

1310 SOUTH SERVICE ROAD

STONE CREEK, ON

PEDESTRIAN WIND ASSESSMENT

PROJECT #2605863

AUGUST 28, 2026



SUBMITTED TO

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1. INTRODUCTION



Rowan Williams Davies & Irwin Inc. (RWDI) was retained to conduct a qualitative assessment of the pedestrian wind conditions expected around the proposed project at 1310 South Service Road in Stoney Creek, Ontario. This effort is intended to inform good design and has been conducted in support of Zoning By-Law Amendment Application for the project.

The project site is located at the southeast corner of the intersection of South Service Road and Vince Mazza Way (**Image 1**) and is currently unoccupied, with surroundings consisting of low-rise commercial and residential buildings, open lands and roadways.

The project consists of two nine-storey residential buildings (Building A and Building B), as shown in **Image 2**. Areas of interest include main entrances on the south and north façades, a landscape area between the proposed buildings, sidewalks/walkways/meandering paths and parking spaces around buildings (**Image 3**).

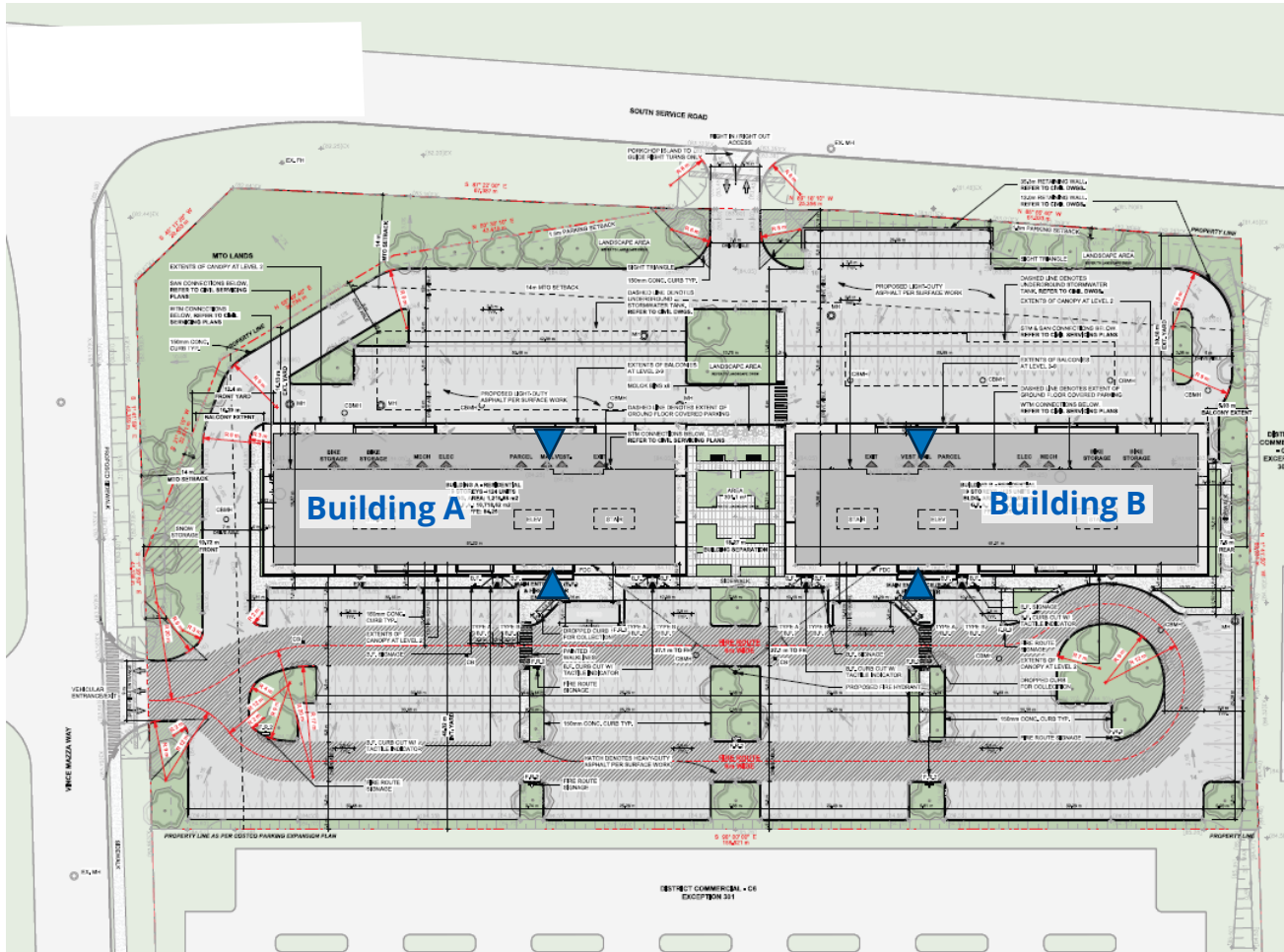


Image 1: Aerial View of the Existing Site and Surroundings (Credit: Google Maps)



Image 2: Project Rendering (View from Southwest)

1. INTRODUCTION



▲ Main Entrance



Image 3: Site Plan

2. METHODOLOGY



Predicting wind speeds and occurrence frequencies is complex. It involves the combined assessment of building geometry, orientation, position and height of surrounding buildings, upstream terrain and the local wind climate.

Over the years, RWDI has conducted thousands of wind-tunnel model studies on pedestrian wind conditions around buildings, yielding a broad knowledge base. In some situations, this knowledge and experience, together with literature, allow for a reliable, consistent and efficient desktop estimation of pedestrian wind conditions without wind-tunnel testing. This approach provides a screening-level estimation of potential wind conditions and offers conceptual wind control measures for improved wind comfort, where necessary.

It is understood that the City of Hamilton has confirmed that a desktop analysis is sufficient for this development. Further detailed quantitative wind analyses could be undertaken at a later design stage, if required.

RWDI's assessment is based on the following:

- Architectural drawings received on July 8 and August 27, 2026;
- A review of the regional long-term meteorological data from Hamilton International Airport;
- Use of RWDI's proprietary software (*WindEstimator*¹) for providing a screening-level numerical estimation of potential wind conditions around generalized building forms;
- Wind-tunnel studies and desktop assessments undertaken by RWDI for projects in the Hamilton and Stoney Creek area;
- RWDI's engineering judgement and knowledge of wind flows around buildings^{2,3}; and,
- City of Hamilton Criteria for pedestrian wind comfort and safety, as detailed in the Development Application Guidelines – Wind Study, October 2022.

Note that other microclimate issues such as those relating to cladding and structural wind loads, door operability, building air quality, noise, vibration, snow impact, etc. are not part of the scope of this assessment.

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1. H. Wu, C.J. Williams, H.A. Baker and W.F. Waechter (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", *ASCE Structure Congress 2004*, Nashville, Tennessee.
 2. H. Wu and F. Kriksic (2012). "Designing for Pedestrian Comfort in Response to Local Climate", *Journal of Wind Engineering and Industrial Aerodynamics*, vol.104-106, pp.397-407.
 3. C.J. Williams, H. Wu, W.F. Waechter and H.A. Baker (1999), "Experience with Remedial Solutions to Control Pedestrian Wind Problems", *10th International Conference on Wind Engineering*, Copenhagen, Denmark.

3. METEOROLOGICAL DATA



Meteorological data from Hamilton International Airport for the period from 1995 to 2024 were used as a reference for wind conditions in the area as this is the nearest station to the site with long-term, hourly wind data. The distributions of wind frequency and directionality for the summer (May through October) and winter (November through April) seasons are shown in the wind roses in **Image 4**.

When all winds are considered, winds from the southwest and northeast directions are predominant throughout the year.

Strong winds of a speed greater than 30 km/h measured at the airport (at an anemometer height of 10m) are more frequent in the winter than in the summer season (red and yellow bands in **Image 4**). These winds potentially could be the source of uncomfortable or severe wind conditions, depending on the site exposure and development design.

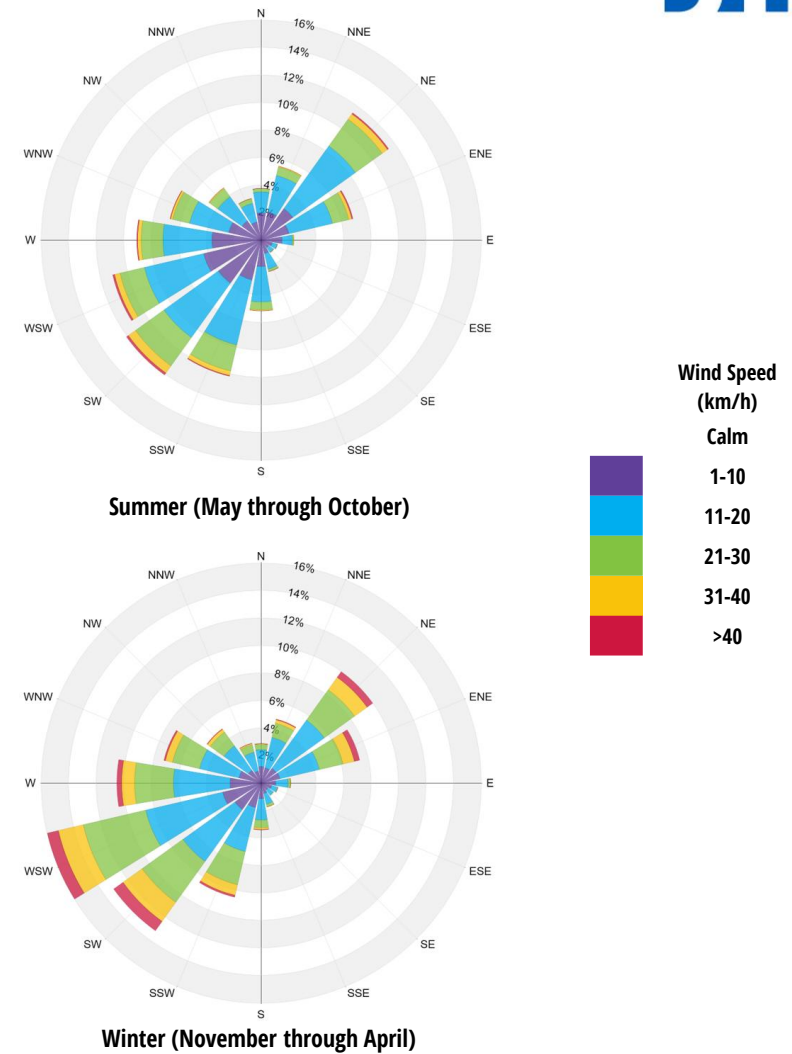


Image 4: Directional Distribution of Winds Approaching Hamilton International Airport (1995 - 2024)

4. WIND CRITERIA



The City of Hamilton pedestrian wind criteria are used in the current study. These criteria are detailed in the Development Application Guideline – Wind Study, updated in October 2022.

4.1 Safety Criterion

Pedestrian safety is associated with excessive gust that can adversely affect a pedestrian's balance and footing. If strong winds that can affect a person's balance (**> 90 km/h**) occur more than **0.1%** of the time or 9 hours per year, the wind conditions are considered severe.

4.2 Pedestrian Comfort Criteria

Wind comfort can be categorized by typical pedestrian activities:

Sitting (≤ 10 km/h): Calm or light breezes desired for outdoor seating areas where one can read a paper without having it blown away.

Standing (≤ 14 km/h): Gentle breezes suitable for main building entrances and bus stops.

Strolling (≤ 17 km/h): Moderate winds that would be appropriate for window shopping and strolling along a downtown street, plaza or park.

Walking (≤ 20 km/h): Relatively high speeds that can be tolerated if one's objective is to walk, run or cycle without lingering.

Uncomfortable: The comfort category for walking is not met.

Wind conditions are considered suitable for sitting, standing, strolling or walking if the associated mean wind speeds are expected for at least four out of five days (**80% of the time**). Wind control measures are typically required at locations where winds are rated as uncomfortable or they exceed the wind safety criterion.

Note that these wind speeds are assessed at the pedestrian height (i.e., 1.5 m above grade or the concerned floor level), typically lower than those recorded in the airport (10 m height and open terrain).

These criteria for wind forces represent average wind tolerance. They are sometimes subjective and regional differences in wind climate and thermal conditions as well as variations in age, health, clothing, etc. can also affect people's perception of the wind climate.

For the current development, wind speeds comfortable for walking or strolling are appropriate for sidewalks, walkways and parking spaces; lower wind speeds comfortable for standing are recommended for building entrances where pedestrians may linger; and calm wind speeds suitable for sitting or standing are desired for outdoor landscape areas where passive activities are anticipated, especially during the summer when these areas are typically in use.

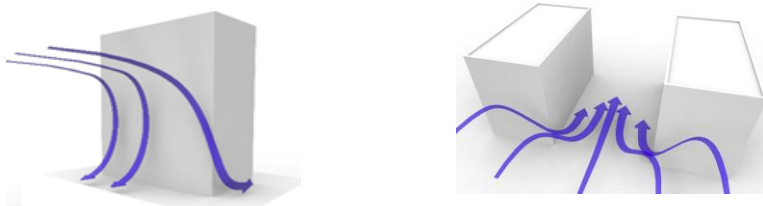
5. RESULTS AND DISCUSSION



5.1 Wind Flow Around Buildings

Short buildings do not redirect winds significantly to cause adverse wind conditions at pedestrian areas. Buildings that are taller than surroundings tend to intercept the stronger winds at higher elevations and redirect them to the ground level (Downwashing). These winds subsequently move around exposed building corners and between buildings, causing a localized increase in wind activity due to Corner Acceleration and Channelling Effect. These flow patterns are shown in **Image 5**. If these building / wind combinations occur for prevailing winds, there is a greater potential for increased wind activity and *uncomfortable* conditions.

Design details such as stepped massing, tower step-back from a podium edge, deep canopies close to ground level, wind screens / tall trees with dense underplanting, etc. can help reduce wind speeds. The choice and effectiveness of these measures would depend on the exposure and orientation of the site with respect to the prevailing wind directions and the size and massing of the proposed buildings.



a) Downwashing and Corner Acceleration b) Channelling Effect between Buildings

Image 5: Generalized Wind Flows

5.2 Existing Scenario

The existing site is unoccupied and surrounded by suburban neighbourhoods, comprising low buildings, open lands and roadways. As such, there are no significant structures that would deflect ambient winds to the ground to cause adverse wind impacts. Currently, wind conditions on sidewalks/walkways around the site are considered comfortable for standing or strolling in the summer and for strolling or walking in the winter, due to its exposure and proximity to the lake.

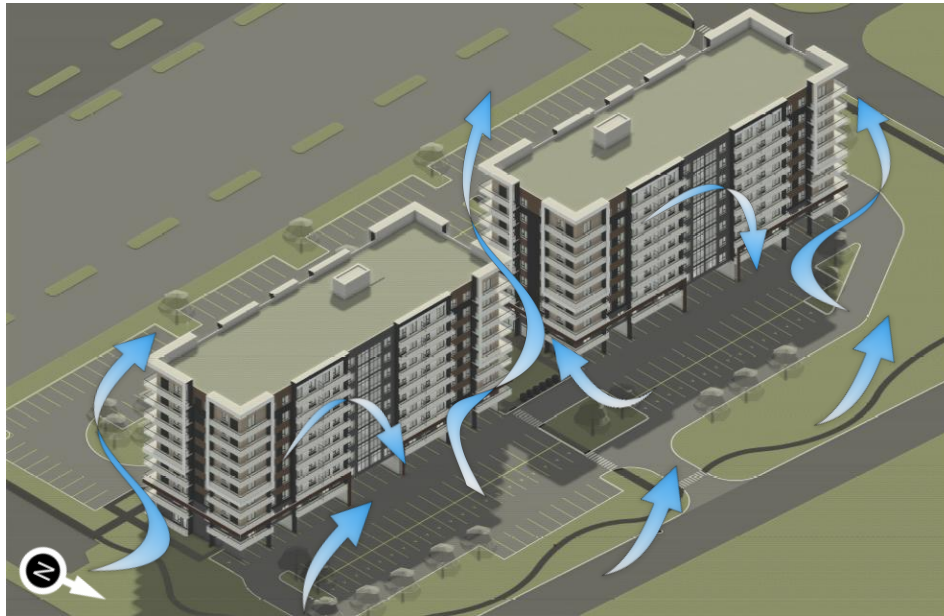
Wind conditions exceeding the safety criterion are not expected.

5.3 Proposed Scenario: Wind Flow

The proposed buildings are taller than existing surroundings and, therefore, will be exposed to the prevailing winds. Downwashing, corner accelerating and channelling flows are predicted to result in increased wind activity in pedestrian areas on and immediately around the proposed buildings, with the highest speeds expected in the areas between the proposed buildings and around the southeast and northwest building corners.

The expected flow patterns for the prevailing northeast and southwest winds are shown in **Image 6**, and the predicted wind conditions for the summer and winter seasons are shown in **Images 7** and **8**, respectively.

5. RESULTS AND DISCUSSION



NE Winds



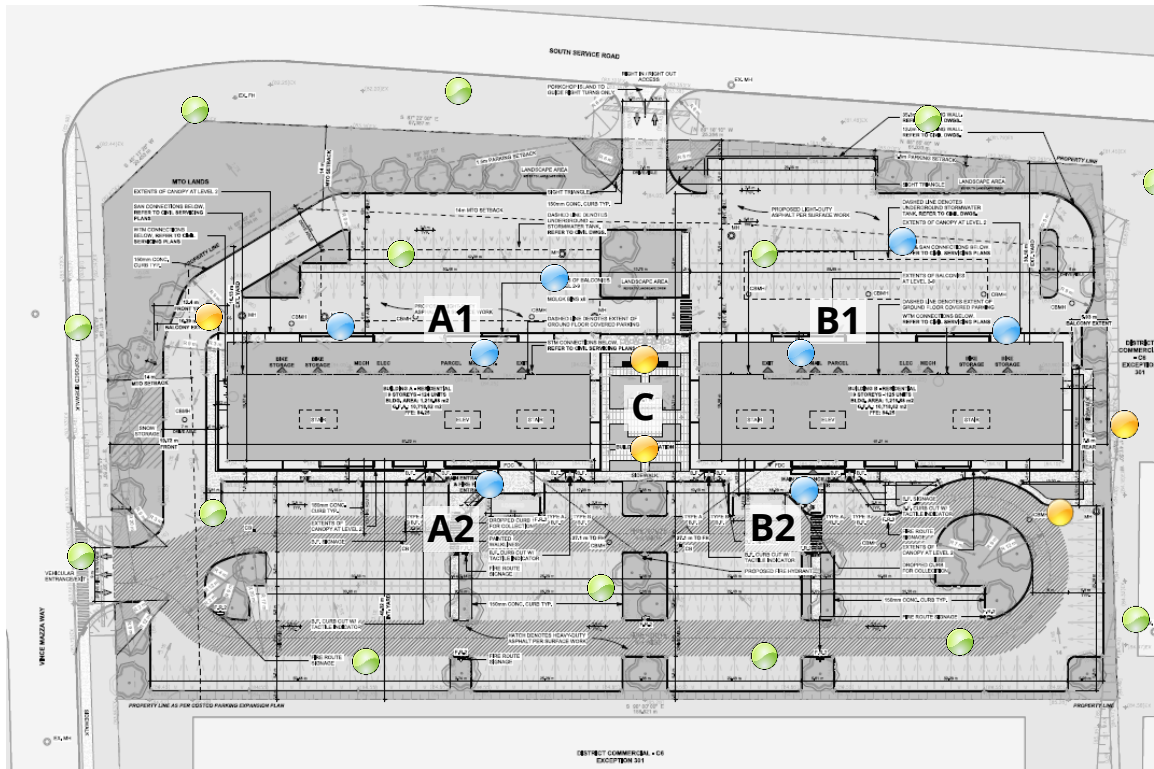
SW Winds

Image 6: Predicted Flow Patterns around the Site for Northeast and Southwest Winds

5. RESULTS AND DISCUSSION



5.4 Proposed Scenario: Predicted Wind Conditions



WIND COMFORT CATEGORIES

- Sitting / Standing
- Strolling
- Walking
- Potentially Uncomfortable

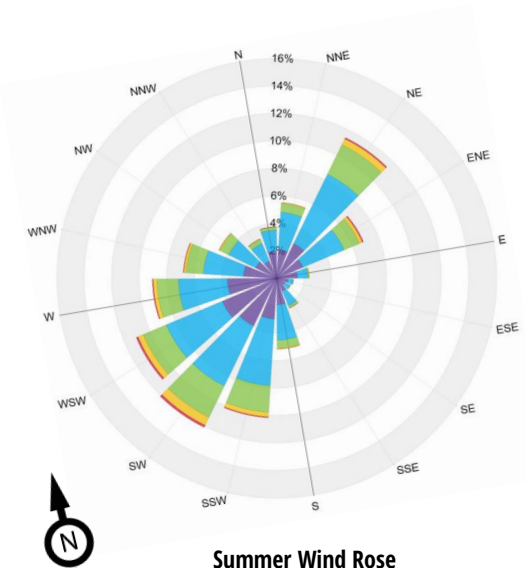
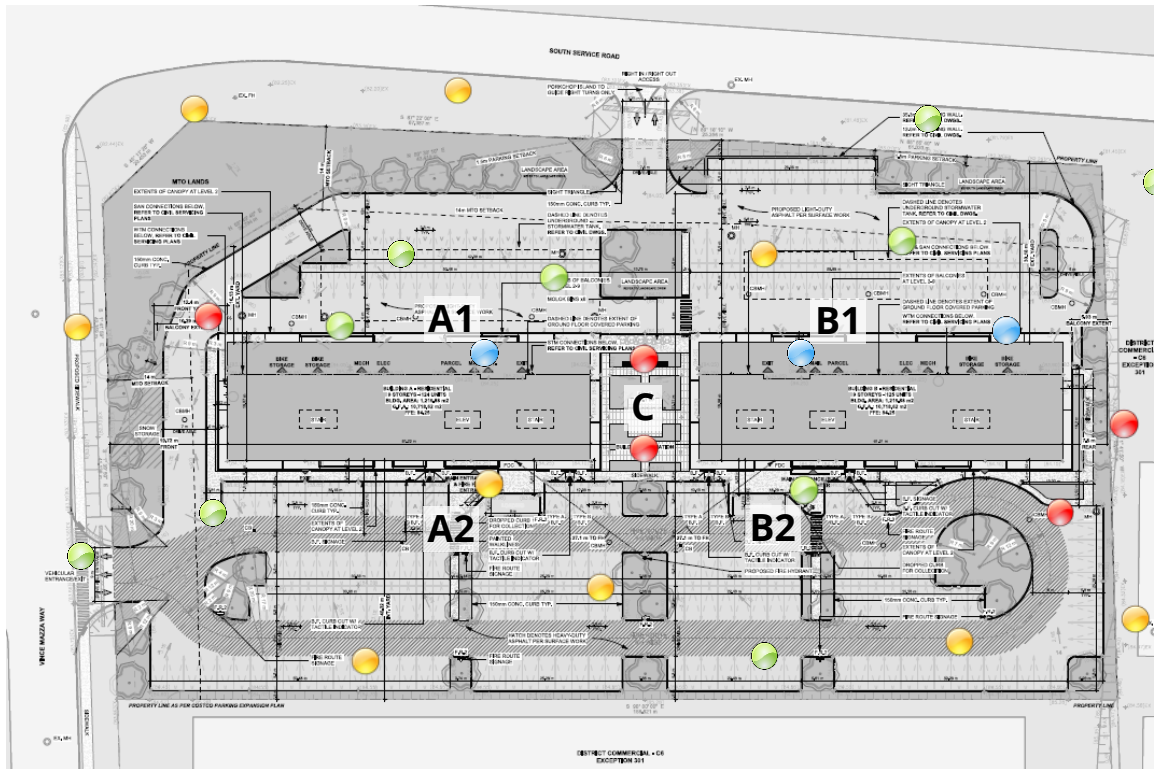


Image 7: Predicted Wind Comfort Conditions - Summer

5. RESULTS AND DISCUSSION

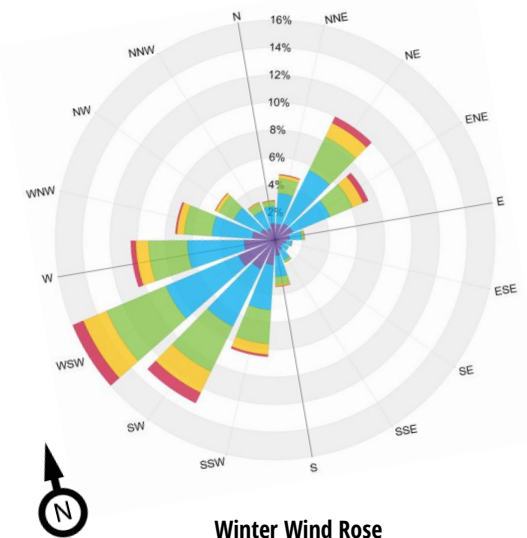


5.4 Proposed Scenario: Predicted Wind Conditions



WIND COMFORT CATEGORIES

- Sitting / Standing
- Strolling
- Walking
- Potentially Uncomfortable



Winter Wind Rose

Image 8: Predicted Wind Comfort Conditions - Winter

5. RESULTS AND DISCUSSION



5.5 Proposed Scenario: Wind Safety

The proposed development is taller than the existing surroundings in the area. With the site exposure, higher wind activity is anticipated, causing elevated wind speeds at the exposed building corners and between the proposed buildings, due to the corner acceleration and channelling effect.

The height of nine storeys, however, is considered moderate for wind impact. Wind conditions on and around the proposed project are expected to meet the recommended criterion for pedestrian safety, with the exception for the area along the gap between the two proposed buildings (**Image 6**).

5.6 Proposed Scenario: Wind Comfort

5.6.1 Entrances

It is generally desirable to have wind conditions comfortable for standing or sitting near entrance locations, as pedestrians are likely to linger at entrances.

For the current project, the north entrances are in recessed areas sheltered by the building overhangs (Locations A1 and B1 in **Images 7** and **8**), where low wind speeds comfortable for sitting or standing are expected throughout the year.

The south entrances (Locations A2 and B2) are more exposed, and wind conditions are predicted to be comfortable for standing in the summer (**Image 7**) and for strolling or walking in the winter (**Image 8**). The predicted winter speeds are higher than desired for main entrances. Lower wind speeds can be achieved around the south entrances by installing wind screens or tall planters on the west side of the doorways – see photos in **Image 9** for examples.

5.6.2 Landscape Area

A landscape area is located between the proposed buildings (Location C), where channelling wind flows are expected to cause high wind speeds that are comfortable for walking in the summer (**Image 7**) and uncomfortable in the winter (**Image 8**). Wind gusts along the gap may potentially exceed the wind safety limit due to the channelling effect of the prevailing southwest and northeast winds.

To create a local wind environment that is suitable for passive activities such as sitting or standing for the landscape area in the summer, wind control solutions will need to be developed, and they may consist of tall wind screens or landscaping rows at both ends of the landscape area and a large overhead trellis above the space - see **Image 10** for photo examples.

If desired, a more detailed wind study could be undertaken as the design develops in order to confirm the frequency of high wind activity and the need and level of wind mitigation that is required.

5. RESULTS AND DISCUSSION



5.6.3 Sidewalk, Walkways and Parking Spaces

Users of these areas are typically active and can tolerate relatively high wind speeds that are comfortable for strolling or walking. This criterion is predicted to be met at most pedestrian areas on and around the site, with occasionally uncomfortable conditions around the southeast and northwest corners in the winter (**Images 7 and 8**).

If feasible, additional landscaping should be considered around the building corners to reduce the wind activity in those areas and to keep pedestrians away from windy corners.

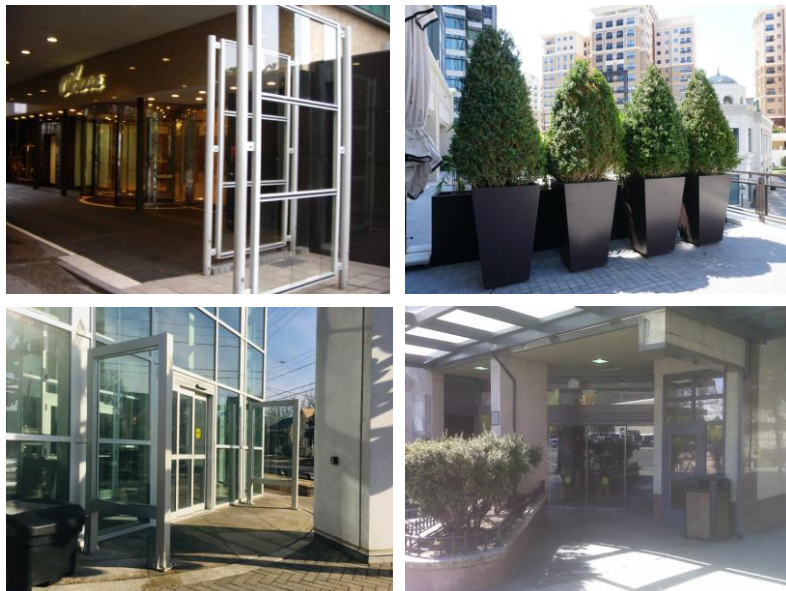


Image 9: Wind Control Measures for South Entrances

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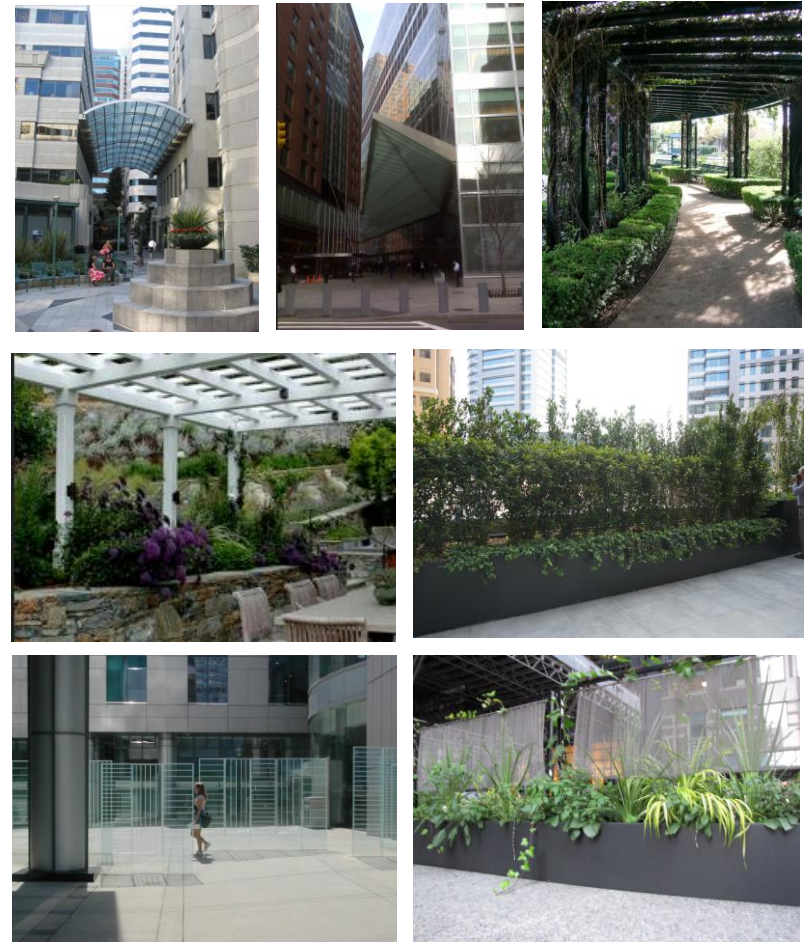


Image 10: Wind Control Strategies for Landscape Area between Proposed Buildings

6. SUMMARY



RWDI was retained to provide an assessment of the potential pedestrian level wind impact of the proposed project at 1310 South Service Road in Stoney Creek, Ontario. Our assessment was based on the local wind climate, the current design of the proposed development, the existing surrounding buildings, our experience with wind tunnel testing of similar buildings, and screening-level modelling of wind flows around buildings.

Our findings and recommendations are summarized as follows:

- The proposed project is taller than the existing surroundings and, therefore, will cause an increase in wind speeds immediately around it. However, no wind impact is expected for further surroundings, given its moderate height.
- Wind conditions on and around the proposed project are expected to meet the recommended criterion for pedestrian safety, with the exception of the landscape area between the proposed buildings.
- Suitable wind conditions are expected for most pedestrian areas throughout the year. Exceptions include the gap between the proposed buildings in both the summer and winter seasons, and the southeast and northwest building corners as well as the south entrances in the winter.
- Conceptual wind control measures are discussed in the report. A more detailed wind analysis could be undertaken at a later design

stage to quantify the predicted wind conditions and, if necessary, to develop wind control solutions.

7. STATEMENT OF LIMITATIONS



Design Assumptions

The findings/recommendations in this report are based on the building geometry and architectural drawings communicated to RWDI on July 8 and August 27, 2026, listed below. Should the details of the proposed design and/or geometry of the building change significantly, results may vary.

File Name	File Type	Date Received (mm/dd/yyyy)
2026-07-07_1310 South Service Road_SPA Draft Set	PDF	07/08/2026
Arch Site Plan	PDF	08/27/2026

Changes to the Design or Environment

It should be noted that wind comfort is subjective and can be sensitive to changes in building design and operation that are possible during the life of a building. These could be, for example: outdoor programming, operation of doors, elevators, and shafts pressurizing the tower, changes in furniture layout, etc. In the event of changes to the design, construction, or operation of the building in the future, RWDI could provide an assessment of their impact on the discussions included in this report. It is the responsibility of Others to contact RWDI to initiate this process.

Limitations

This report was prepared by Rowan Williams Davies & Irwin Inc. for Forum ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein and authorized scope. The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.