

Figure 7a: Proposed Configuration – Pedestrian Wind Comfort Conditions – Summer



LEGEND

- Sitting
- Standing
- Walking
- Uncomfortable
- Outdoor Amenity Space
- Level 11 Amenity Terrace

Figure 7b: Proposed Configuration – Pedestrian Wind Comfort Conditions – Winter

4.2 Outdoor Amenity Spaces (Locations 11, 17 & 18)

In the outdoor amenity space at grade (Location 11), wind conditions are suitable for sitting in the summer (Figure 7), and for standing in the winter (Figure 7b).

In the Level 11 amenity terrace (Locations 17 and 18), wind conditions are suitable for sitting or standing in the summer (Figure 7a). During the winter, wind conditions are conducive to standing or walking (Figure 7b). These wind conditions are considered appropriate for the intended use, as winter use will be infrequent.

4.3 Surrounding Sidewalks (Locations 19-81)

Existing wind conditions along the nearby sidewalks of Kingston Road, Eastwood Avenue, Kalmar Avenue, Lakeside Avenue, Kildonan Drive, and Valhalla Boulevard are generally comfortable for walking or better year-round (Figures 6a and 6b). The only exception is to the east along Kingston Road, at the intersection of Kingston Road and Lakeside Avenue (Location 66), where wind conditions are uncomfortable in the winter (Figure 6b). These uncomfortable wind conditions are due to the recently approved 1615 Kingston Road development. At the nearby transit stops (Locations 34, 50, and 74), wind conditions are comfortable for standing or sitting in the summer (Figure 6a), and for walking or standing in the winter (Figure 6b).

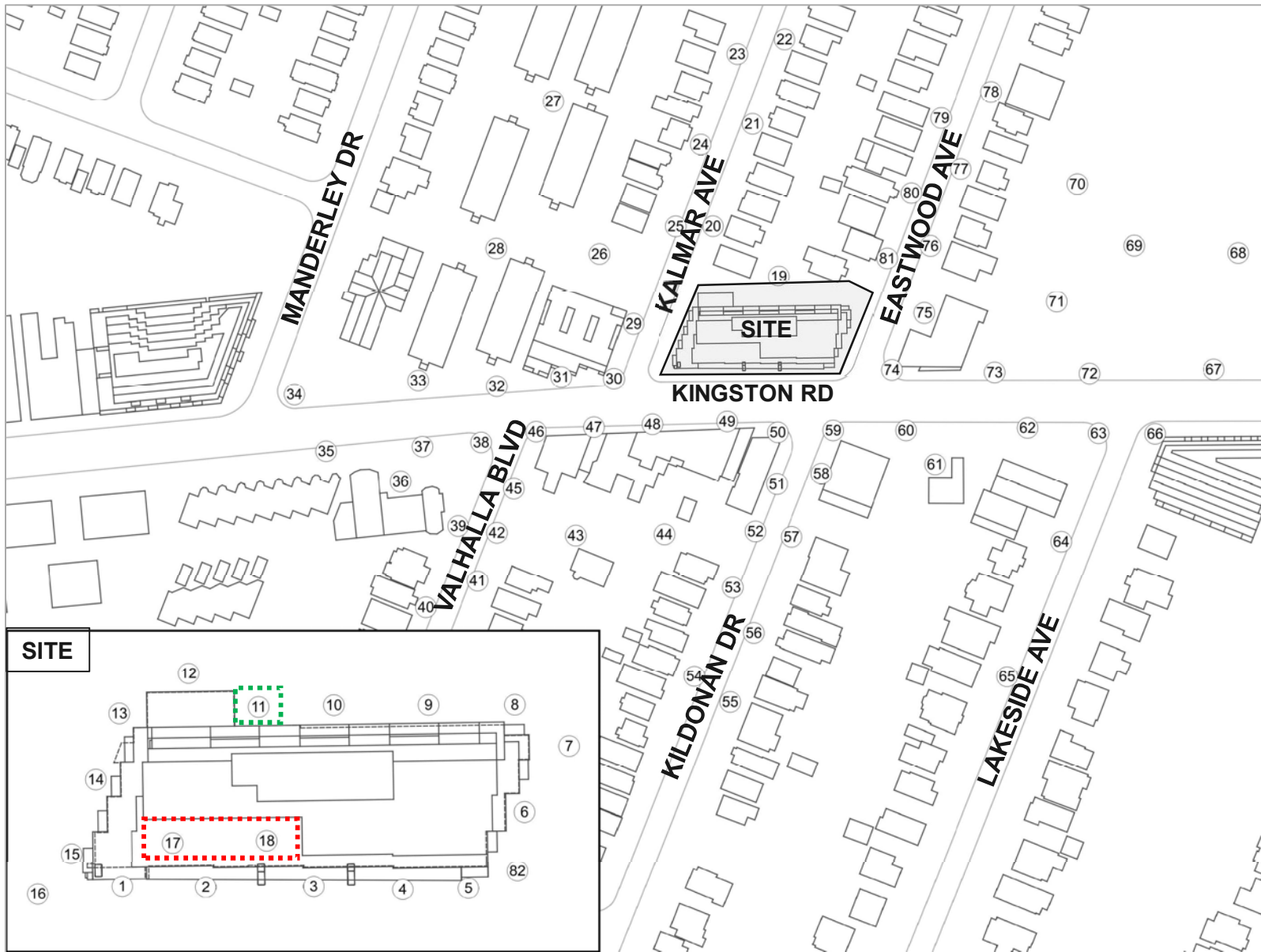
With the proposed development in place, wind conditions on the surrounding sidewalks generally remain suitable for walking or better throughout the year (Figures 7a and 7b). The uncomfortable wind conditions adjacent to the approved development at 1615 Kingston Road in the winter remain and are due to that development as they are an existing condition (Location 66 in Figure 7b). At the nearby transit stops, wind conditions continue to be suitable for standing or sitting in the summer (Figure 7a) and for walking or better in the winter (Figure 7b).

4.4 Wind Safety

In both the Existing Configuration and the Proposed Configuration, the wind safety criterion is met in all areas on-site and surrounding the site on an annual basis (Figures 8a and 8b).



Figure 8a: Existing Configuration – Pedestrian Wind Safety Conditions – Annual



LEGEND

- Exceeds Safety Criterion
- Outdoor Amenity Space
- Level 11 Amenity Terrace

Figure 8b: Proposed Configuration – Pedestrian Wind Safety Conditions – Annual

5.0 Conclusion & Recommendations

The pedestrian wind conditions predicted for the proposed development at 1552-1572 Kingston Road in Toronto have been assessed through quantitative wind tunnel modelling. Based on the results of the study, SLR has the following conclusions:

- The wind safety criterion is met in all areas assessed in both the Existing Configuration and the Proposed Configuration on an annual basis.
- Existing wind comfort conditions on-site and surroundings are generally comfortable for the intended use, including the nearby transit stops.
- With the proposed development in place, wind conditions on-site are generally suitable for the intended use, including the outdoor amenity spaces at grade and building entrances and exits. Recommendations are provided for the incorporation of a fence along the north edge of the property, wherein the details and efficacy can be confirmed during the SPA process.
- Wind conditions on the Level 11 amenity terrace are suitable for the intended use in the summer season.
- In the Proposed Configuration, on the nearby sidewalks and the nearby transit stops, wind conditions generally continue to be suitable for the intended use.
- As the proposed development pass the wind safety criteria, and there are minimal uncomfortable wind conditions on the site or in the vicinity, we opine it meets the City of Toronto's Terms of Reference. The uncomfortable wind conditions noted can be addressed through local wind mitigation measures during the design refinement phase of SPA.

6.0 Statement of Limitations

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Appendix A

Pedestrian Wind Comfort & Safety
Spring (March – May) & Autumn (September – November)





Figure A1b: Existing Configuration – Pedestrian Wind Comfort Conditions – Autumn



LEGEND

- Sitting
- Standing
- Walking
- Uncomfortable
- Outdoor Amenity Space
- Level 11 Amenity Terrace

Figure A2a: Proposed Configuration – Pedestrian Wind Comfort Conditions – Spring

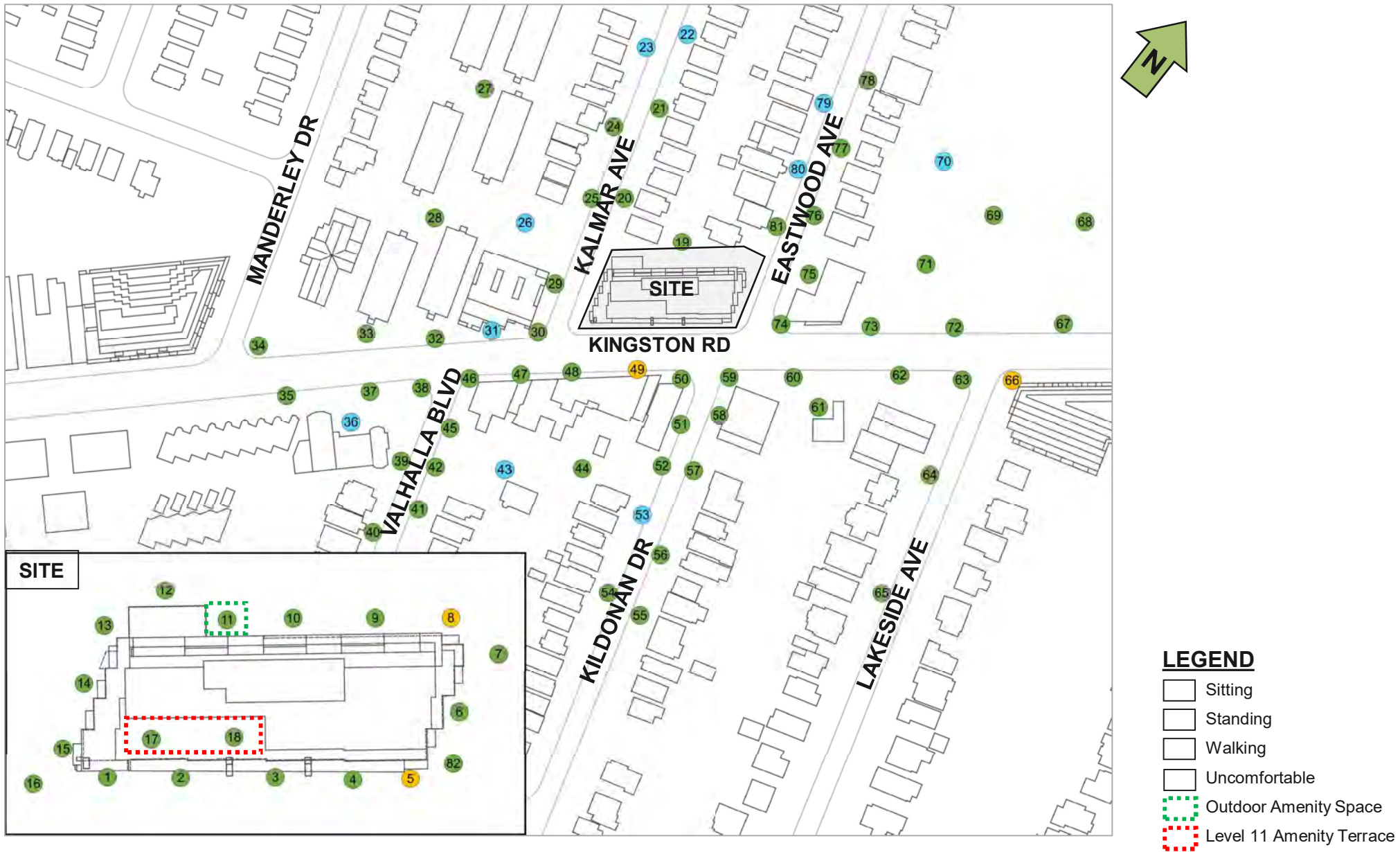


Figure A2b: Proposed Configuration – Pedestrian Wind Comfort Conditions – Autumn

Appendix B

Pedestrian Wind Comfort & Safety Tables

Interpretation of Results

Example Table 1 illustrates the wind comfort and safety criteria. The table provides the GEM (Gust Equivalent Mean) wind speed (in km/h) exceeded 20% of the time for comfort for each of the four seasons for each configuration. It also categorizes the wind speeds as either sitting, standing, walking or uncomfortable (see wind speed ranges in Example Table 2). In addition, the table provides the gust wind speed exceeded 0.1% of the time annually.

For instance, at Location 1 there is not data in the Existing Configuration, while in the Proposed Configuration, wind conditions are suitable for walking in the winter, spring and autumn seasons, while in the summer wind conditions are suitable for standing.

At Location 3, wind conditions are suitable for walking in the winter, spring and autumn seasons in the Existing Configuration, while in the summer wind conditions are conducive to sitting. In the Proposed Configuration, wind conditions are suitable for walking in the spring and autumn, standing in the summer, and uncomfortable in the winter. In addition, the safety criteria is exceeded on an annual basis at Location 3 in the Proposed Configuration.

Example Table 1: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort				Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)				Gust Speed Exceeded 0.1% of the Time (km/h)
		Winter	Spring	Summer	Autumn	
1	Existing					
1	Proposed	19.3	18.3	15.0	16.1	71.7
2	Existing	12.5	11.3	6.8	11.7	71.4
2	Proposed	16.6	18.1	14.7	15.8	80.0
3	Existing	17.6	14.2	9.8	15.8	79.5
3	Proposed	20.9	15.7	10.3	18.6	95.6

Example Table 2: Categories

Criteria	Speed
Sitting	≤ 10 km/h
Standing	≤ 15 km/h
Walking	≤ 20 km/h
Uncomfortable	> 20 km/h
Safety	> 90 km/h

Table B1-1: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
1 Existing	1 Proposed	11.1	12.4	12.2	8.8	10.6	44.7
		11.4	13.8	12.1	8.9	10.9	58.5
2 Existing	2 Proposed	12.1	14.3	12.7	9.3	11.5	55.4
		11.9	13.6	12.9	9.1	11.3	51.3
3 Existing	3 Proposed	9.7	11.1	10.3	7.8	9.4	44.2
		12.7	14.2	14.2	9.5	12.0	56.6
4 Existing	4 Proposed						
		12.3	13.7	13.2	10.0	11.8	53.6
5 Existing	5 Proposed						
		16.1	17.6	17.3	13.6	15.7	69.0
6 Existing	6 Proposed	11.0	11.9	12.4	8.9	10.5	49.2
		11.2	12.2	12.5	8.9	10.6	43.8
7 Existing	7 Proposed	10.7	12.0	11.7	8.6	10.2	44.2
		11.7	13.0	12.8	9.4	10.9	55.5
8 Existing	8 Proposed						
		17.3	21.0	18.2	12.0	16.0	88.9
9 Existing	9 Proposed						
		14.6	16.2	16.2	11.1	13.8	61.4
10 Existing	10 Proposed	7.7	8.7	8.5	6.1	7.4	36.3
		10.5	11.8	11.3	8.5	10.2	46.6

Table B1-2: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
11 Existing	11 Proposed	10.4	12.1	11.1	8.2	10.0	45.3
		11.0	12.7	11.7	8.7	10.6	47.8
12 Existing	12 Proposed						
		13.5	15.5	14.1	10.6	13.0	59.0
13 Existing	13 Proposed	9.4	11.1	9.6	7.6	9.1	46.8
		13.0	14.8	13.6	10.7	12.4	54.4
14 Existing	14 Proposed	11.1	13.1	11.7	8.9	10.6	51.4
		12.9	15.0	13.8	9.9	12.1	59.4
15 Existing	15 Proposed	11.7	13.6	12.4	9.1	11.0	55.1
		13.7	16.2	14.4	10.6	12.9	65.3
16 Existing	16 Proposed	11.3	12.7	12.1	9.1	10.7	47.5
		14.4	17.6	14.7	10.2	13.6	69.4
17 Existing	17 Proposed						
		14.6	16.8	15.6	11.9	14.1	63.2
18 Existing	18 Proposed						
		11.5	14.1	11.6	9.2	11.1	57.3
19 Existing	19 Proposed	10.3	11.6	11.1	8.1	9.8	42.1
		13.3	15.1	14.5	10.0	12.4	58.8
20 Existing	20 Proposed	11.5	13.9	12.0	8.6	10.9	57.8
		11.2	13.2	11.7	9.0	10.8	50.3

Table B1-3: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
21 Existing		12.2	14.9	12.4	9.2	11.7	58.4
21 Proposed		10.8	13.1	11.2	8.4	10.5	51.1
22 Existing		11.1	13.3	11.5	8.8	10.7	55.1
22 Proposed		10.2	12.3	10.6	7.9	9.8	49.1
23 Existing		11.7	13.4	12.6	9.1	11.0	50.4
23 Proposed		10.0	11.2	11.0	7.9	9.4	42.0
24 Existing		11.3	12.1	12.6	9.4	10.8	47.2
24 Proposed		12.0	12.7	13.6	9.6	11.4	52.8
25 Existing		10.3	11.5	11.2	8.2	9.9	43.1
25 Proposed		11.5	12.9	12.5	9.2	11.0	47.3
26 Existing		12.2	13.9	13.4	9.4	11.7	51.3
26 Proposed		9.6	11.2	10.2	7.5	9.2	41.5
27 Existing		12.6	14.2	13.7	10.0	12.1	50.8
27 Proposed		10.9	12.7	11.5	8.7	10.5	46.6
28 Existing		12.0	13.8	12.9	9.3	11.5	52.6
28 Proposed		11.3	13.2	12.0	8.8	10.8	48.8
29 Existing		11.3	11.6	13.1	9.3	10.5	48.2
29 Proposed		15.6	17.1	17.4	12.2	14.5	68.5
30 Existing		12.7	13.7	14.2	10.3	12.1	57.4
30 Proposed		14.7	17.2	15.6	11.2	13.9	56.4

Table B1-4: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
31 Existing		10.0	11.0	11.1	7.9	9.4	41.3
31 Proposed		9.0	9.9	9.7	7.3	8.6	38.1
32 Existing		11.9	13.4	12.9	9.3	11.3	50.6
32 Proposed		11.6	13.3	12.4	9.0	11.0	48.7
33 Existing		11.0	12.8	11.5	8.9	10.7	48.9
33 Proposed		10.5	12.0	11.0	8.6	10.1	44.3
34 Existing		14.2	16.8	14.3	11.9	13.9	64.4
34 Proposed		13.7	15.9	14.0	11.4	13.2	58.9
35 Existing		10.8	12.7	11.2	8.4	10.4	48.3
35 Proposed		11.1	12.9	11.9	8.7	10.7	47.9
36 Existing		8.9	10.0	9.8	6.6	8.3	37.4
36 Proposed		9.3	10.4	10.4	7.2	8.8	39.0
37 Existing		11.1	13.0	12.0	8.3	10.6	49.9
37 Proposed		11.9	14.0	12.7	9.1	11.4	52.9
38 Existing		10.6	13.1	10.9	7.9	10.2	52.3
38 Proposed		10.7	13.2	10.9	8.0	10.3	53.0
39 Existing		10.7	12.0	11.7	8.4	10.0	45.5
39 Proposed		11.6	12.8	12.7	9.2	10.8	48.2
40 Existing		10.0	10.5	11.5	8.3	9.4	48.9
40 Proposed		11.3	12.3	12.6	9.0	10.7	49.5

Table B1-5: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
41 Existing		11.2	13.5	11.5	9.0	10.8	51.4
41 Proposed		11.9	13.9	12.5	9.4	11.3	51.5
42 Existing		11.6	13.0	12.7	8.9	10.9	50.0
42 Proposed		11.6	13.3	12.5	9.2	11.0	50.3
43 Existing		12.6	14.6	13.6	9.4	12.0	56.7
43 Proposed		10.0	12.0	10.7	7.3	9.5	47.5
44 Existing		11.8	13.4	12.8	9.0	11.2	51.0
44 Proposed		11.9	13.8	12.8	9.0	11.4	50.5
45 Existing		12.4	14.5	13.3	9.3	11.7	59.1
45 Proposed		11.1	13.0	12.0	8.5	10.5	53.3
46 Existing		11.6	13.6	12.1	9.1	11.0	51.0
46 Proposed		12.4	14.5	13.3	9.1	11.6	57.3
47 Existing		12.8	14.9	13.6	9.8	12.1	58.4
47 Proposed		11.3	13.4	12.0	8.4	10.7	52.8
48 Existing		12.2	14.8	12.5	9.2	11.7	59.0
48 Proposed		11.6	12.7	12.9	9.2	10.8	50.8
49 Existing		13.1	15.7	13.7	9.7	12.5	61.7
49 Proposed		16.2	19.3	17.1	11.7	15.1	79.9
50 Existing		12.8	14.9	13.9	9.6	12.1	55.8
50 Proposed		14.5	16.8	15.5	10.8	13.6	67.7

Table B1-6: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
51 Existing		10.9	12.2	12.1	8.7	10.4	50.2
51 Proposed		10.8	11.9	12.0	8.4	10.2	47.2
52 Existing		12.5	14.3	13.6	9.4	11.9	52.6
52 Proposed		12.1	14.3	12.8	9.0	11.5	56.8
53 Existing		10.3	11.9	11.1	8.2	9.7	46.3
53 Proposed		10.2	11.4	11.2	7.9	9.7	43.8
54 Existing		11.8	13.0	13.2	9.2	11.0	53.2
54 Proposed		10.9	12.6	11.6	8.5	10.4	43.7
55 Existing		12.3	14.6	12.8	9.6	11.9	56.6
55 Proposed		11.8	14.4	11.9	9.1	11.3	57.3
56 Existing		12.3	14.7	12.9	9.4	11.7	56.0
56 Proposed		11.2	13.6	11.7	8.7	10.8	52.0
57 Existing		12.0	13.8	12.7	9.4	11.5	50.5
57 Proposed		12.0	13.2	13.3	9.3	11.4	49.4
58 Existing		10.7	12.4	11.4	8.6	10.2	48.9
58 Proposed		11.7	14.6	12.1	8.8	11.1	51.1
59 Existing		12.1	14.4	12.5	9.3	11.7	55.7
59 Proposed		14.7	16.9	15.8	10.9	13.9	61.0
60 Existing		12.2	14.3	12.9	9.3	11.6	54.7
60 Proposed		12.4	14.1	13.5	9.4	11.6	55.3

Table B1-7: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
61 Existing		9.4	11.2	9.9	6.9	8.9	42.9
61 Proposed		11.5	13.4	12.2	8.4	10.8	52.7
62 Existing		12.6	15.0	13.1	10.0	12.3	56.4
62 Proposed		12.2	14.8	12.5	9.5	11.8	58.4
63 Existing		13.6	15.4	14.7	10.6	12.8	60.1
63 Proposed		14.0	15.8	14.8	11.2	13.3	60.0
64 Existing		14.3	16.7	15.3	10.8	13.4	57.5
64 Proposed		12.1	14.2	12.8	8.9	11.3	55.5
65 Existing		11.2	12.7	12.1	8.8	10.6	46.0
65 Proposed		10.7	12.1	11.7	8.3	10.1	42.9
66 Existing		17.6	20.3	18.3	14.3	16.8	78.3
66 Proposed		18.0	20.9	18.6	14.4	17.2	83.2
67 Existing		14.0	16.0	14.8	11.7	13.6	58.2
67 Proposed		13.2	14.6	14.2	11.0	12.7	53.2
68 Existing		13.0	15.2	13.7	10.3	12.4	55.9
68 Proposed		12.1	14.4	12.6	9.4	11.6	54.1
69 Existing		12.8	14.8	13.7	10.2	12.3	52.5
69 Proposed		13.0	14.6	14.0	10.3	12.3	50.6
70 Existing		11.1	12.2	12.5	9.0	10.5	46.2
70 Proposed		10.3	11.7	10.9	8.5	9.9	40.6

Table B1-8: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
71 Existing		12.7	13.5	14.3	10.5	12.0	49.6
71 Proposed		12.5	13.4	14.0	10.2	11.7	48.4
72 Existing		13.6	14.8	15.1	11.0	12.9	53.0
72 Proposed		13.2	14.4	14.8	10.6	12.5	51.3
73 Existing		13.3	14.7	14.7	10.9	12.6	51.4
73 Proposed		13.1	14.4	14.2	10.8	12.4	51.0
74 Existing		12.5	15.1	13.0	9.3	11.9	61.3
74 Proposed		14.6	17.1	15.5	11.8	13.8	82.6
75 Existing		9.1	11.3	9.3	6.9	8.8	45.4
75 Proposed		10.8	12.4	11.4	8.7	10.3	47.5
76 Existing		11.3	13.5	11.9	8.8	10.7	51.6
76 Proposed		11.2	12.8	11.8	9.3	10.7	47.8
77 Existing		11.4	13.7	11.8	8.7	10.8	57.9
77 Proposed		10.7	12.8	11.1	8.1	10.1	51.5
78 Existing		11.4	14.3	11.5	8.6	11.0	57.5
78 Proposed		11.2	14.3	11.2	8.4	10.9	58.3
79 Existing		10.5	11.3	11.8	8.3	9.9	43.2
79 Proposed		9.7	10.2	11.0	7.9	9.2	40.4
80 Existing		10.3	11.0	11.5	8.4	9.7	42.5
80 Proposed		10.2	10.7	11.5	8.4	9.6	44.2

Table B1-9: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
81 Existing		9.8	10.6	10.9	8.1	9.4	41.0
81 Proposed		10.7	11.7	11.6	8.9	10.3	44.4
82 Existing		11.6	12.4	13.3	9.2	10.9	52.9
82 Proposed		14.2	15.4	15.1	12.4	13.6	55.7