St. Catharines | **Memorandum**

To: **Mayor Siscoe**
Members of Council

Cc: **Senior Leadership Team**

From: **Tami Kitay, Director of Planning and Building Services**

Date: **June 4, 2026**

Subject: **282-285 Ontario Street**
MOECP Dustfall Results August 2020 – March 2025

The City is now in receipt of an air monitoring survey report titled "Dustfall Results at the former GM Property in St. Catharines, Ontario: August 2020 to March 2025" prepared by the Ministry of the Environment, Conservation, and Parks (MOECP). The purpose of the survey was to measure dustfall concentrations and identify any dustfall exceedances of the Ontario Ambient Air Quality Criteria (AAQC). The AAQC are aesthetic based parameters and not an indicator of risk to health. The collection of dustfall samples was extended in response to on-going community concern.

Dustfall samples were collected and analyzed each calendar month from August 2020 to March 2025. Samples exceeded the Ontario monthly AAQC in December 2022, February 2023, March 2023, and April 2023. During this period, representatives of the landowner were constructing the surface water containment facility on the north side of 282 Ontario Street. Complaints received by the public during this period of construction necessitated MOECP direction to the property owner to implement dust control measures. Additionally, infrastructure works on Hampstead Place and Ontario Street may have also influenced dustfall measurements.

The MOECP's analysis of samples collected November 2020-March 2025 concluded that minerals and biological materials were the largest contributors to dustfall measurements (road dust, pollen, bugs). The attached MOECP report is considered to be an addendum to the 2020 Air Monitoring Survey report found on the City's website.

The attached report will be posted to the City's website by end of business on June 4, 2026.

/tlk

Encls:

- Submission of Air Monitoring Survey Report – 282-285 Ontario Street, St. Catharines, June 2, 2026 (MOECP)
- Dustfall Results at the Former GM Property in St. Catharines, Ontario: August 2020 to March 2025 (MOECP)

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Ontario

June 2, 2026

City of St. Catharines
Planning and Building Services Department
City Hall
50 Church Street
St. Catharines, ON L2R 7C2

Attention: Tami Kitay, Director of Planning and Building Services

Subject: Submission of Air Monitoring Survey Report – 282-285 Ontario Street, St. Catharines

Dear Ms. Kitay,

The Ministry of the Environment, Conservation and Parks is providing the attached air monitoring survey report titled *"Dustfall Results at the Former GM Property in St. Catharines, Ontario: August 2020 to March 2025"* for the City of St. Catharines' information and inclusion on the city's web page for 282-285 Ontario Street.

This report summarizes the results of ambient dustfall monitoring conducted over an extended period in the vicinity of 282 and 285 Ontario Street. The monitoring program builds upon an earlier air quality survey completed at the same location in 2020 and further assesses dust-related conditions in the surrounding community.

The 2020 findings indicated that air and dust samples primarily reflected contributions from road dust and background conditions. Specifically, results showed that sampled material largely consisted of normal road dust; high-volume air sampling results were below applicable ministry standards and Ambient Air Quality Criteria; no asbestos was detected in air samples; monthly dustfall values were below the Ambient Air Quality Criteria; and suspended particulate matter concentrations were similar at upwind and downwind locations, suggesting no fugitive dust emissions originating from the property.

The attached report provides analysis of the additional dustfall monitoring that ended in March 2025 and provides additional context regarding dustfall trends over time, including consideration of specific site activities during discrete periods. Overall, the additional samples continue to be mainly comprised of normal road dust and align with the earlier survey conclusions. A few exceedances of the Ambient Air Quality Criteria occurred during construction activities for the stormwater collection and containment system on the site, that coincided with road work in the area. The ministry responded to several dust complaints at the time and required the owner to implement dust mitigation measures. This highlights the need for dust control plans for future construction or demolition projects at the site.

It is important to note that the dustfall Ambient Air Quality Criteria is an aesthetics-based standard for nuisance soiling and exceedances of this criterion are not an indication of increased risk to human health.

If you have any questions, please feel free to contact me.

Sincerely,

Kim Groombridge
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May 21, 2026

M E M O R A N D U M

RE: **Dustfall Results at the Former GM Property in St. Catharines, Ontario: August 2020 to March 2025**

At the request of the Niagara District Office of the Ontario Ministry of the Environment, Conservation and Parks (MECP), the Technical Support Section of West Central Region (WCR) conducted a dustfall survey in the vicinity of the former General Motors (GM) property (site) from August 2020 to March 2025. The purpose of this survey was to measure dustfall concentrations, which can cause soiling and nuisance issues and identify any dustfall exceedances of the Ontario Ambient Air Quality Criteria (AAQC). The results of the dustfall survey are presented in this memo.

This memo serves as an addendum to the memo issued by the Technical Support Section of WCR titled "Former GM Property Air Monitoring Survey, St. Catharines, Ontario", dated December 9, 2020. The conclusion from the original memo is copied below:

Overall, Hi-vol and dustfall samples mainly contained normal road dusts. No asbestos was found in the Hi-vol samples which detected trace synthetic fibers. The measurements of suspended particulate matter and metals were significantly lower than the O. Reg. 419/05 24-hour Standards and AAQC at both stations. The amount of dust collected in the dustfall jars were also well below the AAQC guideline. Also, no elevated concentrations of suspended particulate matter were observed in the downwind samples, therefore off-site fugitive emissions from the former GM property to the general public were not observed.

Monitoring Locations and Activities

The dustfall sampling location was named Station 27096, located at the northeast corner of the site as shown in Figure A1 in Appendix A. This site is considered downwind of the property based on the prevailing south and southwesterly winds. Dustfall jars captured airborne particles that settled over a defined area and time period (1 month) under the influence of gravity. The total dustfall sample (referred to as dustfall hereafter) includes both the soluble and insoluble portions. Dustfall concentrations are reported in grams per square meter per time period (e.g. g/m^2/30days). Various materials contained in the dustfall sample were identified by the laboratory using microscopy.

The dustfall AAQC is based on soiling (or "dustiness") as an aesthetic/ nuisance factor rather than human health, animals or vegetation. Dustfall measurements reflect an aggregate measurement over a calendar month. While prevailing wind patterns for the month can suggest source contribution, they do not provide conclusive evidence. A source emitting at high intensity from a non-predominant direction, even for a short duration, can substantially influence the recorded monthly dustfall.

Meteorological parameters measured on a 5-minute basis, including wind speed and wind direction, were measured at the Port Dalhousie WWTP Climate Station, located approximately 5 km north of the site. This station is the closest meteorological station to the dustfall sampling site. Due to the distance between the site and the meteorological station, the actual winds experienced at the site may be different. The meteorological data were obtained from the Niagara Open Data website as 5-minute wind speed and direction data. Figure A2 in Appendix A includes a map showing the sampling location as well as the site location and available meteorological stations within the region. In this memo, the predominant wind direction is the compass octant (one of the eight main directions, detailed in Appendix C) that contains the highest frequency of 5-minute wind direction data points.

Monthly Dustfall Measurements and its Compositions

As seen in Appendix B (Figure B1), winds over the entire monitoring period were predominately from the southwest and south with some contributions from the northwest. As intended, the monitoring location was predominately downwind of the site over the entire monitoring period.

Table 1 and Figure 1 provides a summary of all monthly dustfall measurements at the site (August 2020 to March 2025). During this period, two dustfall samples were lost (February and March 2021) when the laboratory was transitioning to a new reporting system resulting in a total of 54 samples collected and analyzed.

Monthly dustfall concentrations ranged from 1.0 g/m^2 measured in numerous months to 15 g/m^2 measured in February 2023. Out of the 54 dustfall samples, 19 were below the detection limit of 2 g/m^2/30d (reported as 1 g/m^2/30d).

Four samples exceeded the Ontario monthly AAQC for dustfall of 7 g/m^2/30days (in December 2022, February 2023, March 2023 and April 2023). During this period, the site owner was constructing a stormwater containment berm, collection ditches and a retention pond which likely influenced these exceedances. Some complaints were received by the Ministry during this time and water trucks were brought in by the owner to control dust in response to Ministry direction. In addition, infrastructure work led by the City of St. Catharines including the Hampstead Place and Ontario Street reconstruction work occurred in 2022, 2023 and 2024 which may have also influenced dustfall measurements.

Although the monitoring location was not primarily situated downwind of the municipal road reconstruction activities, it is possible that its proximity to these activities contributed, at least in part, to the dustfall measurements. The predominant wind direction of three exceedances were from the southwest, indicating that site conditions and on-site sewage works construction may have contributed to the elevated dustfall concentrations. In March 2023, the predominant wind direction was from the northwest (21%), though winds from the southwest were nearly comparable (20%). This suggests that while northwesterly winds were dominant, southwesterly winds may also have been a factor in dustfall measurements. As noted earlier, a source emitting at high intensity from a non-predominant direction (such as from the southwest), even for a shorter duration, can substantially influence the recorded monthly dustfall. Figure B2 plots the wind roses for each monthly dustfall exceedance.

Microscopic analysis showed that minerals (68%) were the largest contributor to dustfall samples, followed by biological materials (27%), other materials (4%), and Kish/Magnetic Particles (<1%). In general, scanning electron microscope with an energy dispersive x-ray analyzer (SEM-EDXRA) analyses concluded that most samples contained mainly normal road dusts.

Table 1. Dustfall measurements at the former GM property (Station 27096) and predominant wind direction at Port Dalhousie WWTP Climate Station August 2020 to March 2025.

Sampling Period	Predominant Wind Direction	Dustfall; total ($g/m^2/30days$)	Composition (%)			
			Minerals	Others	Kish/Magnetic Particles	Biological Material
Aug-20	S	1 (<MDL)	35	0	0	65
Sep-20	S	2.4	20	0	0	80
Oct-20	S	3	30	0	0	70
Nov-20	SW	1 (<MDL)	90	0	0	10
Dec-20	SW	1 (<MDL)	90	0	0	10
Jan-21	NW	1 (<MDL)	90	0	0	10
Feb-21	SW	-	-	-	-	-
Mar-21	NW	-	-	-	-	-
Apr-21	NW	1 (<MDL)	50	0	0	50
May-21	NW	2.3	50	0	0	50
Jun-21	S	3.7	10	0	0	90
Jul-21	NW	5.5	5	0	0	95
Aug-21	S	1 (<MDL)	10	0	0	90
Sep-21	S	1 (<MDL)	80	0	0	20
Oct-21	S	1 (<MDL)	5	0	0	95
Nov-21	SW	1 (<MDL)	100	0	0	0
Dec-21	SW	1 (<MDL)	100	0	0	0
Jan-22	SW	2.2	90	0	0	10
Feb-22	SW	2.4	85	0	0	15
Mar-22	W	6.7	60	0	0	40
Apr-22	NW	6.5	95	0	0	5
May-22	S	2.4	80	0	0	20
Jun-22	S	5.3	40	0	0	60

Table 1. Dustfall measurements at the former GM property (Station 27096) and predominant wind direction at Port Dalhousie WWTP Climate Station August 2020 to March 2025.

Sampling Period	Predominant Wind Direction	Dustfall; total (g/m^2/30days)	Composition (%)			
			Minerals	Others	Kish/Magnetic Particles	Biological Material
Jul-22	S	6.9	80	0	0	20
Aug-22	S	6.6	90	0	0	10
Sep-22	S	2.6	30	0	0	70
Oct-22	S	6.1	85	0	0	15
Nov-22	SW	4.6	85	0	0	15
Dec-22	SW	10*	85	0	5	10
Jan-23	SW	5.2	95	0	0	5
Feb-23	SW	15*	95	0	0	5
Mar-23	NW	8*	90	0	0	10
Apr-23	SW	10*	95	0	0	5
May-23	N	4.1	70	0	0	30
Jun-23	NW	3.3	25	0	0	75
Jul-23	S	3.5	60	0	0	40
Aug-23	S	6.4	10	0	0	90
Sep-23	NW	1 (<MDL)	50	0	0	50
Oct-23	S	1 (<MDL)	30	0	0	70
Nov-23	SW	1 (<MDL)	95	0	0	5
Dec-23	SW	1 (<MDL)	70	0	0	30
Jan-24	SW	2.7	80	0	0	20
Feb-24	S	3.2	90	0	0	10
Mar-24	NW	1 (<MDL)	70	0	0	30
Apr-24	NW	1 (<MDL)	90	0	0	10
May-24	NW	2.5	85	0	0	15
Jun-24	S	5.5	85	0	0	15
Jul-24	NW	4	80	0	0	20
Aug-24	NW	1 (<MDL)	75	0	0	25
Sep-24	NW	5.3	40	0	0	60
Oct-24	NW	6.6	0	100	0	0
Nov-24	SW	1 (<MDL)	10	90	0	0
Dec-24	SW	1 (<MDL)	90	0	0	10
Jan-25	SW	3.6	90	5	0	5
Feb-25	SW	3.4	90	5	0	5
Mar-25	SW	3	90	5	0	5

\- No data
* Exceedance of monthly AAQC
<MDL Measurements less than the laboratory's method detection limit are reported as 1 g/m^2

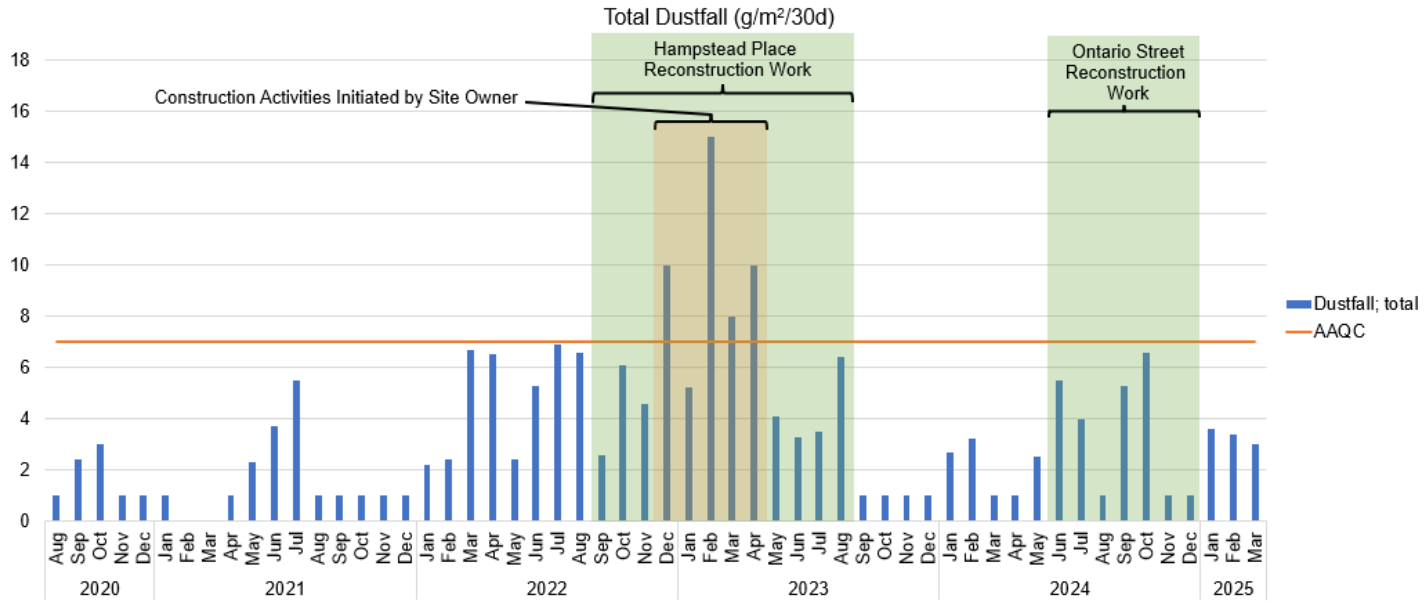

Figure 1. Dustfall measurements at the former GM property (Station 27096) – August 2020 to March 2025

Annual Dustfall Measurements

A valid annual dustfall measurement requires at least 9 months of data. Therefore, annual averages for 2020 and 2025 were not calculated for comparison against the annual dustfall AAQC of 4.6 g/m²/year. Table 2 below summarizes the valid annual dustfall measurements over the sampling period.

Table 2 - Dustfall measurements at the former GM property (Station 27096)

Year	Predominant Wind Directions	Annual Average Dustfall (g/m²/year)
Aug to Dec 2020	S, SW	Insufficient Data
2021	S, NW	1.9
2022	S, SW	5.2*
2023	SW, NW	5.0*
2024	NW, SW	2.9
Jan to Mar 2025	SW, W	Insufficient Data
Aug 2020 to Mar 2025	SW, S	-

*Exceedance of annual AAQC (4.6 g/m²/year)

Appendix B (Figure B3) presents annual wind roses for 2021–2024 as well as relevant months in 2020 and 2025. The wind patterns are similar, with the most predominant winds either from the south or southwest and other contributions from the northwest.

There were no annual dustfall AAQC exceedances in 2021 or 2024. Exceedances of the annual AAQC for dustfall were recorded in 2022 and 2023. 2022 dustfall measurements were likely influenced by site conditions, on-site sewage works construction and nearby municipal road

reconstruction activities. The elevated annual average in 2023 was primarily attributable to increased dustfall measurements between February and April, coinciding with on-site construction activities as previously discussed, while measurements for the remainder of the year were substantially lower. Outside of the 2023 on-site construction period, dustfall levels remained relatively low in 2023, and were even lower after road reconstruction work on Hampstead Place ended in August 2023 as seen in Figure 1 above.

Conclusion

Out of 54 monthly dustfall samples, 19 monthly dustfall samples were below the detection limit while 4 AAQC monthly exceedances (December 2022 and February to April 2023) were measured during the study period at the site. Annual AAQC exceedances were observed in 2022 and 2023. The 2022 AAQC exceedance is likely attributable to site conditions, on-site sewage works construction and nearby municipal road infrastructure reconstruction activities. The monthly and 2023 annual exceedances are likely attributable to construction projects on the site initiated by the owner and other reconstruction road work.

No asbestos was found in the Hi-Vol samples analyzed which ended in 2020. Microscopic analysis showed that minerals and biological materials were the largest contributors to dustfall measurements. SEM-EDXRA analysis concluded most samples mainly contained normal road dusts.

Appendix A: Maps of the monitoring location, former GM property, and surrounding meteorological stations

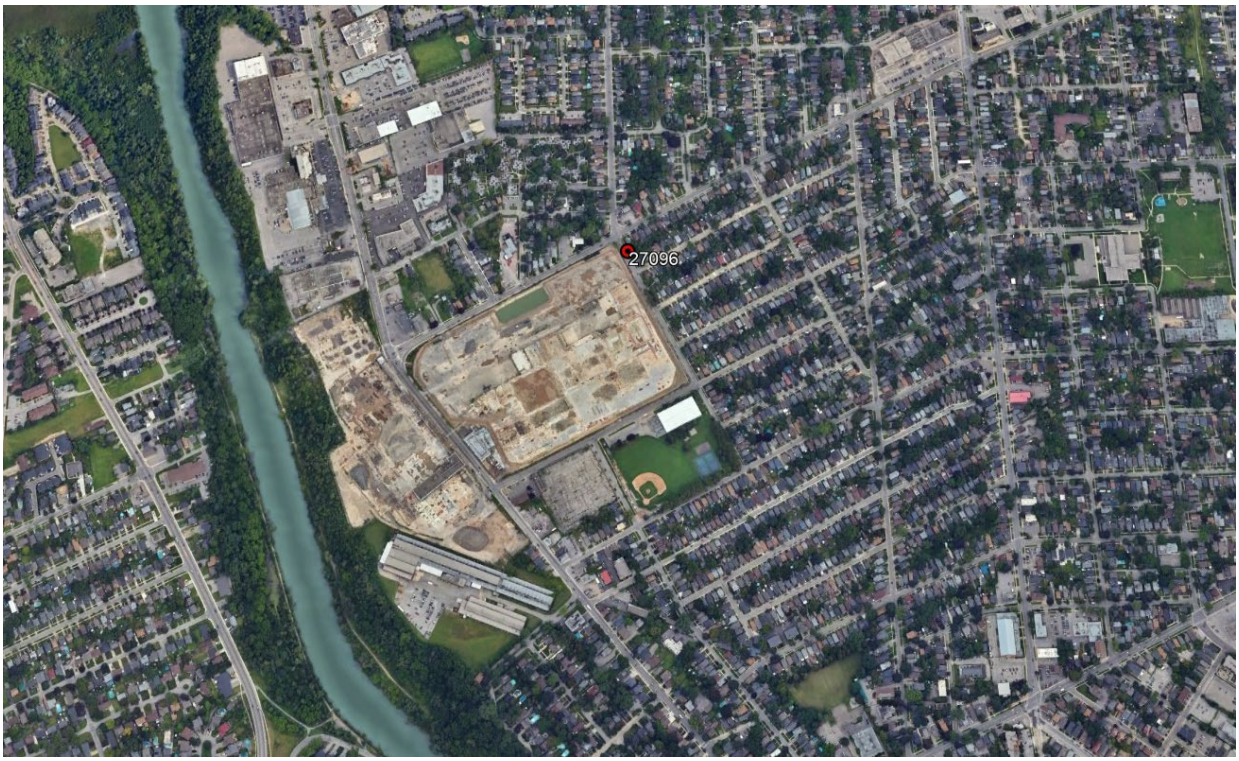

Figure A1. Location of the dustfall monitor (red dot)

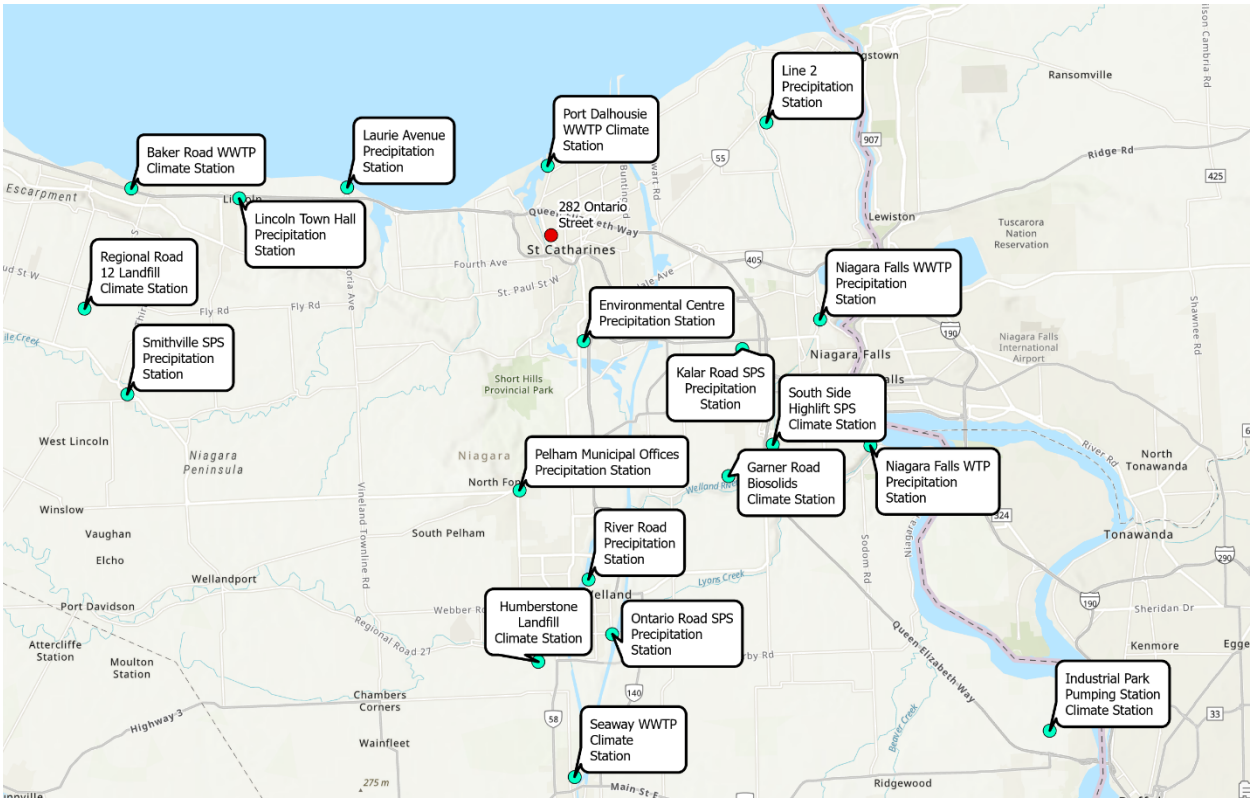

Figure A2. Location of the former GM property (red dot) and locations of meteorological stations (green dots) within the region.

Appendix B: Wind Roses

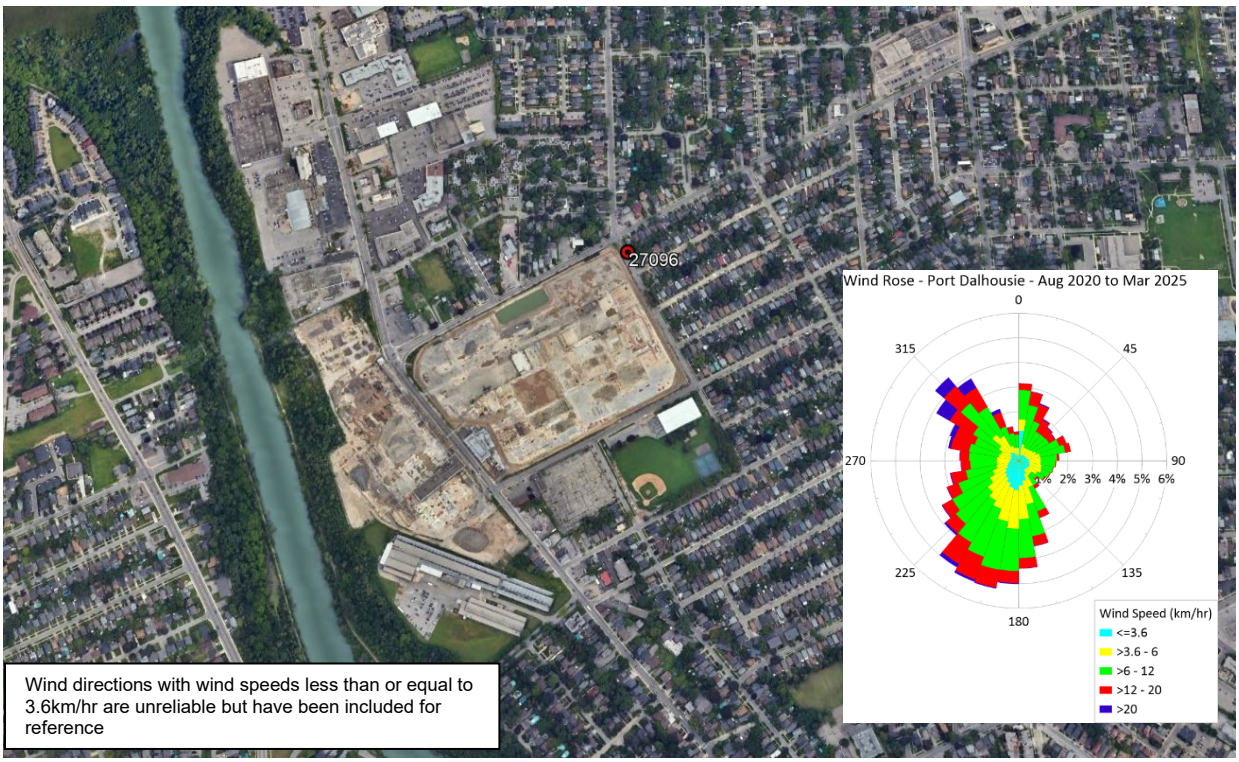

Figure B1. Wind roses at Port Dalhousie WWTP Climate Station over the entire study period.

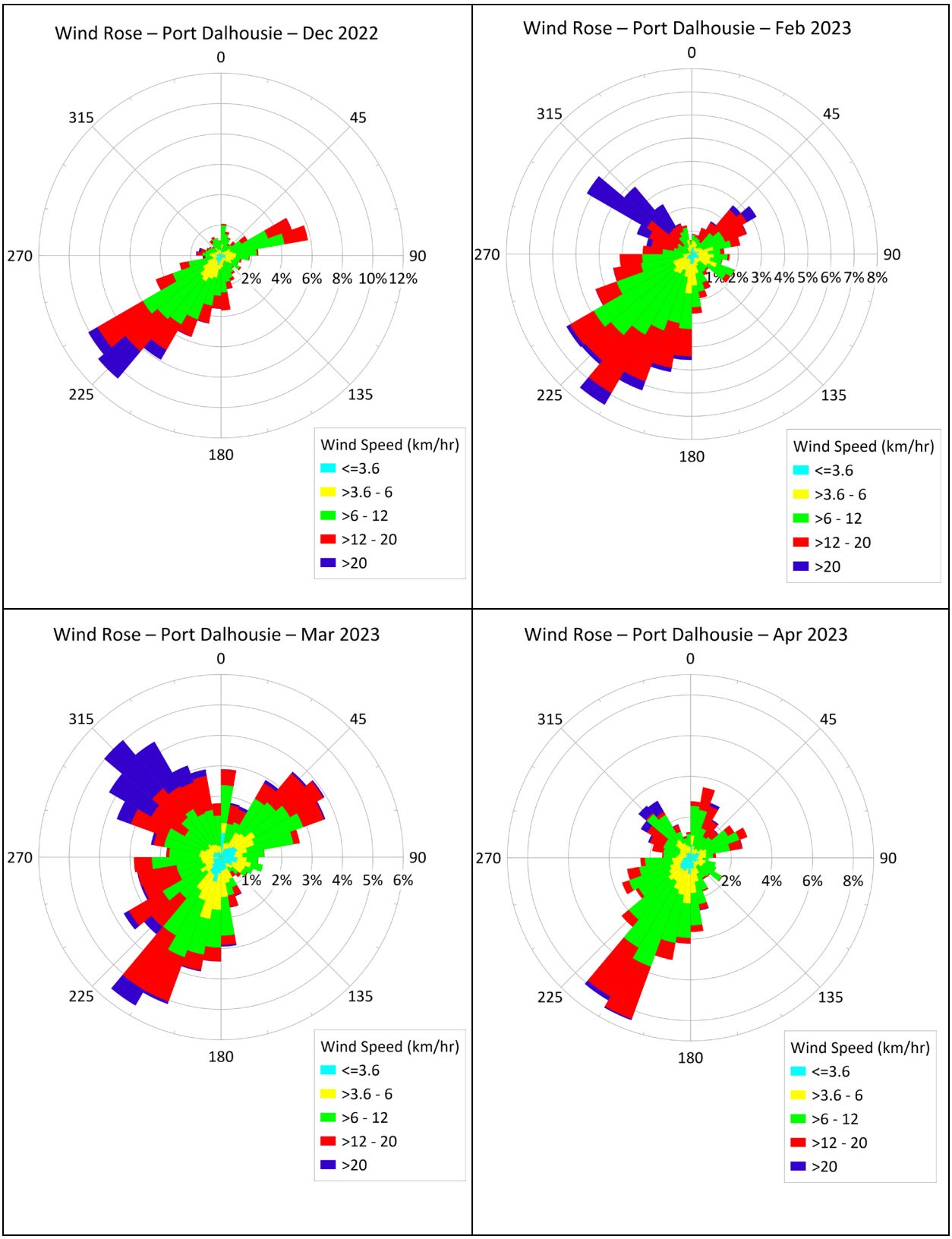

Figure B2. Wind roses at Port Dalhousie WWTP Climate Station with monthly AAQC exceedances. Wind direction data with wind speeds less than or equal to 3.6km/hr are unreliable but have been included for reference.

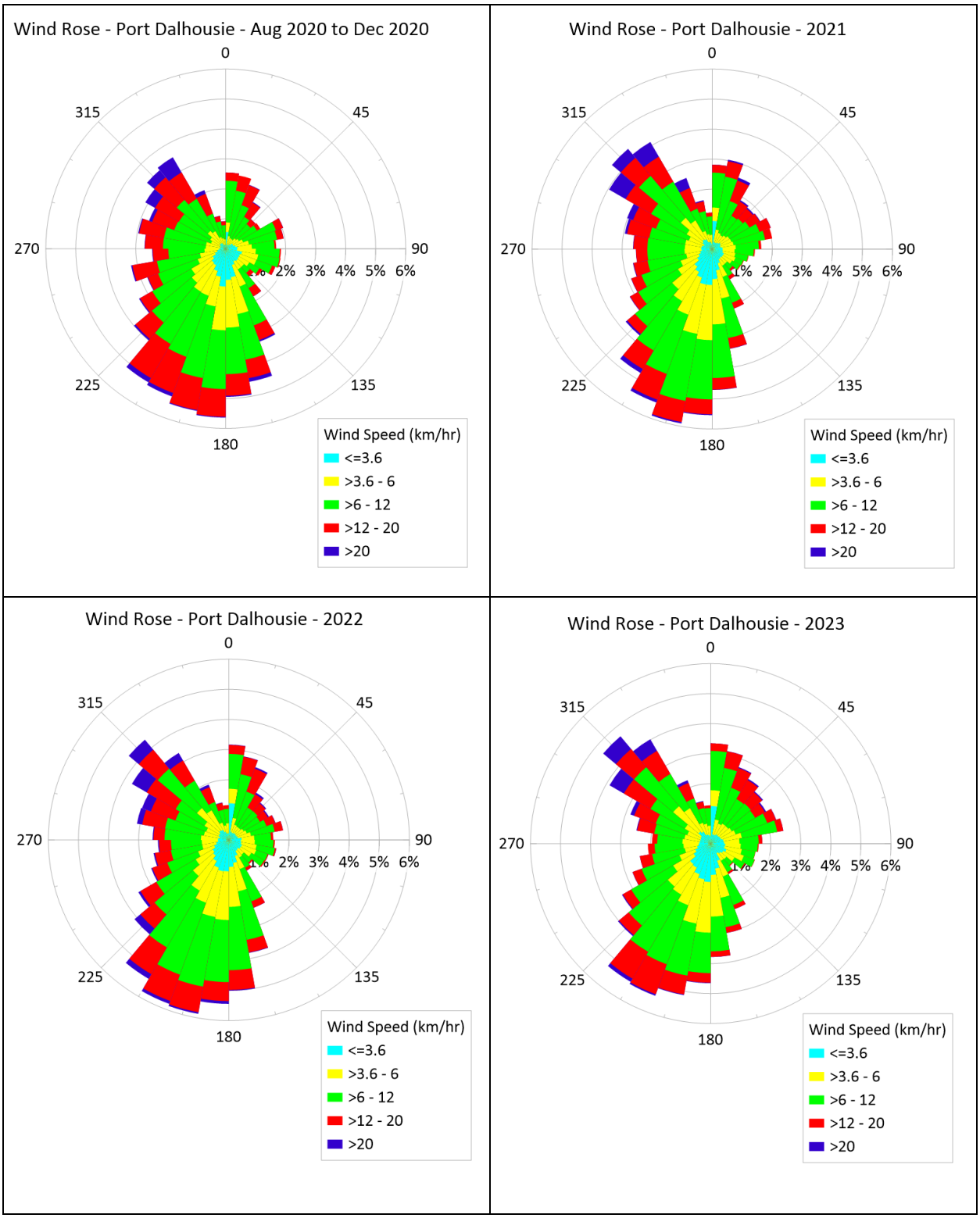

Figure B3. Annual wind roses at Port Dalhousie WWTP Climate Station (Aug-Dec 2020, 2021 – 2024 and Jan-Mar 2025). Wind direction data with wind speeds less than or equal to 3.6km/hr are unreliable but have been included for reference.

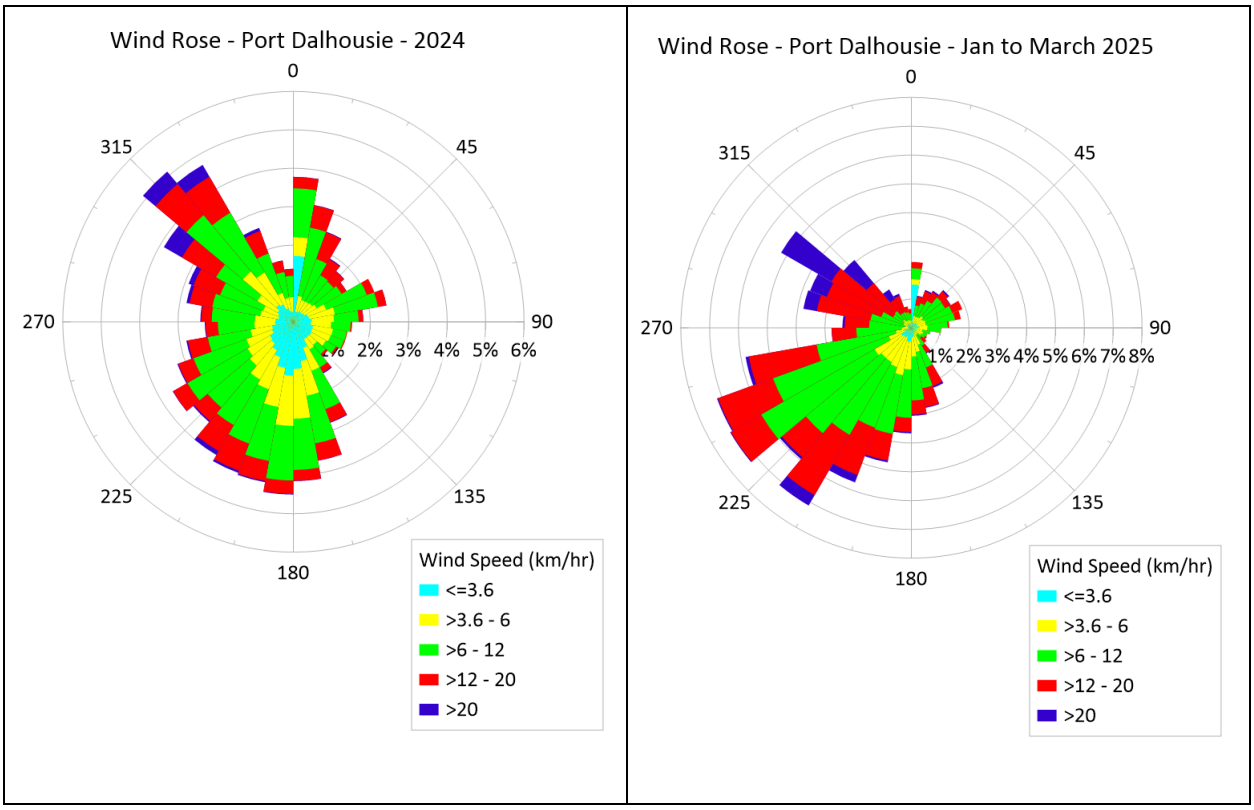

Figure B3. Annual wind roses at Port Dalhousie WWTP Climate Station (Aug-Dec 2020 and Jan-Mar 2025, 2021 – 2024). Wind direction data with wind speeds less than or equal to 3.6 km/hr are unreliable but have been included for reference.

Appendix C: Direction 8 point compass (Octants)

Reference: Appendix D.6 of Environment Canada and Climate Change Canada *"Manual of Standards and Procedures for Aviation Forecasts",* October 2025.

Direction 8-point compass (octants)

Octants (degrees true):
N: directions greater than 337.5 degrees to 22.5 degrees
NE: directions greater than 22.5 degrees to 67.5 degrees
E: directions greater than 67.5 degrees to 112.5 degrees
SE: directions greater than 112.5 degrees to 157.5 degrees
S: directions greater than 157.5 degrees to 202.5 degrees
SW: directions greater than 202.5 degrees to 247.5 degrees
W: directions greater than 247.5 degrees to 292.5 degrees
NW: directions greater than 292.5 degrees to 337.5 degrees

As confirmed by the Niagara open data site administrators, wind direction data with wind speeds less than or equal to 3.6km/hr are unreliable and were therefore excluded in determining predominant wind directions.