Shared Spaces – Auckland – A Safety and Operational Performance Study

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Abstract

In 2017, a safety and operational performance study was undertaken of Shared Spaces (spaces) in the Auckland CBD. These spaces are public streets intended to be shared by people and motorists. The study included an international literature review and operational surveys at five spaces. The spaces were generally considered to be operating reasonably successfully. However, excessive traffic speeds and volumes were evident at two spaces. Various measures were recommended for reducing traffic speeds and volumes within the spaces, which would be expected to enhance their safety and operational performance, and should also be considered for incorporation into future spaces.

Background

In 2017 Traffic Engineering Solutions (TES) undertook an operational safety review of spaces in the Auckland CBD, New Zealand. The aim of the study was to review these spaces with respect to their safety record and operational performance from a transportation and public perspective, and to consider how well the design elements within the spaces were performing to enable the safe and appropriate use of these areas.

Method

The study included an international literature review, and site observations, measurements, and surveys throughout an entire day at five Shared Spaces in the Auckland CBD.

Results

The five spaces reviewed in this study were generally considered to be operating reasonably successfully in terms of safety and operational performance. However, excessive traffic speeds (around 25 km/h 85th%tile) were evident at two spaces. Also, traffic volumes were considered higher than desirable (above 3,000 vehicles/day) at two spaces.

Excessive traffic speeds and vehicle volumes are key factors adversely affecting pedestrian safety and amenity within a space. Reducing both traffic speeds and traffic volumes is important for achieving a fully successful outcome for spaces.

From site inspections and as identified in previous research (Carmine et al 2012)(Karndacharuk et al 2016), key features identified as being included in the design of each existing space in Auckland were (1) Entry/exit gateways, (2) Level textured Surface, (3) Accessible Zone, (4) Activity Zone, and (5) Trafficable Zone.

Features considered to be desirable for a Shared Space were: (1) Reduced traffic speeds, (2) Improved road safety, (3) Reduced traffic volumes, (4) Increased pedestrian volumes, (5) Active building frontage, (6) Circulation Zone lateral shift, (7) Circulation zone narrow width, (8) Restricted loading, and (9) No parking.

Many of these features are illustrated in Figure 1.

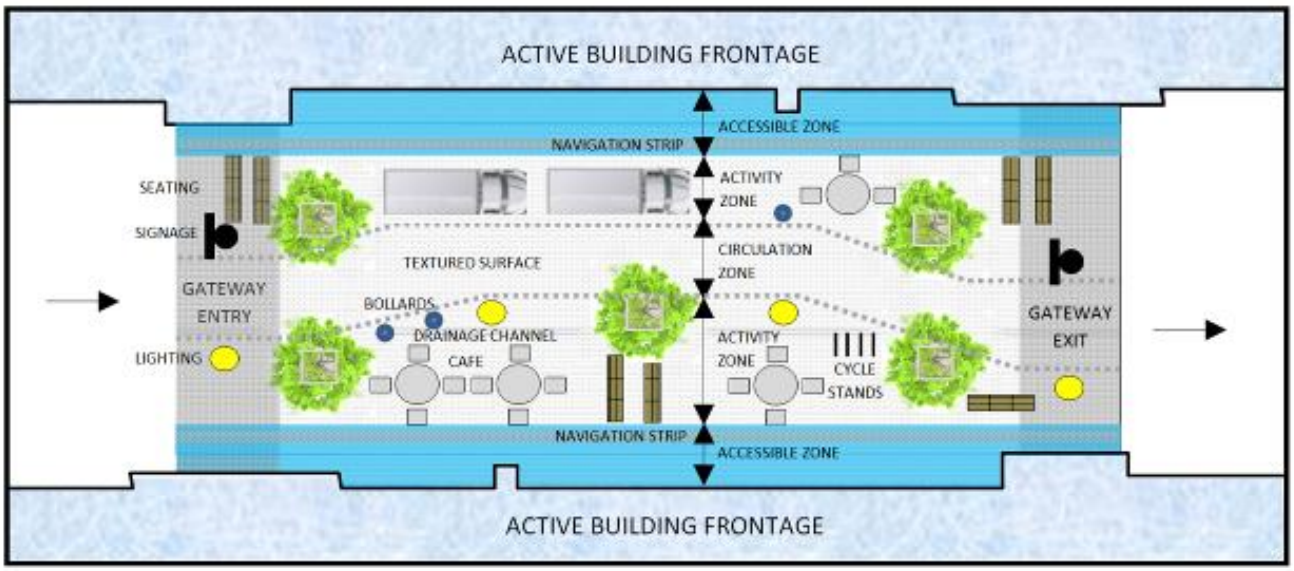

Figure 1: Key Design Features and Desired Design Features for a Shared Space

In relation to Figure 1, the following design attributes are worth noting:

- Lower traffic speeds are encouraged by the trafficable zone having lateral deflection, a narrow width, adequate 'side friction', and no adjacent drainage channel;
- Street furniture adjacent to the trafficable zone with high bulk/height is likely to increase 'side friction'. Large street furniture (such as trees) are effective at enhancing the impact of 'Gateways', and are robust at the rear of loading areas;
- The navigational strips are unobstructed, define the accessible zone, and are located within the accessible zone; and
- Pedestrian seating is not exposed to the trafficable zone or loading areas. Bollards provide added protection for seating, and prevent loading at inappropriate locations.

Conclusions

Various measures have been recommended for reducing traffic speeds and volumes within Shared Spaces. These remedial measures would be expected to enhance safety and operational performance in existing spaces, and should also be considered for incorporation into future spaces. In general terms the key recommendations include:

- Introduce trafficable zone lateral shift, particularly if midblock sections are greater than 50 metres;
- Narrow the trafficable zone to around 5.5 metres (two-way) or 4.0 metres (one-way);
- Increase trafficable zone side friction by increasing height/bulk of adjacent street furniture;
- Ensure navigational strips within the accessible zone are clear of street furniture;
- Position pedestrian seating clear of traffic.

References

Carmine, N., Williamson, J. (2012). An evaluation of shared space in the Fort Street Area, Auckland. Report, Auckland Transport, Auckland, New Zealand.

Karndacharuk, A., Vasisht, P., 2016. Auckland Shared Zones: Design Solution for Urban Mobility in Activity Centres. In Proceedings of 27th ARRB Conference, Melbourne, Victoria.