Document 1

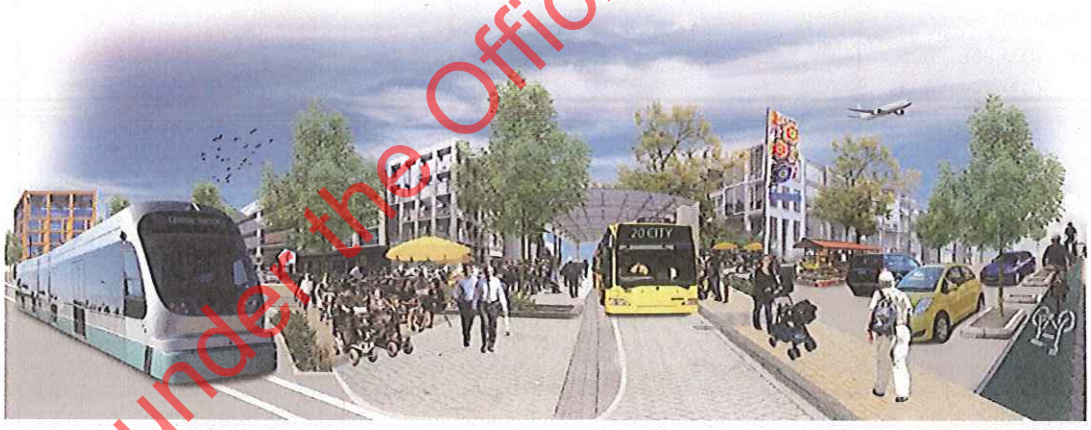
VIASTRADA
TRAFFIC ENGINEERING AND PLANNING

Central City Plan - Streetscape Plan

Stage 1 - Technical Report

Report prepared for

Christchurch City Council



ViaStrada Ltd

March 2012

'This is work in progress, has not been formally reported to CCC Councillors and needs to be set into the wider central city and Christchurch Transport Plan context. If any of this is to be reported publicly, please involve CCC staff so that advice can be provided on any CCC implications'.

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All pages in this report not relevant to your request have been redacted.

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Executive Summary

The Draft Central City Recovery Plan for Ministerial Approval (CCP[1]) outlines a vision of a new transport network that is "focused more on walking, cycling and efficient public transport". Realising this vision requires changes to the streets within the central city. The changes need to reflect a newly developed street hierarchy and the proposed bus and cycle networks. All streets need to cater for cycling but streets that form part of the cycle network will provide the greatest level of comfort to encourage cycling into and within the central city. The streets that are for buses will need to provide priority to buses in some form or other so that public transport is an attractive travel option. The priority could be achieved through restricting general traffic on those streets so buses are not held up in dense traffic, or by providing dedicated bus lanes.

The Streetscape Plan

To ensure that design of streets is undertaken in an integrated manner, a Streetscape Plan will be prepared to support the Draft CCP vision. This plan will inform and guide designers and other interested parties on what each street needs to cater for and how each street should look and feel. The design philosophy is based on a 'link and place' approach. Link is reflected in the proposed classification of streets in the central city, i.e. some streets are intended to carry more traffic than others, some more pedestrians than others. Place reflects that a street is a destination in its own right where people are encouraged to spend time taking part in activities. Place is also reflected in the street classification to some extent but more so in the design. The design is made up of the allocation of space within the corridor and the detailing, e.g. materials and landscaping.

The first stage of developing the Streetscape Plan has focused on the streets classified as 'distributors'. These streets are the key movement corridors within the four avenues and are the subject of this report. The design of distributor streets was required to inform the One-way to Two-way Street Conversion project; this allowed the intersections to be designed and assessed[2]. Further stages of the Streetscape Plan development will focus on the other street types (Main Streets, Local Streets and People Streets). The project objectives for the overall Streetscape Plan have been derived from the Draft CCP and are stated within the body of the report. The Streetscape Plan development ties together many of the Transport Choice, Green City, Distinctive City, City Life, and Market City projects of the Draft CCP.

The preliminary Distributor Street cross sections

Developing the cross sections required working with relevant CCC stakeholders to consider the many aspects of street design, including consideration of long term operational costs of the street (i.e. maintenance). Two CCC staff workshops were held to gain input during the project. This allowed the various, and often conflicting, considerations to be balanced. One of the key agreed design principles is that all distributors must be able to cater for heavy traffic and buses, even if not currently defined as bus streets.

The recommended cross sections provide a framework for a distributor street on the cycle network as shown in Figure 1. The design includes separated bicycle facilities (SBFs) that separate people on bicycles and motor vehicles to a greater degree than a conventional cycle lane. This concept provides the level of comfort that will help to encourage new cyclists. The type of SBF will be dependent on whether the street needs rebuilding; the protected cycle lanes shown in Figure 1 reflect the ability to retrofit facilities. These streets provide on-street parking on one side of the street.

[1] Annotation simplified to remain consistent with its use elsewhere.
[2] This is detailed in a separate report (Aurecon, March 2012).

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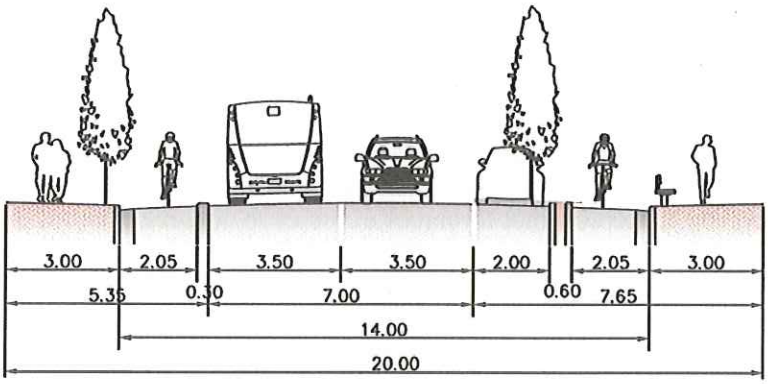

Figure 1: Cross section for a distributor street on the cycle network

The recommended cross section for distributor streets that are not on the cycle network is shown in Figure 2. The design includes on-road cycle lanes. On-street parking can be provided on both sides of the street.

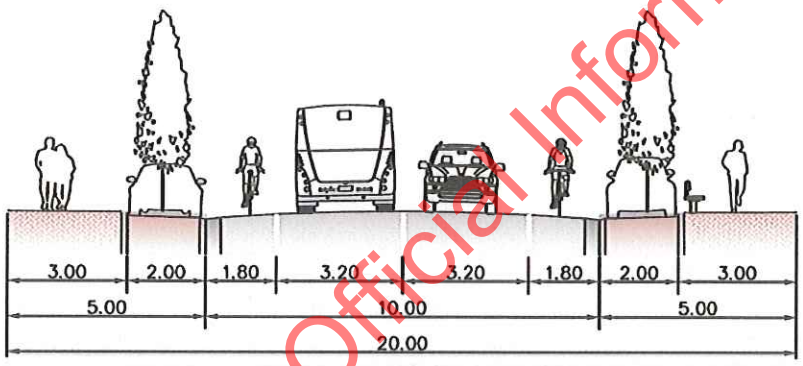

Figure 2: Cross section for a distributor street not on the cycle network

Cross sections that provide bus lanes on one side or both sides of the street have been prepared but not applied on any particular street at this stage as the best means of providing priority for buses has not been determined yet.

Many streets give more emphasis to pedestrians by wider footpaths or lower speed limits (with a reduced speed environment achieved by the Streetscape Plan designs), but other benefits to pedestrians will come from priority treatments at intersections.

Conclusions

Taken together, the changes proposed for walking, cycling and public transport reflect international best practice. The Draft CCP anticipates a significant level of increased walking, cycling and public transport for trips to and within the central City. Together with measures outside of the four avenues, the first stage of the Streetscape Plan will contribute to this shift in travel behaviour.

Given the demands on the streetscape space to achieve the vision of the Draft CCP, on-street parking will need to be removed in some locations. This is to accommodate the required cross sectional widths of critical elements, to allow street trees to be planted within the parking lane and to accommodate additional turning lanes at intersections when converting one-way streets to two-way[3]. Any parking loss needs to be managed within a wider central city parking framework so that the streetscape outcomes remain consistent with the Draft CCP vision.

[3] Discussed in the Aurecon Report

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It is acknowledged that maintenance may increase with the proposed cross sections and that the way some operational activities are undertaken may need to be revisited (e.g. kerb waste collection), however these issues will need to be considered in the context of the Draft CCP vision and the overall benefits gained by the designs.

As part of developing the distributor cross sections, changes to the location of the bus and cycle networks proposed in the Draft CCP have been recommended. This resulted in ensuring that the bus network and cycle network were not on the same street although all cyclists are still catered for by a variety of means (e.g. on-road cycle lanes) on bus streets.

As part of informing the One-way to Two-way Street Conversion Project this stage of the Streetscape Plan development also considered the design of Main Streets that intersect with distributors. It was concluded that typical cross sections for these street cannot be developed as these streets are context sensitive. As such this project identifies issues that will influence their design rather than define cross sections and in the meantime the One-way to Two-way Street Conversion Project has adopted cross sections that offer some flexibility to allow the conversion assessment process to be completed.

Recommendations

It is recommended that the preliminary distributor street cross sections are presented to the relevant stakeholders for consideration, acknowledging that the bus lane cross sections included in this report need further discussion as they may not be required if alternative forms of bus priority are achieved.

Ultimately it is recommended that the final version of the Streetscape Plan allocates cross sectional frameworks to all distributor streets to provide certainty to Draft CCP users, rather than allow Draft CCP users to interpret the guidelines and develop cross sections that do not reflect the principles of the plan. The frameworks can then be developed further to reflect localised requirements without loss of the design intent.

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8 Recommended Cross Sections – Distributor Streets

8.1 Existing Distributor Street cross sections

Streets which are classified as Distributor Streets currently have one of two general cross sections, see Figure 26 and Figure 27 below; some minor variation in dimensions exist. The footpath widths are consistently around 3 m and on street parking is provided. The difference between the two general cross sections is that one has wide traffic lanes and no cycle lanes marked and the other has marked cycle lanes. Some of the existing distributor streets also have trees in the footpath.

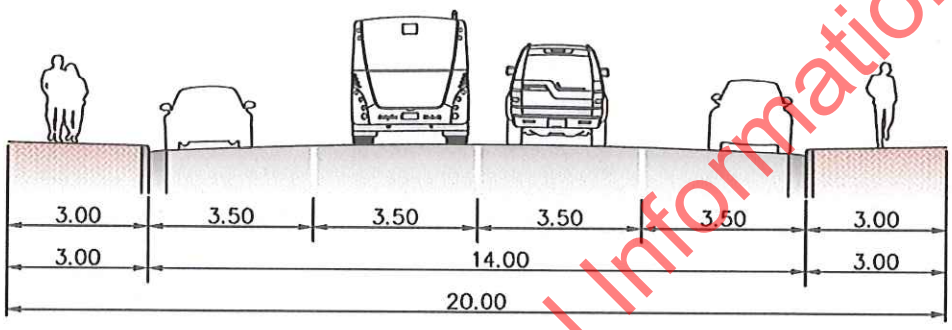

Figure 26: Existing Distributor Street with wide traffic lanes, no defined cycle lane

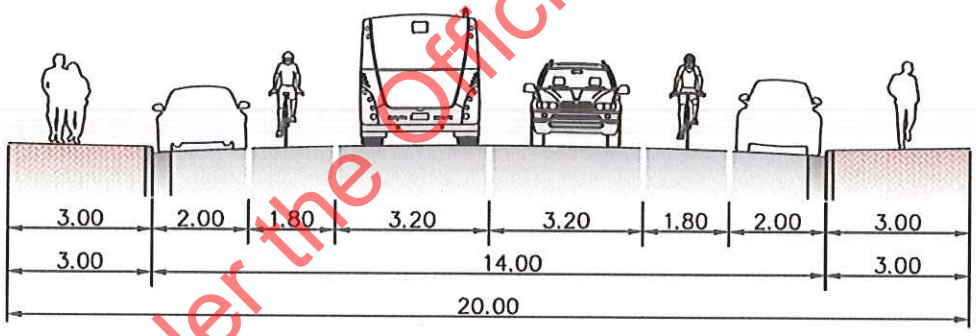

Figure 27: Existing Distributor Street with cycle lanes

The cross sections developed below are based on the guidelines established in Chapter 6 and are allocated to streets based on their link and place role within the network. One of the key design criteria is that all distributors must be able to cater for heavy traffic and buses, even if not currently defined as bus streets.

Four preliminary distributor street cross sectional frameworks have been developed with the key differences being the way in which cyclists and buses are catered for. The bus lane cross sections would need to be considered against other possible bus priority options (restrictions on general traffic access) as the impact of bus lanes on the streetscape may not be desirable. See Appendix 2 for a plan showing the allocation of cross sections to distributor streets, this plan indicates the streets where bus lanes may be appropriate if other measures are not possible (those generally closer to the slow core).

It is recommended that the Streetscape Plan allocate distributor street cross sections once they have been agreed on by the relevant stakeholders to provide certainty to plan users (rather than allow plan users to interpret the guidelines and develop cross sections that do not reflect the principles of the plan).

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8.3 Distributor Type 2 – Streets with cycle lanes

This cross section has been applied to the following streets:

- Salisbury Street
- Barbadoes Street
- Durham Street
- Cambridge Terrace
- Montreal Street
- Gloucester Street
- Cashel Street
- Kilmore Street (Durham Street to Madras Street)
- Manchester Street (Bealey Ave to Armagh Street)
- Manchester Street (Tuam Street to Moorhouse Ave)

These streets are not on the cycle network and as such will feature on road cycle lanes. The footpaths are to be at least 3 m wide (Table 4) and traffic lanes next to the cycle lanes are to be 3.2 m wide. Combining these elements means that on-street parking can be accommodated on both sides of the street. The parking lanes could be incorporated into amenity strips allowing for extra street trees to be planted. The cycle lanes are 1.8 m wide as they are located next to parking (Table 5). The dimensions of this generic cross section have limited flexibility as each element is at the minimum allowable. Increasing any dimensions will essentially result in the loss of parking on side of the street.

On distributor streets where there is high demand for outdoor dining that cannot be accommodated in the 3 m footpath there is scope for businesses to work with council and neighbouring businesses to re-allocate on-street car parking space to dining areas. This could be facilitated on a temporary basis to reflect that parking and outdoor dining demands may change over time. This concept was already being used in several locations in the central city prior to the earthquake.

How the cycle lanes are marked and where colour surfacing is appropriate will be determined in accordance with local practice and outlined in the Streetscape Plan. For example, where wider vehicles are expected to park a dashed line could be marked between the parallel parking line and the outside line of the cycle lane, a practice often used in Christchurch.

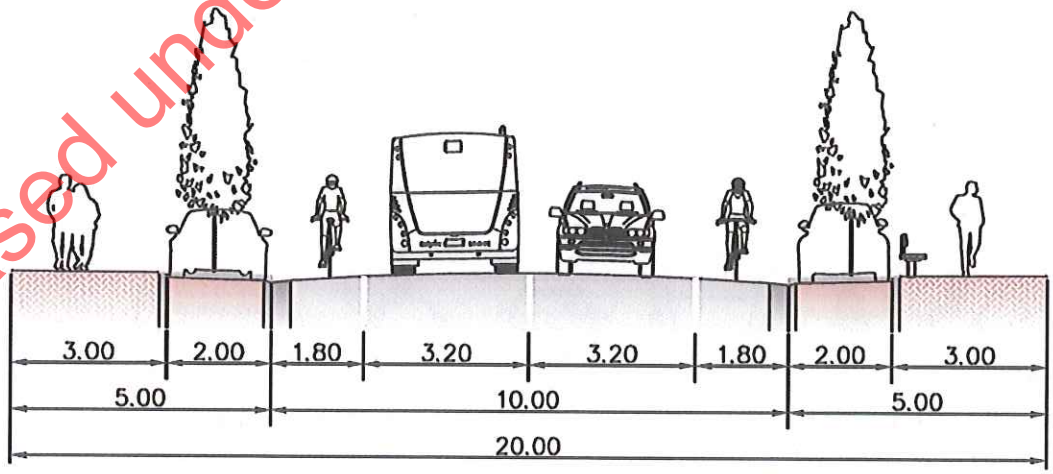

Figure 29: Distributor cross section 2

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8.4 Distributor Type 3 – Bus lanes on one side only

This cross section could be applied to the following streets:

- Manchester Street (Lichfield Street to Armagh Street)
- Durham Street/Cambridge Terrace (between Kilmore Street and Lichfield Street)

These streets could have bus travel predominantly in one direction. The southbound buses would use Durham Street/Cambridge Terrace and the northbound buses would use Manchester Street. This circular arrangement would allow for bus stops on the edge of the slow core, with passenger loading and unloading facing the slow core. It will result in a section of the central city bus network that has in and outbound stops separated by approximately 400 m.

It is acknowledged that Cambridge Terrace is classified a People Street, but for the purposes of defining a streetscape treatment it needs to be considered along with Durham Street as a bus route.

To provide buses with priority these streets could feature bus lanes in their direction of travel. Alternatively the general traffic could be restricted on these streets to ensure buses are not delayed by dense traffic conditions; from a streetscape point of view traffic restrictions would be preferable. However in the absence of any decision on how priority is achieved, the scenario of a dedicated bus lane is explored here in terms of streetscape implications.

As discussed in Chapter 6, there are several ways that a bus lane can be configured. A wide lane could be provided to allow for buses and cyclists to travel alongside each other or, a narrower lane where they travel in the same space. Both of these options are presented below for consideration.

Catering for northbound cyclists on Durham/Cambridge could be with an on-road cycle lane for local access within this section of street if the cycle network follows the Avon River as discussed earlier. If the cycle network remains on the street network then a separated cycle facility would be provided. On-road cycle lanes would be provided in the southbound direction on Manchester Street.

The implication of providing a bus lane is that on-street parking on one side of the street is removed. However this could be a clearway if bus priority is not required at all times; an assessment of priority requirements has not been undertaken at this stage. Cross section 3a (Figure 30) would accommodate a clearway, whilst cross section 3b (Figure 31) would not (when the lane is used for parking, there is nowhere for cyclists to go but to be in the door opening zone, which is hazardous and thus not an option). The SBF in cross section 3b would not be needed if the cycle network is relocated to the Avon River Corridor as recommended but is shown here to illustrate that it can be accommodated.

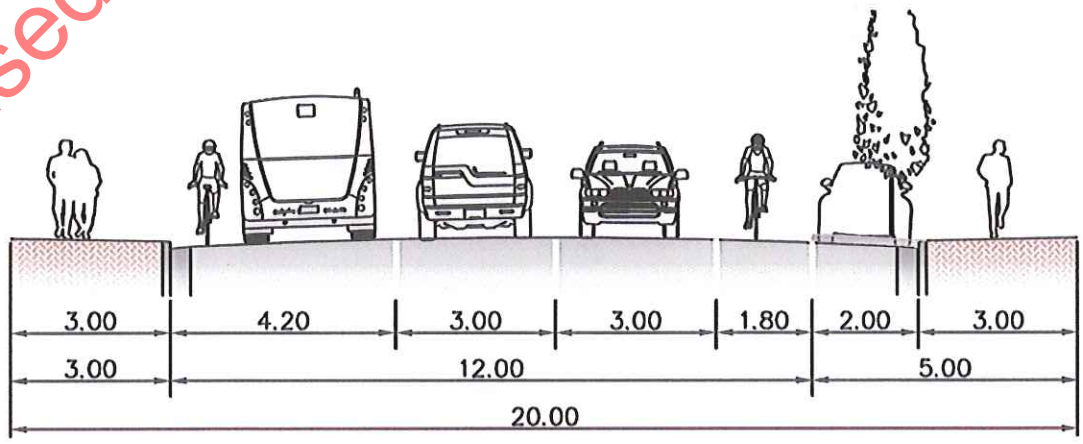

Figure 30: Distributor Cross section 3a

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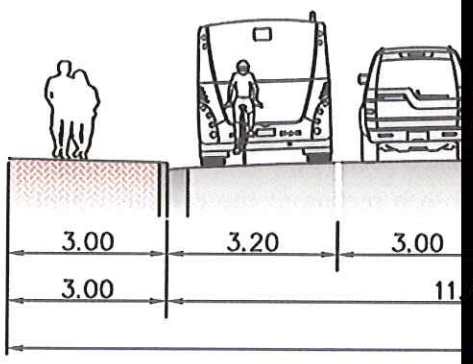

Figure 31:

8.5 Distributor Type 4 – Bus lane

This cross section could be applied to the

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- Tuam Street (Manchester Street t
- Durham Street (Lichfield Street to
- Manchester Street (Lichfield Stree

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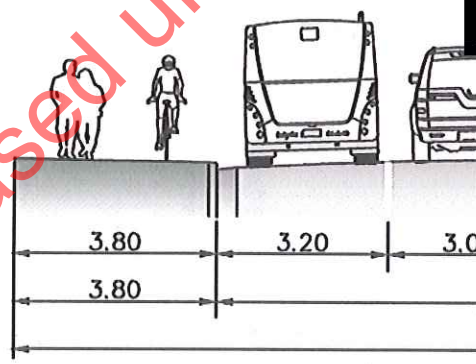

Figure 32:

The implication of providing bus lanes with
removed. However these lanes could be
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Any streetscape that includes bus lanes on both sides of the streets is likely to result in low amenity; finding alternative means of priority is preferred.

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Appendix 2 – Overall network map with Distributor Street cross sections

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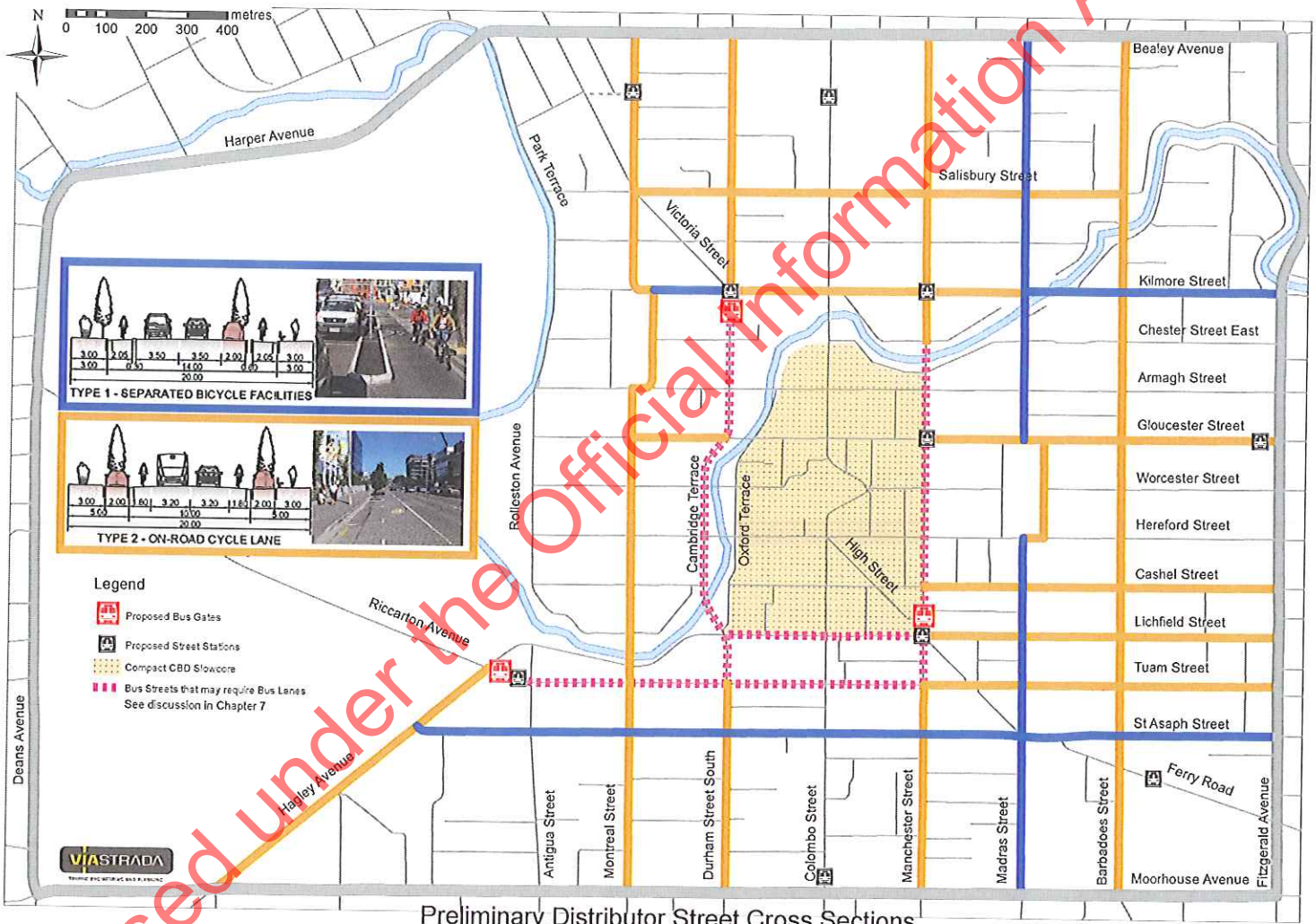

Preliminary Distributor Street Cross Sections

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