

26/3/21

Dennis Parbhu
IPG Corporation Ltd
P.O Box 90535
Victoria St West
Auckland

Ref: 5-29H23.01

Dear: Dennis

Subject: Wind Assessment – 114 Adelaide Rd (Revised Design)

This wind assessment considers the expected effects of a revised development design for 114 Adelaide Rd in Mount Cook, Wellington on pedestrian wind conditions in the immediate vicinity of the building.

Background

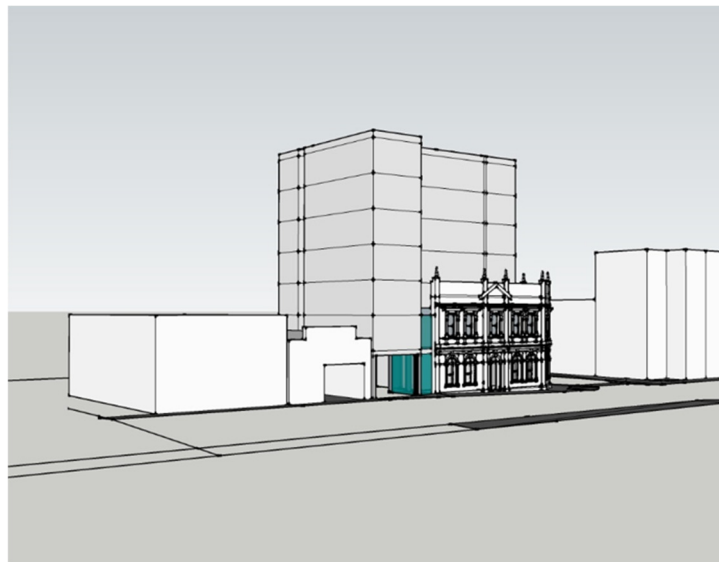
In November 2016, Opus Research (now WSP Research) carried out a wind assessment of a proposed development design for 114 Adelaide Rd, in Mt Cook in southern Wellington. This assessment was presented in Opus Research Report 16-529H23.00. Figure 1 reproduces the aerial view of the development site that was presented in this 2016 wind assessment report.



Figure 1: Aerial view of development site at 114 Adelaide Rd (LINZ 2016) (shows the prevailing wind directions and site boundaries)

The development design that was assessed in 2016 was for a seven-storey building around 21m high, that retained the heritage façade of the existing buildings, but included a restored 1.2m high parapet. The four floors projecting above the parapet were set back from Adelaide Rd and Drummond Street by 2m or more, except at the southeast corner, where the façade came to the street, above the loading area below. It is important to note that the heritage listing of the existing façade prevents the addition of canopies or verandahs to the building. Figure 2(a) shows a view of the 2016 design.

The development design has subsequently been revised. The main differences between the 2016 design and the latest revised design are (1) the height has been increased from 21m to marginally under 26m, and (2) the setbacks have been refined to accommodate urban design and heritage requirements. Figure 2(b) shows renders of the revised design.



(a) 2016 development design



(b) Revised development design

Figure 2: Comparison of (a) 2016 design and (b) revised design

Assessment of 2021 Design

The revised design is marginally under 26m high, an increase of 5m over the previous design that was assessed in 2016. This increase in height is more due to changes in the configuration at the top of the building than to the addition of significant additional bulk in the form of the number of storeys projecting above the heritage parapet.

Wind tunnel studies of the effects of the addition or removal of one storey on buildings of this height or taller have shown that the effects on wind conditions are typically minimal or very small. Accordingly, I would assess that the revised design will have a slightly greater impact on wind conditions than the design that was assessed originally. That is:

- (1) Existing wind speeds in the area around the site are expected to range from low to high, with speeds in some localised areas likely to approach or slightly exceed the District Plan Safety Threshold of 20m/s.
- (2) In northerly winds the revised design is expected to increase wind speeds in small localised areas in Drummond Street adjacent to the new building by 2m/s to 3m/s compared to the existing situation. This is mainly due to vertical wind flows being deflected down the windward faces of the building. The significant setbacks from both the street frontages of the building are expected to mitigate a good proportion of the wind effects that could be expected from a building of this height.
- (3) In southerly winds the development site gets some sheltered from upstream buildings, but the revised building design is still much taller than the existing buildings. As a result, wind speed increases of between 2m/s and 4m/s compared to the existing situation are also expected in localised areas of Adelaide Road near the proposed building.
- (4) Compared to a building 12m in height, which is the height that triggers the requirement for a wind assessment report, the revised design is expected to cause slightly higher wind speeds over slightly larger but localised areas around the proposed building.
- (5) There is a small probability that wind speeds at some locations around the revised development design may be increased slightly over the Safety Threshold specified in the District Plan.
- (6) It is likely that, combined with the building setbacks of levels 4 - 7, an appropriate canopy along the street frontages would help to mitigate the wind effects of the height of the revised design. A canopy would provide significant additional shelter, particularly for the area around the Drummond Street - Adelaide Road intersection. However, this is precluded by the heritage listing on the existing building façade.

If there is anything you wish to discuss regarding this assessment, please do not hesitate to contact me (021 243 9386).

Regards



Research Leader - Wind Engineering