the City's intention to use these guidelines to generate constructive discussion and provide a framework against which to consider and test individual site restrictions, broader contexts, and design aspirations. The City

wants to encourage creative solutions to problems and deliver innovation and design excellence. Therefore the expectation is not for every project to meet every guideline in all cases. A project may fall short (within reason) of a guideline if it compensates by exceeding targets for other (related) guidelines, or if the project demonstrates justifiable design solutions to achieve a guideline's intention through other means. The City also recognizes that in some cases, site-specific considerations may create conditions that cannot be anticipated within design guidelines; with proper justification, projects will be examined based on how well they are designed for these conditions, and not solely on which specific guidelines they are not able to meet. The Tall Building Design Guidelines should not be read in isolation of other in effect policies, regulations or design guidelines."

With this in mind, the following reviews the set targets and design elements as defined in the guidelines and identifies where the proposed design addresses those targets and the justification for the proposed design solution. Text in *italics* is a copy of the guideline or target.

#### **Built Form**

#### Base Design

A tall building's base includes the ground floor and any additional floors with a direct relationship to the streetscape and public realm. Design the base to prioritize pedestrian utility, comfort and safety. Bases should feature a high percentage of transparency. Bases should maximize connectivity and permeability at ground level, creating and reinforcing pedestrian & cycling connections. Fully integrate bases into the public realm. Avoid conditions such as 'tower in the park' or 'fortress' design.

• The proposal includes buildings with defined bases. Out of necessity given the split designation, only one of the buildings can be located directly adjacent to Huron Road. that is directly adjacent to the street with minimal setback. This building includes a stepback along the Huron facing façade that further defines the building base. The base will provide for a human-scaled interface with the streetscape and will provide a transitional space from the outside to inside.

Bases should not exceed 70 metres in overall building length. Buildings longer than 70m should demonstrate enhanced streetscaping, materials and building articulation. Provide visual variety through well-articulated massing and high quality materials.

 The building bases proposed will be less than 70 metres in length. Enhanced streetscaping, material selections, and projections will help to minimize any concerns of a long monotonous façade.

Provide protection from harsh weather.

 Some form of architectural projection or recession will be utilized over primary buildings entrances throughout the proposed development.

Provide balconies for residential units along street-facing elevations. Consider outdoor amenity spaces for other uses along street facing elevations.

• Balconies are proposed on all residential buildings.

Where it is not feasible to integrate 'back of house' activities underground or within the building mass, design these spaces using high-quality architectural elements and landscape design to screen these activities from public view and to limit unwanted activity.

• Where possible, utilities, parking and servicing will all be located away from the Huron and Strasburg interface and screened from the public realm through the building placement and site design. Where parking has the potential of being more visible, screening through landscape materials will be employed. Services will be integrated into the overall building and landscape design to mitigate negative impacts on the façade and subject lands

#### **Ground Floor**

The lower 5m of a base forms the most immediate relationship of a building to the public realm and should be designed in all cases with high quality materials, highly articulated, engaging and visually expressive architectural features and human scaled massing. For tall buildings with retail or other active uses at grade, provide a ground floor height of 4.5m (minimum) to permit a variety of retail types and activities. Where a shorter ground floor height is proposed, the lower 5m (minimum) of the building is still to be considered critical to the public realm even if it includes part or all of the second storey. Design the ground floor to be comprehensively integrated with the surrounding streetscape and landscape to achieve a high quality pedestrian environment.

• While the buildings are proposed as free-standing residential, the ground floor of each building is designed at a height of 4.5 metres. All proposed materials will be high

quality and durable. Large sections of glazing will ensure activity and permeability on the street, creating an engaging visual experience.

#### Tower-Size and Proportion

A Tower is the 'middle' component of a tall building, connecting the base to the top and housing the building's primary function. Towers are highly visible elements of the urban environment and must meet Kitchener's highest standards for design excellence. Compact Point towers are preferred for intensification areas and smaller sites, particularly within multi-tower proposals. The appropriateness of larger or slab-like forms will partially be a function of site size, shape and orientation, and whether a large tower can achieve good separation and compatibility while mitigating unwanted impacts. Height is also an important factor when determining an appropriate tower Size.

The proposed slender slab design of the buildings is the most optimum design approach for the subject lands given the subject lands' geometry and context. Utilizing this form of development enables the design to maximize development potential within the portion of the site designated Mixed Use, while also considering compatibility and views of adjacent natural features.

Mitigate the actual and perceived massing impacts of towers by breaking up their mass both horizontally and vertically, through the creative incorporation of changes in materials, balcony and floorplate design, architectural features and unit/amenity locations. Large Point Towers and Large Slabs must demonstrate significant design measures to reduce the visual impact of their mass.

• The mass of the building is articulated and mitigated through the creative horizontal and vertical offset placement of windows and balconies. Building 1 is oriented perpendicular to Huron Road which results in a narrower building mass at the street.

There are many factors shaping tower design. These guidelines can help determine at the schematic design stage what tower form is most appropriate on a given site. A similar GFA can result in different tower sizes depending on site size, location, costs, parking requirements etc. In order to provide the greatest variety of unit types, sizes and tenures, the City of Kitchener has not put a limit on floorplate size, given the other quidelines can be met.

• The proposed slender floorplate of the buildings optimizes the floor space ratio available for the subject lands while minimizing adverse impacts on adjacent lands.

#### Tower- Relative Height

Relative Height, or a tower's height when compared to neighbouring towers or existing or planned surrounding context, is an important factor in tall building design. For towers adjacent to lower-rise surrounding areas the towers must demonstrate compatibility with their surroundings and transition in height and scale through appropriate design of the project's built form. If a site does not allow for sensitive transition between a tower and lower-rise neighbourhoods it may not be suitable for a tall building.

 The proposal places the tallest building where it will have the least impact on existing low rise residential development, while still providing for density along an existing transit route. The building height transitions across the site from storeys, with low rise heights contemplated as part of the future commercial development on the property. The design solution of employing the tallest building at the rear of the subject lands provides the greatest amount of separation possible from the single family homes on the east side of Strasburg Road. Overlook is minimized by facing the residential units towards Huron Road where possible and orienting the massing of the towers to provide maximum building separation. Impacts of wind and shadowing will be mitigated through the site and building design such that no negative impacts are anticipated from the proposed development on existing residential land uses.

#### Separation and Overlook

Separation refers to the physical and perceived space between a tower and its surroundings. Achieving adequate separation requires a unified design approach related to Physical Separation and Tower Overlook. Physical Separation is the measured setback in metres from a tall building tower's faces to its side and rear property lines, or to the centre line of an abutting lane, trail or easement.

- Tower Separation calculations have been prepared and are attached as **Appendix C** to this Design Brief.
- The proposed separation between Building 1 and the centerline of Huron Road, and the interior side yard meets the separation guidelines.
- Tower separation from Buildings 2 and 3 meet the requirement to the westerly lot line, and from the

centerlines of abutting streets, but do not meet the tower separation from the south lot line. Lands to the south are already developed with a church. Parking for the church is located between the subject lands and the church building. So while the tower separate is deficient, development immediately adjacent to the subject lands is unlikely.

- Separation between Buildings 1 and 2 is slightly less than the recommendation separation in the guidelines ( whereas 37 metres is recommended). It is noted that the orientation of these two buildings is such that there is no overlap.
- Separation between Buildings 2 and 3 is also only slightly less than the separation recommended in the guidelines metres whereas 44.5 metres is recommended). These buildings have been oriented so that the majority of units face outwards towards Huron Road or the church. As such, only two units on each floor will have windows facing the adjacent building, minimizing overlook between the two buildings.
- Separation between Buildings 3 and 4 is slightly less than the recommended separation in the guidelines (28.2 metres whereas 33.3 metres is recommended). The buildings orientations ensure minimal overlap.
- As illustrated in the Shadow Study, the proposal provides sufficient separation to mitigate adverse shadow impacts on adjacent land uses. There is no shadow impact on existing low rise residential buildings.

#### Overlook

Overlook is the overlap that exists between two neighbouring towers. Acceptable maximum overlook is determined based on the physical separation distance calculation. Where physical separation is calculated greater than 14 metres, the guidelines provide a maximum recommended overlook of 30%.

• The overlook analysis attached as Appendix C provides a detailed analysis of the proposed development and overlook considerations. The proposed development will mitigate the impacts of overlook through floor plan design and unit layout. While there will be overlook between Towers 2 and 3, this will be minimal given the layout of these buildings.

#### Placement

Placement refers to a towers Position and Orientation on its site relative to other towers, its base, its surrounding context and open spaces. Placement should also factor in Tower Size, Separation, Relative Height and Overlook as part of a comprehensive tall building design. Good Placement helps to minimize undesirable impacts on amenity spaces and the public realm. Diverse Placement amongst neighbouring and nearby towers prevents the creation of unwanted canyon effects and helps to avoid the creation of a homogeneous or visually lifeless skyline. Good Placement is highly dependent on each site, specific context and should be evaluated as achieving a best fig on a site by site basis. Proper placement also maximizes compatibility within a towers greater urban context, including surrounding neighbourhoods and the Kitchener skyline. A tower should step back from its base a minimum of 3m along any street -facing elevation, except where zoning may require otherwise.

- Buildings 1 will be placed directly adjacent to Huron Road and will help to define an urban street wall while taking advantage of views to the adjacent natural features.
   Building 4 will be placed adjacent to Strasburg Road contributing to the definition of the other east street scape.
- Buildings 2 and 3 have been oriented and located to respect the Mixed Use designation and to minimize impacts on low rise residential uses in the community.

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#### Top Design

A well designed top integrates mechanical and occupied/ programmed penthouses, amenity spaces, building signage and telecommunications equipment as part of a coherent architectural expression that formally resolves the tower design and completes the visual, architectural and urban form of the project as a whole. A tower top includes any rooftop elements above the highest occupied floor, but can also incorporate an appropriate number of upper-level tower floors to provide quality material and massing transitions, additional stepbacks, further articulation to the floor plate and other design elements which add to the expression of the building and its perception from the public realm.

 The top of the proposed buildings will be proposed to be defined by a mechanical penthouse that is offset from center and steps back from the main building form. Detailed design of this component will occur through the future site plan process.

## **Streets and Open Space**Safety

Design tall buildings to provide natural surveillance by employing high percentages of glazing, active uses at ground level, and windows and balconies with views onto the public realm, particularly along Base storeys. Create a connected pedestrian environment by avoiding physical/visual barriers and potential entrapment areas (dead-ends, hidden and/or fenced in areas). Back of house areas should be well-lit. Use lighting and landscaping to maximize safety and comfort.

• The building is designed to provide natural surveillance through large amounts of glazing at grade, active uses at

grade (including future commercial buildings). The pedestrian environment will be connected and well-lit along all sides of the proposed buildings.

#### Public and Private Open Spaces

Public and Private Open Spaces are communal areas which contribute to the quality and character of the environment in and around a tall building. They facilitate physical, recreational and social activity, incorporate green and landscaped areas into urban life and provide valuable uses for building occupants and the public. Tall building development requires a mixture of both private and public open spaces. The location, type, size and intended use of open spaces on a tall building site can vary depending on community need, building uses and site characteristics. Publicly accessible open spaces can be large or small, and should be flexible in their design to adapt to various programming opportunities and seasonal conditions.

 Private and common amenity areas will be proposed to accommodate passive recreational activities and seating for residents. These have been located in areas were shadow impacts will be minimal.

Open spaces should prioritize pedestrian comfort and safety, universal accessibility, and high standards for design. Provide open spaces with weather protection while preserving access to sunlight and air movement. Connect new open spaces to existing parks, pedestrian connections and natural areas. Create different types and sizes of parks and open spaces to support district, neighbourhood and local activities that contribute to placemaking and a connected public realm.

• Each residential building will feature indoor amenity space.

Each residential unit will feature an exclusive use balcony and or terrace. Additional amenity space will be provided through a potential roof top terrace on Building 1 (above the podium level). At grade outdoor amenity will also be provided.

A shared amenity space will provide all residential buildings with built in amenity features such as a gym and study space.

#### Public Realm

The Public Realm connects a tall building to its greater urban environment\_and includes pedestrian connections and open spaces. Good\_ public realm design integrates the building successfully into the local urban fabric. Design the public realm to be Human Scaled, Varied, Visually Appealing and Landscaped. Provide high quality, sustainable streetscape and landscape design by:

- ⇒ Protecting existing natural features and providing sufficient soil depth, volume and growing medium for new trees;
- ⇒ Providing unobstructed, accessible and high quality pedestrian pathways and seating areas;
- ⇒ Providing energy efficient, pedestrian scaled lighting.
- ⇒ Providing pedestrian oriented street furnishings, public art, and interactive features.
- ⇒ Design streetscapes to satisfy the needs of a diverse range of users by providing access, safety, comfort, mobility, and leisure for people of all ages and abilities.
- ⇒ Design streetscapes to optimize the pedestrian experience for any time of day or night, local or seasonal weather conditions, nearby activities and events, and other immediate contextual considerations.
- ⇒ Ensure weather protection elements, such as overhangs and canopies, are well integrated into the building design, detailed and scaled to support the streetscape, and positioned to maximize function and pedestrian comfort.

# • The proposal will provide an enhanced streetscape design. The proposed active uses along street frontages will encourage animation of the public realm and facilitate direct pedestrian access to the uses. The materials and fixtures of the enhanced landscape design will further provide a high-quality streetscape.

• Natural features will be retained, protected and enhanced.

#### Views and Skylines

Tall buildings should protect, enhance and create view corridors and vistas. When a tall building frames an important view from the public realm, ensure that the view is maintained, and where possible, enhanced.

 The proposed building will help to define the Huron/ Strasburg node by providing density and height at this prominent intersection.

#### Compatibility

#### Scale and Transition

Proper compatibility creates harmonious relationships between a tall building and its surroundings. Complement adjacent built form through compatible height, scale, massing, and materials. Sensitively transition to surrounding urban contexts, accounting for both the existing context and the planned vision for an area. Implement Setbacks (from property lines) and Stepbacks (from the edge of the base to upper-level base storeys, the tower, and top features). Tall buildings should not interrupt or impose upon an existing or planned neighbourhood character or the public realm.

- The residential buildings are located internal to the site where where impacts on surrounding residential are minimized.
- The tallest tower, Building 2, is oriented to the rear of the property, and will be well setback from residential on the opposite side of Strasburg Road.
- The massing and placement of the proposed buildings creates a transition from these existing neighbourhoods to the planned higher density re development of the lands.

Implement design cues (materials, architectural features, colours, rhythms) from good surrounding built form. Tall buildings should be contemporary and not replicate existing or historical architectural styles.

• The proposed tall buildings will be a contemporary style that will complement the low density residential building designs in the area, while providing an intensification of the site.

#### Sustainability

Tall buildings help shape their environment for decades to come. Design for flexibility in anticipation of future change through unit type variety, size and adaptability to new uses.

- A detailed Sustainability Statement has been prepared in support of the OPA and ZBA applications.
- A number of sustainable initiatives will be incorporated into the building and site design.

Employ high quality design, materials and construction practices that can withstand changing climate conditions and which encourage building longevity. Use natural and passive techniques for lighting, ventilation, summer cooling and winter heating. Utilize building envelope design and materials that limit thermal bridging and heat loss.

The proposed building recognizes our changing climate and support a more sustainable form of living. The building materials and construction will be of a high quality to ensure the building is sound and will have a long usable life. Natural and passive means for lighting, venting, and heating will be considered in the buildings' design with large operable windows and surrounding ambient heating. The proposed building envelope designs will limit thermal bridging and heat loss. High efficiency LED lighting will be used throughout the interior and exterior of the building.

A green roof can help minimize surface runoff, reduce urban heat island effect, provide noise insulation, improve local air quality, and contribute to the aesthetic of rooftop amenity space. Provide light-colored and/or green roofs to reduce solar heat absorption and energy demand.

 Light coloured rooves are being considered and will be further explored through the future site plan process.

Provide low impact stormwater management techniques where possible, including porous paving materials, landscaped areas, and vegetative swales. Provide water efficient and drought resistant landscaping by using native planting materials and low impact development practices. Explore opportunities for water collection and reuse.

- The landscaping elements being considered for the development will be drought resistant.
- Infiltration galleries designed under the surface parking will provide the opportunity for water collection and surface water recharge.
- The existing SWM pond to the south has been designed to accommodate development of the subject lands.

Minimize light pollution through the use of dark sky/nighttime friendly compliant practices. Locate and manage lighting to reduce reflections that may cause confusion for migratory birds.

• The proposed site lighting will be designed to mitigate light pollution created from the development.

Provide on-site facilities for handling, storing and separating recyclable and solid waste. Consider facilities for the separation and collection of organic waste.

 On-site waste and recycling storage facilities will be proposed in the form of indoor waste collection areas in each building, serviced by private contract.

Microclimate refers to the environmental impacts created by a tall building. Kitchener features hot, humid summers and cold, dry winters. The city has prevailing westerly winds, and the angle of the sun's path and its intensity varies significantly throughout the year. The Kitchener street network and parcel fabric is an organic grid, creating many different orientations for buildings. Itis important to design with these varied conditions in mind and to understand the microclimatic effects created by tall buildings.

This includes sunlight/shadowing, heat island effects, wind conditions and snow disposition as well as cumulative effects created by multiple adjacent structures. Provide both a sun/shadow analysis and a wind study to demonstrate how a proposed development is designed to mitigate unwanted microclimatic impacts. Design a built form that provides sunlight access to the public realm during the winter months, shaded areas for the summer months, and comfortable, safe wind conditions year round.

- The proposed development has consideration for shadow impacts and wind conditions and the buildings' placement, orientation, and design will mitigate the adverse effects of these conditions.
- The required wind study is attached as Appendix A. The required shadow analysis is attached as Appendix B.

Maintain daily access to at least 5 hours of cumulative direct sunlight to nearby sidewalks and open spaces under equinox conditions, beginning with sidewalks located on the opposite site of adjacent ROWs.

The shadow analysis attached as Appendix B demonstrates the proposed development will maintain at least 5 hours of direct sunlight to adjacent lands, sidewalks, and open spaces.

In summary, the Concept Site Plan was prepared with consideration of the City's Tall Building Guidelines and the proposed redevelopment of this site can generally meet the intent of the guidelines through its placement of towers with appropriate separation distances, regulation of floor plate size,

minimization of overlook, consideration of shadow and wind impacts. Planning Staff will continue to apply these guidelines, as well as other policy direction, throughout the site plan review processes for this site. Changes to the ultimate building footprints and orientation may evolve through the site plan process but the general location of towers is intended to remain consistent with the Concept Site Plan.

## 3.2 CPTED CONSIDERATIONS

The proposed development is designed with consideration of the basic concepts of Crime Prevention Through Environmental Design (CPTED).

#### **NATURAL SURVEILLANCE**

Natural surveillance occurs by designing the placement of physical features, activities and people in such a way as to maximize visibility and foster positive social interaction among legitimate users of private and public space. It is directed at keeping intruders under observation based on the theory that a person inclined to engage in criminality will be less likely to act on their impulse if he or she can be seen. The proposed development achieves natural surveillance by:

- Maximizing the number of "eyes" watching the site by creating a visual connection and maintaining unobstructed views from within the building to the exterior, as well as, between the street, the sidewalk, and the building.
- Proposing spaces and uses that are capable of generating activity (amenity area, unit patios and balconies).
- Placing windows along all sides of the building that overlook landscaped areas, public sidewalk and parking areas.
- Designing lighting plans that avoid creating blind spots and ensuring potential problem areas will be well lit (pedestrian walkways, stairs/ramps, entrances/exits, parking areas, recycling areas, etc.).

#### **HURON WEST** / Urban Design Brief

#### **SECTION 3**

#### **ACCESS CONTROL**

Access control is achieved by clearly differentiating between public space and private space. The principal of access control is directed at decreasing crime opportunity. The overall goal with this CPTED principle is not necessarily to keep intruders out, but to direct the flow of people while decreasing the opportunity for crime. The proposed development achieves access control by:

- Providing clearly identifiable, points of entry to each building/dwelling unit.
- Creating well-defined site entrances for vehicular and pedestrian access.

#### TERRITORIAL REINFORCEMENT

Territorial Reinforcement is the intentional design of the site to create a "border" between private and public property. These measures are not meant to prevent anyone from physically entering, but to create a feeling of territoriality and send a message to offenders that the property belongs to someone. The proposed development achieves the principle of territorial reinforcement by:

- Clearly delineating private from public property via: pavement treatments, entry treatments, landscaping, signage, etc.
- Delineating desired pedestrian and vehicular circulation.

#### **MAINTENANCE**

The other key aspect of CPTED is property maintenance; on the premise that good maintenance practices and upkeep send the message that the property is cared for on a regular basis.

Following construction of the development, management by a property management company will ensure that the buildings and grounds will be well maintained.

## 4.1 MICROCLIMATE IMPACTS

In support of the proposed re-development of the subject lands a pedestrian wind study and shadow study have been completed. The findings of these studies are summarized as follows:

#### **WIND STUDY**

A Pedestrian Level Wind Preliminary Impact Assessment has been prepared in support of the OPA and ZBA applications. report is attached as **Appendix A** of this Design Brief. A brief summary of the revised Wind Study conclusions is provided as follows;

- The proposed Development plans establish a context for development in terms of height, massing, and location that allows the assessment of wind issues/problems that may persist once built.
- The proposed Development is predicted to experience windy conditions from time to time, particularly near building corners and in gaps between. Mitigative design and landscape features will help to control pedestrian comfort conditions in these areas.
- High porous fencing, coniferous trees, raised planters populated with coarse plantings, and/or other mitigative features are recommended throughout the site where possible, particularly proximate to building corners and gaps in between.
- Mitigation plans are recommended for the entrances to the proposed Development, including recessing the entrances into the façades of the buildings, overhead canopies,

porous wind screens, raised planters populated with coarse plantings, vestibules, revolving doors, and/or other features that will protect door leaves from winds and achieve more comfortable conditions at the entrances. Consideration of appropriate mitigation plans for the entrances to the proposed Development will result in conditions that are suitable for the intended uses throughout the year.

Overall, comfort conditions expected at the proposed Development site are considered generally suitable to the context, based upon qualitative analysis.

#### **SHADOW STUDY**

A revised shadow impact analysis has been prepared to better understand the impact of the proposed development and to demonstrate any potential impacts on surrounding land uses, and in particular residential uses. The shadow study diagrams are included as **Appendix B**. Overall the result of the proposed development is that all adjacent properties and public streetscapes will continue to experience full sun for the majority of time periods tested. Shadows from the proposed development fall primarily within the site itself, or onto Huron Road. There is no impact on existing low rise residential communities.

**March/September 21**: During the spring and fall months shadows will be mostly internalized within the site and specifically within the surface parking area. Proposed outdoor amenity areas will have sun at various points throughout the day.

**June 21:** Summer months are typically when outdoor amenity areas are used the most. During summer months the shadows will be internalized within the site and to a lesser extent within the abutting road right-of-way.

**December 21:** Properties north of Huron Road (which are a mix of vacant and industrial properties) will experience shadows for the December time periods tested, in large part based on the length of shadows in winter months. Generally shadow impacts are deemed more acceptable in winter months as people are less likely to use their rear yard space during winter months and winter shadows do not impact private gardens/landscaping.

There is no impact on existing residential development during the winter months.

In our opinion, the shadow study diagrams demonstrate that the proposal will not generate unacceptable amounts of shadows over adjacent lands. Shadow impacts from this proposal have been minimized through building height, building orientation and building locations

### 5.1 CONCLUSION

The proposed development will conform to the City of Kitchener's Official Plan policies and urban design objectives as well as the site specific goals and objectives identified in this Brief. Overall, the proposed redevelopment represents a significant investment in Kitchener and will create new residential units in a landmark development, all of which contribute positively to the neighbourhood.

The Concept Site Plan presented in this Urban Design Brief will contribute positively to the City of Kitchener and will act as a gateway into the Huron and Brigadoon communities.

In summary, the proposed redevelopment will:

- Capitalize on the existing location of the subject lands with views and vistas of Strasburg Creek and located adjacent/near an existing employment area;
- Provide for intensification that is sensitive to the surrounding context;
- Result in a pedestrian friendly development that supports active transportation while supporting existing transit services, thereby minimizing future occupants' reliance on the automobile.
- Introduce unique and interesting architecture to emphasize the development as a 'landmark' within Kitchener.
- Create strong visually appealing street edges.
- Increase the variety and viability of the existing Community Node. The proposed development is a 'mixed use development' with uses that will include

#### residential

In our opinion the proposed development is appropriate for this location and will contribute positively to the Community Node.

The development supports the objectives of the City's Official Plan to achieve a high standard of urban design, architecture and place-making that contributes positively to quality of life, environmental viability and economic vitality. The proposal supports the City's overarching design directives by proposing a development that will reflect a high standard of design excellence; is visually distinctive creating an identifiable sense of place; is human-scaled, safe, secure and walkable; respects and enhances adjacent natural areas; is mutually supportive with the adjacent multi-residential development and existing single family homes, and; minimizes and mitigates adverse impacts.

This brief concludes that the proposed design has considered and achieves the intent of the urban design policies outlined in the Official Plan and design directives from the Urban Design Manual.



# APPENDIX A WIND STUDY



Telephone: (519) 787-2910 Facsimile: (519) 787-2918 www.theakston.com spollock@theakston.com

**September 18, 2023** 

# Preliminary Pedestrian Level Wind Assessment Huron West Development

Kitchener, Ontario

Theakston Project No. 23036

**Submitted To:** 

Lexington Park Real Estate Capital Inc. P.O. Box 40150 Waterloo Square Waterloo, Ontario N2J 4V1

**Submitted By:** 

Theakston Environmental Consulting Engineers 596 Glengarry Crescent Fergus, Ontario N1M 3E2

Stephen Pollock, P.Eng.



#### 1. EXECUTIVE SUMMARY

At the request of Lexington Park Real Estate Capital Inc., a preliminary pedestrian level wind study has been prepared for the proposed Huron West Development, located to the southwest of the intersection of Huron Road and Strasburg Road, in the City of Kitchener. The site has been assessed for environmental standards with regard to pedestrian level wind velocities relative to comfort and safety. Based upon our analysis, wind conditions on and around the proposed Development site are considered mainly suitable for walking or standing throughout the year in the existing setting.

The proposed Development occupies a portion of the block of lands bound by Huron Road to the northwest, Newcastle Drive to the southwest, and Rockcliffe Drive and Strasburg Road to the south through northeast, in the City of Kitchener. The site is currently vacant, and shares the block with mainly open greenfield, with the low-rise Apostolic Christian Church to the immediate south of the site, and low-rise residential dwellings to the southwest fronting Newcastle Drive.

The proposed Development involves construction of 12, 24, 20, and 12 storey residential buildings, denoted Buildings 1 through 4, with Buildings 1 and 2 and Buildings 3 and 4 connected by 2 storey parking structures. A 2 storey Amenity building is also proposed on site, fronting Huron Road. The proposed Development penetrates winds that formerly flowed over the site, the increased blockage relative to the existing setting causing wind to redirect to flow over the buildings, and/or, depending upon the angle of incidence, around, or down the buildings towards the pedestrian level, as downwash. At the pedestrian level, the winds redirect to travel horizontally along the buildings, around the corners and beyond, creating windswept areas at or near building corners and gaps in between. The site and surrounds are generally predicted to remain suitable for walking or standing throughout the year with localised areas within the gaps between Buildings 2 and 3 experiencing uncomfortable conditions from time to time throughout the winter months.

Mitigative design and landscape features will help to control these windy conditions. High porous fencing, coniferous trees, raised planters populated with coarse plantings, and/or other mitigative features are recommended throughout the site where possible, particularly proximate to building corners and gaps in between. Mitigation plans are specifically recommended for the entrances to the proposed Development, including recessing the entrances into the façades of the buildings, overhead canopies, porous wind screens, raised planters populated with coarse plantings, vestibules, revolving doors, and/or other features that will protect door leaves from winds and achieve more comfortable conditions at the entrances. A mitigation plan is also recommended for the Outdoor Amenity Space which may include fencing, porous wind screens, coniferous trees, raised planters populated with coarse plantings, recessed seating areas, and/or others, situated mainly along the northern and western edges of the space. Consideration of appropriate mitigation plans for these areas will result in conditions that are suitable for the intended uses throughout the year.

Comfort conditions expected at the proposed Development site are considered generally suitable to the surrounding context, based upon qualitative analysis.



Should you have questions or comments, please do not hesitate to call.

Kindest Regards,

Stephen Pollock, P.Eng

Nicole Murrell, M.Eng

Mile Jamel

### 2. INTRODUCTION

We have been retained to conduct a preliminary pedestrian level wind assessment for the proposed Huron West Development located to the southwest of the intersection of Huron Road and Strasburg Road, in the City of Kitchener, Ontario. The assessment is based upon project plans prepared by Martin Simmons Sweers Architects. The objective of this primary analysis is to estimate pedestrian level wind conditions resulting from inclusion of the proposed Development, relative to comfort and safety. The analysis is based upon the historical wind conditions and our experience with similar microclimatic analyses that were conducted on other properties in the area. The qualitative assessment utilises numerical analysis of local wind data predicted at the site and provides a synopsis of pedestrian comfort conditions anticipated on, and adjacent to, the property. It is a precursor to physical scale model testing, the quantitative analysis that will further define anticipated wind conditions, and mitigation, should such measures be required.

### 3. SITE INFORMATION

The proposed Development occupies a portion of the block of lands bound by Huron Road to the northwest, Newcastle Drive to the southwest, and Rockcliffe Drive and Strasburg Road to the south through northeast, in the City of Kitchener. The site is currently vacant, and shares the block with mainly open greenfield, with the low-rise Apostolic Christian Church to the immediate south of the site, and low-rise residential dwellings to the southwest fronting Newcastle Drive.

The proposed Development involves construction of four residential buildings, denoted Buildings 1 through 4 as well as a 2 storey Amenity building.

Building 1 is 12 storeys in height and is located along the western portion of the site, with the Main Residential Entrance located along the eastern façade via the private driveway. Building 1 is connected to Building 2 by a 2 storey parking structure. Buildings 2 and 3 are 24 storeys and 20 storeys in height, respectively, and are located in the central portion of the site. The Main Residential Entrances to Buildings 2 and 3 are located along the northern façades of the buildings, accessed via the internal driveway. Building 4 is 12 storeys in height and is located along the eastern portion of the site, with the Main Residential Entrance similarly being accessed via the private driveway on the eastern façade. Buildings 3 and 4 are connected by a 2 storey parking structure. A 2 storey Amenity Building is proposed along the northern portion of the site, fronting Huron Road.

Vehicular access to the site is proposed via a private driveway connecting from Huron Road and Strasburg Road and running through the centre of the site. An Outdoor Amenity Area is proposed to the immediate west of the 2 storey Amenity Building, and a landscaped area is proposed for the northeastern corner of the site. Various surface parking areas are also proposed throughout the centre of the site. An aerial image of the site is shown in Figure 1 and the Site Plan is shown in Figure 2.



### 4. SURROUNDING AREA

The property is, for all intents and purposes, surrounded to prevailing windward directions by suburban development, open areas, and mature vegetation, as indicated in Figure 1. Lands to the north of the property, beyond Huron Road, are occupied by low-rise industrial buildings with surrounding open lands and parking areas, as well as the low-rise Huron Heights Secondary School and related open areas. Lands to remaining compass points are dominated by open greenfields in the immediate surrounds, with low-rise residential neighbourhoods and mature vegetation dominating the surrounds beyond. Lands to the immediate south/southeast of the site are occupied by the low-rise Apostolic Christian Church and related surface parking areas.

The open lands immediately surrounding the site present limited roughness to the wind's streamlines, affording wind opportunity to accelerate on approach from over large portions of the surrounds. The low-rise industrial and institutional buildings to the immediate north and south/southeast of the site, as well as the low-rise residential neighbourhoods in the more distant surrounds, introduce roughness into the surrounds, moderating the winds on approach from specific directions. The site and immediate surrounds are shown in Figure 1.



Existing Conditions at the proposed Development Site Looking Southwest from the Intersection of Huron Road and Strasburg Road.

### 5. METEOROLOGICAL DATA

Historical meteorological data recorded from the Waterloo International Airport was used in this analysis. For studies in Waterloo, the data is presented as annual as well as for the four seasons, winter, spring, summer, and fall; the resulting wind roses are presented as mean velocity and percent frequency in Figure 3. The mean velocities presented in the wind roses are measured at an elevation of 10m. This data is numerically processed with AERMET, a meteorological processor that considers



wind speed and direction. Thus, representative ground level velocities at a height of 2m, for an urban macroclimate, are 52% of the mean values indicated on the wind rose, (for suburban and rural macroclimates the values are 63% and 78% respectively). The macroclimate for this area is considered open/suburban.

Winter (November 16 to March 31) has the highest mean velocities of the seasons with prevailing winds from the west, with significant components from east and northwest through southwest, as indicated in Figure 3a. Spring (April 1 to June 15) has the second highest mean wind velocities and the prevailing winds tend to be from the east and west to northwest quadrant and to a lesser degree north and south (Figure 3b). Summer (June 16 to September 15) has the lowest mean wind velocities of the seasons with prevailing winds from northwest through west to south as indicated in Figure 3c. During the Fall, (September 16 to November 15) the possible directions for prevailing winds include the Northwest through west to South and East sectors (Figure 3d). The magnitudes of the mean wind velocities are between spring and summer winds. Reported pedestrian comfort conditions generally pertain to annual unless stated otherwise.

### 6. COMFORT CRITERIA

The assignment of pedestrian comfort takes into consideration pedestrian safety and comfort attributable to mean and gust wind speeds. Gusts have a significant bearing on safety, as they can affect a person's balance and turn patio furniture into projectiles, while winds flowing at or near mean velocities have a greater influence upon comfort. The effects of mean and gust wind conditions are described as suitable for Sitting or Standing or Walking over 80% of the time. In order for a point to be rated as suitable for Sitting, for example, the wind conditions must be less than 10 km/h. The rating would include conditions ranging from calm up to wind speeds that would rustle tree leaves or wave flags slightly. As the name infers, the category is recommended for outdoor space such as terraces and patios where people might sit for extended periods and generally applies to the summer months.

The <u>Standing</u> category is slightly more tolerant of wind, including wind speeds from calm up to 14km/h. In this situation, the wind would rustle tree leaves and, on occasion, move smaller branches while flags would be partially extended. This category would be suitable for locations where people might sit for short periods or stand in relative comfort, such as building entrances and drop-off areas. The <u>Walking</u> category includes wind speeds from calm up to 19km/h. These winds would set tree limbs in motion, lift leaves, litter and dust, and the locations are suitable for sidewalks and parking. The <u>Uncomfortable</u> category covers a broad range of wind conditions, including wind speeds above 19km/h. These winds would set trees in motion, cause inconvenience when walking, and are not generally suitable to activities. Safety concerns are associated with wind speeds that are beyond the uncomfortable category, being sufficient to affect a person's balance.

Many variables contribute to a person's perception of the wind environment beyond the seasonal variations presented. While people are generally more tolerant of wind during the summer months, than during the winter, due to the wind cooling effect, people become acclimatized to a particular



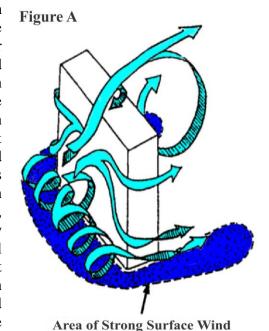
wind environment. Persons dwelling near the shore of an ocean, large lake or open field are more tolerant of wind than someone residing in a sheltered wind environment.

### 7. PEDESTRIAN LEVEL WIND ASSESSMENT

Variables beyond the orientation and conformation of a proposed Development must be considered in predicting wind speed and occurrence at a given location. These include the previously discussed historical wind climate, surrounding terrain and neighbouring buildings, each of which is quantified and/or analysed in the microclimatic analysis of pedestrian level winds. The results of such quantitative analyses have afforded a knowledge base that allows an estimation of pedestrian level wind conditions.

The site and the surrounds have a sympathetic relationship with the pending wind climate. Urban development provides turbulence inducing surface roughness that can be wind friendly, while open settings afford wind the opportunity to accelerate as the wind's boundary layer profile thickens at the pedestrian level, owing to lack of surface roughness. Buildings typically exacerbate wind conditions within their immediate vicinity, to varying degrees, by redirecting wind currents to the ground level and along streets and open areas. Transition zones from open to urban settings can prove problematic, as winds exacerbated by the open setting are redirected to flow over, down, around and between buildings.

In general, wind will split upon impact with a building, with portions flowing down the face of the building to the pedestrian level as downwash, where it is deflected, or otherwise redirected to flow along the building and around its corners, creating localized zones of increased pedestrian level wind (Figure A). Conversely, points situated in the wake of buildings will often enjoy an improvement in pedestrian comfort. As such, it is reasonable to expect inclusion of a significant Development will alter wind conditions under specific wind directions and velocities from those of the existing site condition, resulting in an improvement over the existing conditions at some points, with more windy conditions at others. Given the variability of wind in its directionality, and velocity, it is not practical to attempt to quantify expected wind speeds without appropriate quantitative analysis. This must be presented in concert with a detailed discussion of how the predicted values were determined and what they mean to the prevailing wind climate.



### **Discussion of Westerly Winds**

### **Existing Setting**

Westerly winds make up a significant percentage of the prevailing wind climate; they tend to be of high velocity, particularly during the winter months, and approach from over mainly open lands, with low-rise residential neighbourhoods and mature vegetation in the more distant surrounds to the west through southwest. The immediate surroundings present a relatively smooth terrain that affords winds opportunity to accelerate on approach.

This results in somewhat windy conditions throughout the existing site on the occasion of westerly winds, suitable for mainly standing throughout the summer and walking throughout the winter months. The surrounding areas of Huron Road and Strasburg Road realise similar conditions, suitable for standing in the summer and walking in the winter. Portions of Strasburg Road to the southeast through south of the site experience more comfortable conditions, mainly suitable for standing throughout the year as they are protected from westerly winds by the surrounding low-rise buildings.

### **Proposed Setting**

Westerly winds approaching from over the windward open lands will come into contact with the westmost corner of Building 1 and split to flow along the northwest and southwest façades of the building, around the corners beyond. Portions of the westerly wind climate will also be deflected to flow up and over the building, without consequence, or down the building towards the pedestrian level. This will result in somewhat windy conditions along the northwestern and southwestern façades of Building 1 at the pedestrian level, suitable for mainly standing in the summer and walking through the shoulder and winter months. Areas proximate to the corners of Building 1 may experience slightly windier conditions, likely suitable for walking throughout the majority of the year. Much of the westerly wind climate approaching the southern portion of the site will flow up and over the 2 storey parking structure between Buildings 1 and 2 and have little effect on pedestrian level wind conditions.

Building 2 is in the aerodynamic shade region of Building 1 for much of the westerly wind climate and as such will experience generally comfortable conditions in the immediate surrounds, suitable for standing or sitting throughout much of the year. Buildings 3 and 4 will similarly be protected from large portions of the westerly wind climate by Buildings 1 and 2, however portions of the westerly wind that flow over and around Buildings 1 and 2 will contact the northwestern façades of Buildings 3 and 4. These winds will flow down and along the northwestern façades of Buildings 3 and 4 and around the corners beyond, resulting in conditions that are generally suitable for standing throughout the year. Localised windier conditions, suitable for walking, may be noted proximate to windward corners of Buildings 3 and 4 throughout the winter months.

Portions of the westerly wind climate will similarly contact the westmost corner of the 2 storey Amenity Building and split to flow along the façades and beyond. The areas around the Amenity Building are generally expected to realise conditions suitable for standing throughout much of the year, with occasional localised windier conditions, suitable for walking, proximate to building



corners and/or within the breezeway and the gap between the Amenity Building and Buildings 2 and 3 to the south.

The remaining central parking and walkway areas of the site will be somewhat protected from westerly winds by the windward proposed buildings, resulting in conditions that are mainly suitable for standing through the year with localised sitting conditions in the more sheltered areas. The proposed Outdoor Amenity Space to the west of the Amenity Building will be exposed to large portions of the westerly wind climate and as such a mitigation plan is recommended for the area, as discussed in the relevant section below.

Winds that formerly flowed across the open site will be redirected to flow around the proposed Development, resulting in generally windier conditions along Huron Road, but the street is expected to be suitable for walking, or better, throughout the year, and remain suitable for the intended use. Strasburg Road will realise blockage from westerly winds by the proposed Development, resulting in generally more comfortable conditions along the road, suitable for standing throughout much of the year.

### **Discussion of Easterly Winds**

### **Existing Setting**

Easterly winds are very directional, occur frequently, they can be strong, and are often associated with storms. Lands to the east of the proposed Development are mainly occupied by low-rise residential neighbourhoods, however open greenfield areas to the immediate northeast of the site allow portions of the easterly wind climate to accelerate on approach. The low-rise residential neighbourhoods to the southeast of the site provide more substantial mitigation to southerly portions of the site.

As such, the existing site is mainly suitable for standing throughout the year in the existing setting, with occasional walking conditions realised throughout the winter months. Surrounding areas of Huron Road realise similar conditions, suitable for mainly standing in the summer months, and tending towards walking conditions in the winter. Strasburg Road realises mainly standing conditions to the northeast of the site, with more comfortable conditions suitable for sitting in the sheltered areas to the southeast of the site.

### **Proposed Setting**

With inclusion of the proposed Development, easterly winds will come into contact with the eastmost corner of Building 4 and split to flow along the northeast and southeast façades of the building, around the corners beyond. Winds that approach from upper streamlines will be directed to flow up and over the building, without consequence, or downwash to the pedestrian level below, contributing to ground level winds. Conditions suitable for mainly standing in the summer and walking through the shoulder and winter months will be realised along the northwestern and southwestern façades of Building 4, with windier conditions proximate to corners, suitable for walking throughout much of the year. Much of the easterly wind climate approaching the southern



portion of the site will flow up and over the 2 storey parking structures between Buildings 1 and 2 and Buildings 3 and 4 and have little effect on pedestrian level wind conditions.

Easterly winds will similarly contact the eastmost corner of the 2 storey Amenity Building and split to flow along the façades, around the building corners, and beyond. The areas around the Amenity Building are generally expected to realise conditions suitable for standing throughout much of the year, with occasional localised windier conditions, suitable for walking, proximate to building corners and/or within the gap between the Amenity Building and Buildings 2 and 3 to the south. Buildings 1, 2, and 3 are in the aerodynamic shade region of Building 4 and the parking structures for much of the easterly wind climate and as such will experience generally comfortable conditions in the immediate surrounds, suitable for standing or sitting throughout much of the year.

The remaining central parking and walkway areas of the site will similarly be protected from much of the easterly wind by the windward proposed buildings, resulting in conditions that are mainly suitable for standing through the year with localised sitting conditions in the more sheltered areas. The proposed Outdoor Amenity Space to the west of the Amenity Building will also be protected from large portions of the easterly wind climate and as such is expected to realise fairly comfortable conditions on the occasion of easterly winds.

With inclusion of the proposed Development, winds that formerly flowed across the open site will be redirected to flow around the proposed Development, resulting in windier conditions along localised areas of Strasburg Road, suitable for walking proximate to the proposed Development. Huron Road is expected to realise slightly more comfortable conditions as the proposed Development will provide blockage from easterly winds, resulting in conditions that are suitable for standing throughout much of the year.

### **Discussion of Southerly Winds**

### **Existing Setting**

Southerly winds make up a moderate percentage of the prevailing wind climate and tend to be of lower velocity. Lands to the southeast of the proposed Development site are occupied by the Apostolic Christian Church with low-rise residential neighbourhoods beyond. Lands to the southwest of the site tend towards more open lands populated with mature vegetation. The lands present a somewhat coarse approach, which will induce turbulence into the wind's approach flow, reducing the wind's energy realized at the site, particularly at the pedestrian level.

As such, the site realises mainly standing conditions on the occasion of southerly winds, with localised sitting conditions through the summer months. Westerly portions of the site are more exposed to southerly winds and as such realise occasional walking conditions through the winter months. Huron Road realises similar conditions, mainly suitable for standing throughout the year, with localised winter walking conditions adjacent to westerly portions of the site. Strasburg Road is more protected from southerly winds by the surrounding low-rise buildings and as such realises conditions for standing or sitting throughout the year.



### **Proposed Setting**

Southerly winds that approach the site will contact the southmost corners of the parking structures as well as Buildings 1 and 4, and split to flow around the buildings, along the southwesterly and southeasterly façades. Portions of these winds will be directed to flow up and over the buildings, or down the façades to the pedestrian level below as downwash. Conditions along the building façades are expected to be suitable for mainly walking or standing throughout the year, however winds that flow around the buildings will result in localised windswept conditions at the building corners and the gaps between. These areas are predicted to be suitable for walking throughout much of the year, with occasional localised uncomfortable conditions throughout the winter months in the gap between Buildings 2 and 3. Mitigative features such as high porous fencing along the southern property line, coniferous trees and plantings located to the south of the buildings, recessing entrances located within the gaps, and/or others may be applied to the area to improve conditions within the gap.

Large portions of the remainder of the site will be in the aerodynamic shade region of Buildings 1 through 4 for southerly winds, resulting in conditions that are considered generally suitable for sitting or standing throughout the year within the central parking areas. Localised portions of the parking areas, and the southern façade of the Amenity Building, proximate to the gap between Buildings 2 and 3 may realise windier conditions, suitable for walking from time to time, but generally are expected to remain suitable for the intended uses. Portions of the winds will also be directed to flow through the Amenity Building's breezeway, resulting in conditions that are suitable for walking throughout much of the year.

The proposed Outdoor Amenity Space to the west of the Amenity Building will also be protected from large portions of the southerly wind climate and as such is expected to realise fairly comfortable conditions on the occasion of southerly winds.

With inclusion of the proposed Development, winds that formerly flowed across the open site will be redirected to flow around the proposed Development, resulting in slightly windier conditions along Strasburg Road, suitable for standing throughout the majority of the year. Huron Road is expected to realise slightly more comfortable conditions as the proposed Development will provide blockage from southerly winds, resulting in conditions that are suitable for standing or sitting throughout much of the year, with exception. Southerly winds that are directed to flow around Building 1 may result in localised walking conditions along adjacent portions of Huron Road through the winter months.

### **Discussion of Northerly Winds**

### **Existing Setting**

Northerly winds occupy a less significant percentage of the prevailing wind climate; they tend to be of moderate velocity and are conditioned upon approach by surroundings comprised of low-rise industrial and institutional buildings and related open areas. The more open areas will provide some opportunity for wind to accelerate upon approach, however, the low-rise buildings



compensate for this effect by introducing turbulence to the wind flow, reducing the wind's energy at the pedestrian level and moderating wind conditions realised at the existing site.

As such, the existing site is somewhat protected from winds from northerly directions as they are mainly directed to flow up and over the pedestrian level. This results in fairly comfortable conditions on the occasion of northerly winds, suitable for standing across much of the site. Localised walking conditions may be realised through the winter months in areas of the site that are more exposed to northerly winds. Huron Road and Strasburg Road realise similar conditions on the occasion of northerly winds, mainly suitable for walking throughout the year. Localised areas of Huron Road that are in the aerodynamic shade region of the low-rise industrial building to the north realise sitting conditions throughout portions of the year, and conversely more exposed areas of the streets realise occasional walking conditions throughout the winter.

### **Proposed Setting**

Northerly winds that approach the site from over the low-rise buildings and open areas will contact the northern corners of the 2 storey Amenity Building and Buildings 1 through 4. These winds will split upon contact with the buildings and flow up and over the rooftops, or along the northeasterly and northwesterly façades of the buildings, around the corners and beyond. The winds that flow around the buildings will result in localised windswept conditions at the building corners and in the gap between Buildings 2 and 3. As such, the conditions along the building façades are expected to mainly be suitable for standing in the summer, with walking conditions realised proximate to the building corners, as well as within the Amenity Building's breezeway and in the gap between Buildings 2 and 3, in the winter and shoulder months.

Portions of these winds will also downwash down the buildings to the pedestrian level below. The downwash will impact winds that are realised along the building façades at the pedestrian level, notably at entrances to the buildings. These entrances would benefit from being recessed into the façades, and/or the addition of canopies, as discussed in the relevant section below.

The proposed Outdoor Amenity Space to the west of the Amenity Building will be exposed to large portions of the northerly wind climate and as such a mitigation plan is recommended for the area, as discussed in the relevant section below.

With inclusion of the proposed Development, northerly winds that formerly flowed across the open site will be redirected to flow around the proposed Development, resulting in slightly windier conditions along Strasburg Road and Huron Road, but remaining suitable for walking throughout the year.

### **Discussion of Ordinal Winds**

Ordinal winds approaching from northwesterly, northeasterly, southeasterly, and southwesterly directions will contact the façades of the proposed Development at near-right angles, and as such will have a greater propensity to downwash to the pedestrian level below. The magnitude of downwash depends on several variables such as building height, stepped conditions, and the effective



width of the presented façade. It is intuitively obvious that short and/or narrow façades will reduce the propensity for downwash, and the broad façades of the proposed Development will direct larger portions of the wind climate to flow down the buildings to the pedestrian level below.

Mitigation of downwash is well understood and may be applied through design, if desired. Mitigative design features may include podiums, stepped façades, balconies, textured façades, canopies, and other design features. At the pedestrian level, landscape features help to further control pedestrian comfort conditions.

### **Discussion of Entrances**

The Main Entrance to Building 1 is located along the northeastern façade of the building. The area is protected from westerly and southerly winds by the building, however it is exposed to portions of the northerly and easterly wind climate that are directed to flow down and along the northeast façade, resulting in walking conditions from time to time through the winter months. A mitigation plan is recommended for the entrance including an overhead canopy and recessing the entrance into the façade of the building, and/or addition of porous wind screens/raised planters populated with coarse plantings adjacent to the entrance along the façade. With consideration of an appropriate mitigation plan, the Main Entrance to Building 1 will experience more comfortable conditions that are suitable for standing, or better, throughout the year, and suitable for the intended use.

The Main Entrances to Buildings 2 and 3 are located along the northwestern façades of the buildings and are protected from much of the wind climate by the proposed buildings, however they are exposed to northerly winds that will flow along the northwestern façades, mainly in the form of downwash. The entrances are predicted to be suitable for standing throughout much of the year, with occasional walking conditions in the winter months on the occasion of strong northerly winds. Overhead canopies are recommended at the Main Entrances to Buildings 2 and 3 in order to achieve conditions that are suitable for the intended uses throughout the year.

The Main Entrance to Building 4 is located along the northeastern façade, and is protected from the majority of the wind climate, however it is exposed to easterly winds that are directed to flow down and around the building. The entrance is predicted to realise conditions suitable for standing throughout much of the year, with occasional walking conditions in the winter months. An overhead canopy is recommended at the Main Entrance to Building 4 in order to achieve conditions that are suitable for the intended use throughout the year.

The Main Entrance to the 2 storey Amenity Building is located along the southeastern façade of the building and is protected from northerly winds, but exposed to large portions of the remaining wind climate that are directed to flow down and around Buildings 1 to 4. It is recommended the Entrance to the Amenity Building be recessed into the façade, and incorporate an overhead canopy, vestibule, and/or revolving doors. Consideration of an appropriate mitigation plan for the Entrance to the Amenity Building will result in comfortable conditions that are suitable for the intended use throughout the year.



Comfort conditions appropriate for standing, or better, are preferable at building entrances, with walking conditions suitable for the walkways beyond. Consideration of appropriate mitigation plans for the entrances to the proposed Development will result in conditions that are suitable for the intended uses throughout the year.

### **Discussion of Outdoor Amenity Spaces**

An Outdoor Amenity Space is proposed to the west of the 2 storey Amenity Building. The area is protected from much of the southerly and easterly wind climate by the proposed buildings, however it is exposed to winds from the west and north. As such, the space is predicted to realise standing conditions throughout the summer, standing or walking conditions in the shoulder months, and walking conditions in the winter. A mitigation plan is recommended for the Outdoor Amenity Space which may include fencing, porous wind screens, coniferous trees, raised planters populated with coarse plantings, recessed seating areas, and/or others, situated mainly along the northern and western edges of the space. Consideration of an appropriate mitigation plan will result in more comfortable conditions that are expected to be suitable for the intended use throughout the year.

### 8. MITIGATION STRATEGIES

The proposed Development plans establish a context for development in terms of height, massing, and location that allows the assessment of wind issues/problems that may persist once built.

The proposed Development is predicted to experience windy conditions from time to time, particularly near building corners and in gaps between. Mitigative design and landscape features will help to control pedestrian comfort conditions in these areas. High porous fencing, coniferous trees, raised planters populated with coarse plantings, and/or other mitigative features are recommended throughout the site where possible, particularly proximate to building corners and gaps in between.

Mitigation plans are specifically recommended for the entrances to the proposed Development, including recessing the entrances into the façades of the buildings, overhead canopies, porous wind screens, raised planters populated with coarse plantings, vestibules, revolving doors, and/or other features that will protect door leaves from winds and achieve more comfortable conditions at the entrances. A mitigation plan is also recommended for the Outdoor Amenity Space which may include fencing, porous wind screens, coniferous trees, raised planters populated with coarse plantings, recessed seating areas, and/or others, situated mainly along the northern and western edges of the space.

Consideration of appropriate mitigation plans for the entrances to the proposed buildings as well as the Outdoor Amenity Space will result in conditions that are suitable for the intended uses throughout the year. Comfort conditions expected at the proposed Development site are considered generally suitable to the context, based upon qualitative analysis.

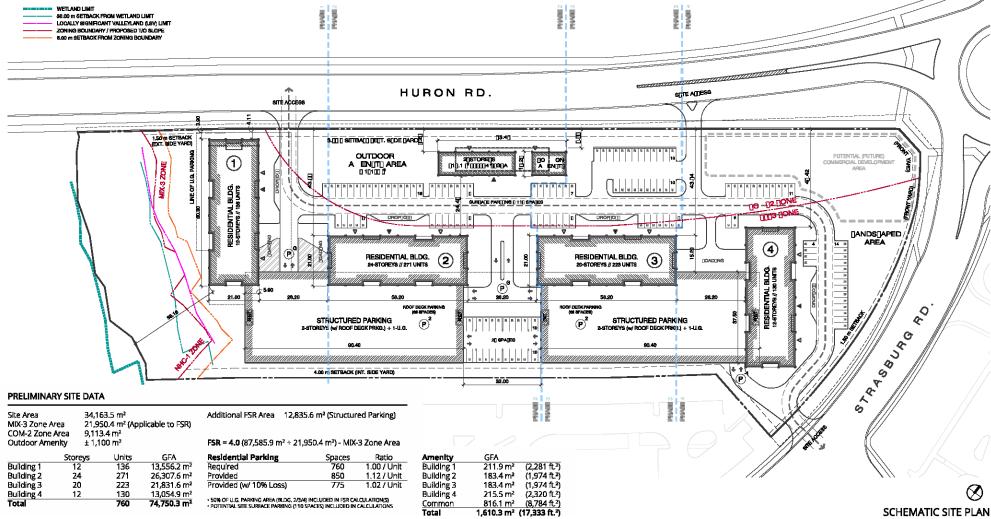


Figure 1: Site Aerial Photo



### Figure 2: Site Plan

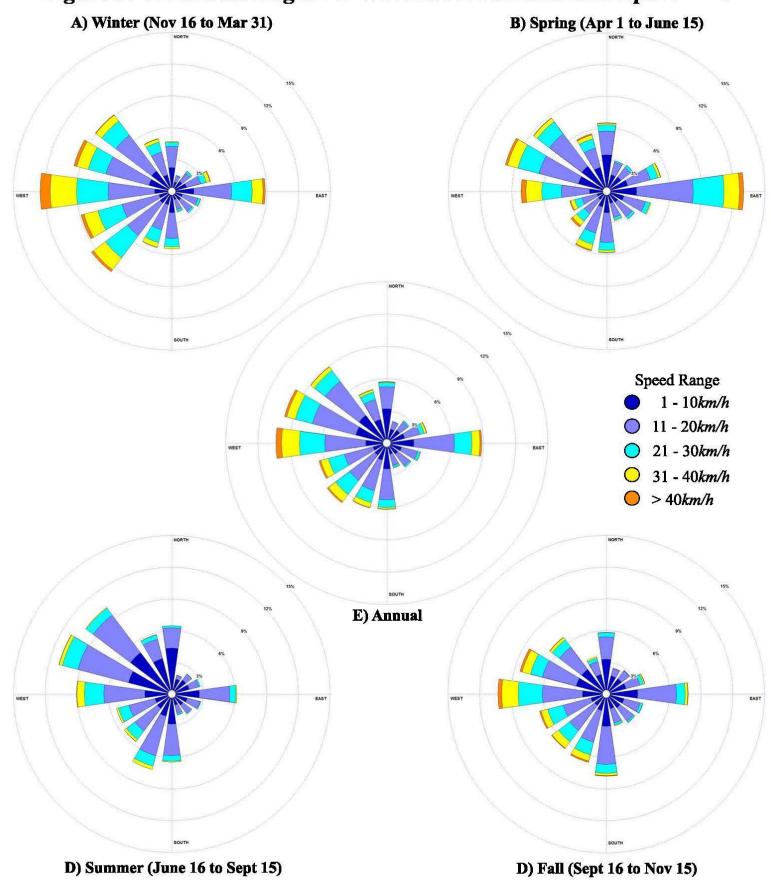
### Lexington Park **Huron West** Kitchener, ON



MARTIN SIMMONS **SWEERS** 

Option 5B-1 Scale 1:1000 01/08/2023







# APPENDIX B SHADOW STUDY













4:00 PM



12:00 PM



2:00 PM

SHADOW STUDY







8:00 AM



10:00 AM



4:00 PM

12:00 PM



2:00 PM

SHADOW STUDY















2:00 PM 6:00 PM SHADOW STUDY







8:00 AM



12:00 PM

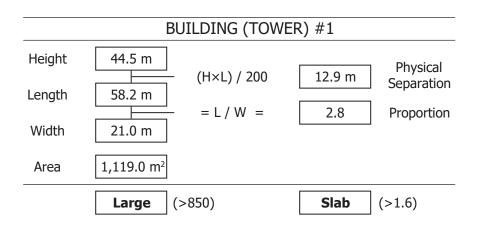


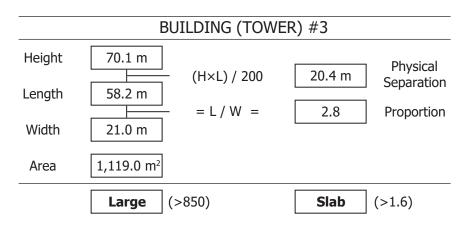


2:00 PM 4:00 PM

# APPENDIX C

TALL BUILDING GUIDELINE ANALYSIS





BUILDING (TOWER) #2		
Height	82.90 m (H×L) / 200	Physical Separation
Length	58.2 m	
Width	= L / W =	2.8 Proportion
Area	1,119.0 m <sup>2</sup>	
	<b>Large</b> (>850)	<b>Slab</b> (>1.6)

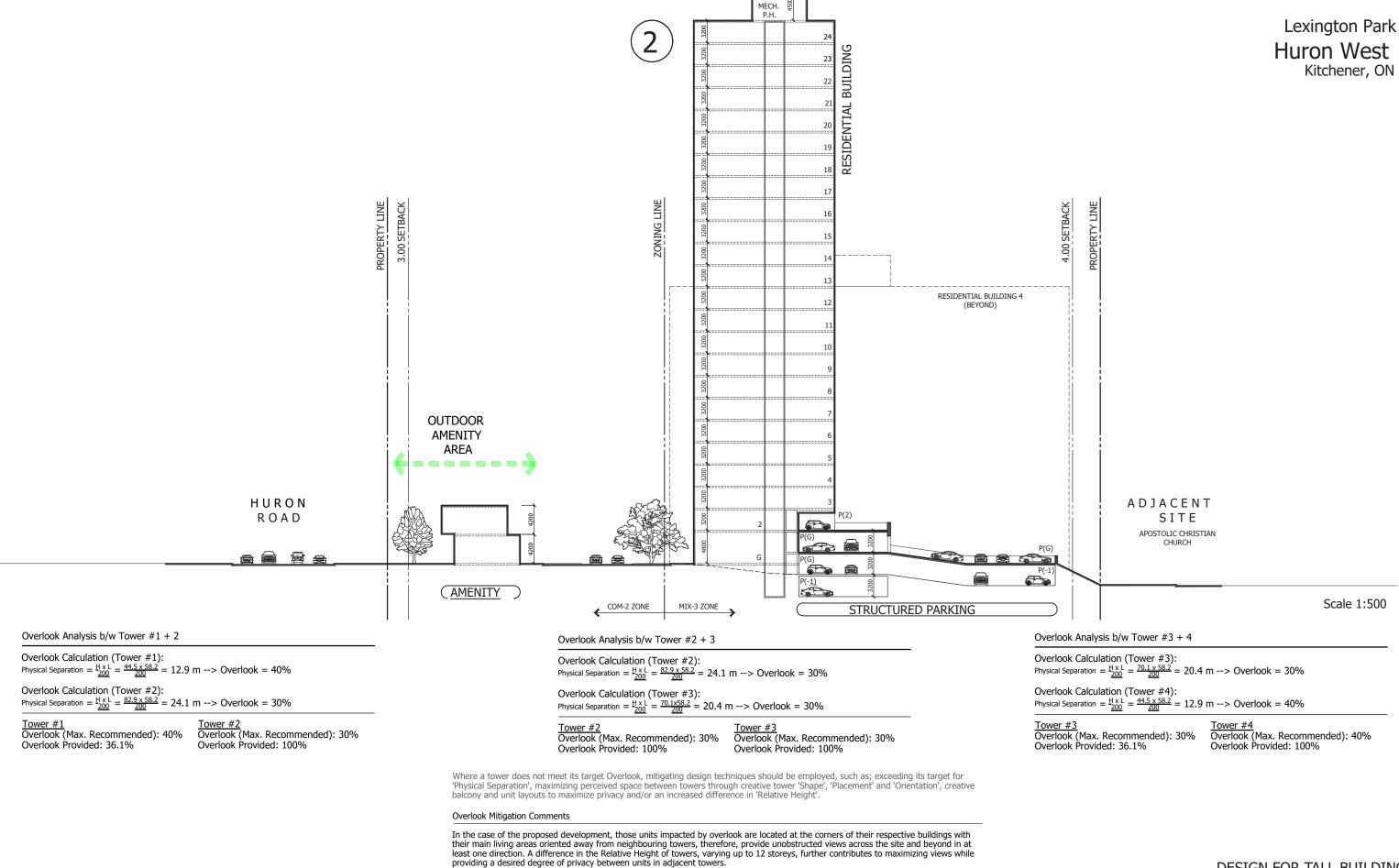
BUILDING (TOWER) #4		
Height	44.5 m (H×L) / 200	12.9 m Physical
Length	58.2 m	Separation
Width	= L / W =	2.8 Proportion
Area	1,119.0 m <sup>2</sup>	
	<b>Large</b> (>850)	<b>Slab</b> (>1.6)

TOWER #1+2 SEPARATION SUMMARY		
	Physical Separation	
Tower #1	12.9 m	
Tower #2	24.1 m	
Total	37.0 m	
Separation Recommended	37.0 m	
Separation Provided	28.2 m	

TOWER #2+3 SEPARATION SUMMARY	
Physical Separation	
24.1 m	
20.4 m	
44.5 m	
44.5 m	
28.2 m	
_	

TOWER #3+4 SEPARATION SUMMARY		
	Physical Separation	
Tower #3	20.4 m	
Tower #4	12.9 m	
<u>Total</u>	33.3 m	
Separation Recommended Separation Provided	33.3 m 28.2 m	

DESIGN FOR TALL BUILDINGS



DESIGN FOR TALL BUILDINGS