PART B – DRAFT STRUCTURE PLAN

6.0 Connected Movement Framework

Developing a connected movement network is critical to achieving good urban form and amenity in Carterton South, and is thus critical to the success of the structure plan.

To that end much of the time and focus on development of the structure plan has been spent trying to find an optimum layout for movement corridors. Particular constraints have been the existing lack of connections, particularly north-south, the lack of vacant land at critical points of connection to the existing network, and the timing of and speed that subdivision development has been occurring during the development of the structure plan.

The timing of development of subdivisions within the study area has meant that some opportunities for connections have been effectively lost and have had to be abandoned. In one case, a proposed subdivision has been granted consent and may present an opportunity to assist the development of a key connection.

6.1 Street Connections and Structure

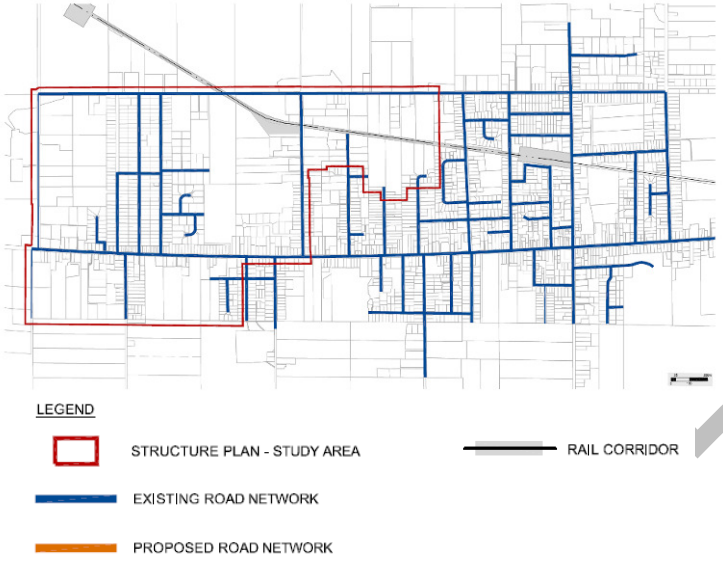
A lack of connecting streets in Carterton South has resulted in large block sizes (hence coarse urban grain) which have implications for connectivity and movement. This coarser urban grain results in less connection choices, and further travel distances. Consequently there is real choice of transportation modes as alternatives to the car become quite unattractive. This is most particularly the case in residential and rural-residential type areas, which make up a large proportion of the Carterton South area. The implications of this on connectivity, legibility, and modal choice in particular are discussed further below.

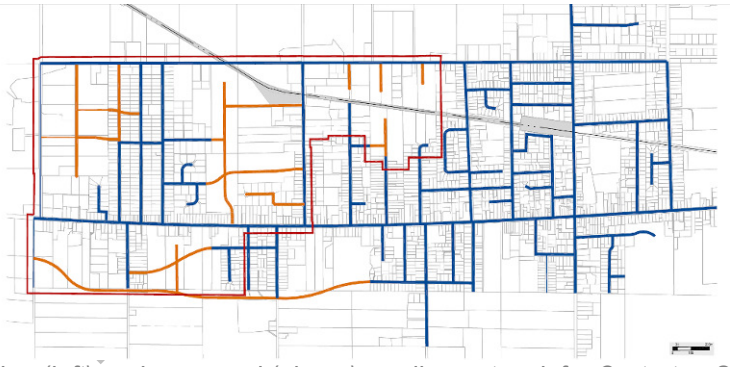
6.2 Connectivity and Movement

Carterton generally has a very strong traditional 'grid' street layout. Grid layouts have the benefit of being highly legible or understandable, and usually provide many links. They can be efficient distributors of traffic. In Carterton South however the 'grid' is incomplete, with main north-south links only at the boundaries of the more urban/rural residential area and just four important east–west links providing little connections within the very large 'block' areas.

This is demonstrated in the figure below which shows the existing 'grid' development patterns prevalent in Carterton (orange), and the links that would extend from existing roads to provide additional connections across the grid (blue).

To address this lack of connections it is important to provide both north-south and east-west road linkages within the Carterton South area. Following identification of potential road alignments and consultation with landowners in the structure plan areas 21 new road linkages have been identified. These will address both vehicle and many pedestrian/cycle desire-lines across both north-south and east-west directions. The provision of these new roads will reinforce provide good linkages within Carterton South community neighbourhoods.





The existing (left) and proposed (above) roading network for Carterton South with the structure plan links in place.

The connections alone will improve the present ability for all modes of transport to conveniently move around the Carterton South area. To further improve pedestrian and cycle links, on more convenient links improved dedicated pedestrian cycle facilities will be provided. These would be along:

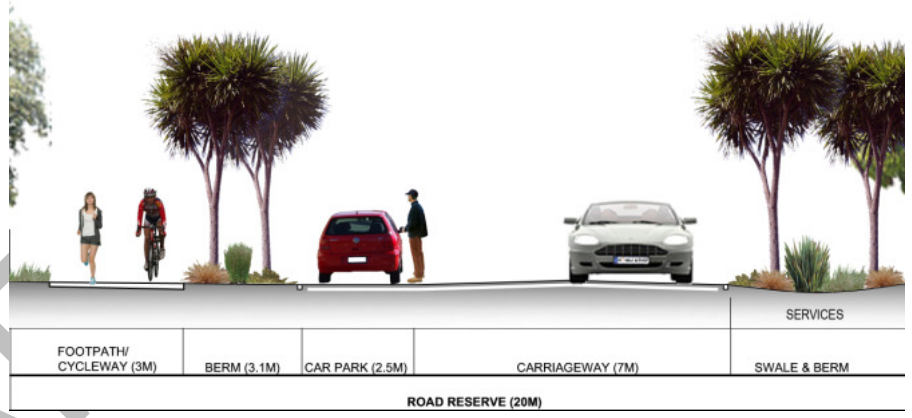
- Gertrude Street
- Daffodil Grove
- Hughan Place-Road 2
- Road 4 (Daffodil to Brooklyn)
- Road 5 (east-west north of Daffodil and Endelave)
- Road 12 (Hilton Road to Brown Avenue)

- Road 20 (Daffodil Grove to Brooklyn Road)

Dedicated stand-alone pedestrian/cycle links are also proposed. In most cases these are provided to ensure that convenient links are in place for these modes where roads cannot be secured, but recognising that pedestrians and cyclists are less likely to accept having to travel 'around' blocks to get from origin to destination. Links would be provided at:

- Brooklyn Road to Costley Street
- Lincoln Road to Victoria Street
- Clifton Avenue to Fisher Place
- High Street to Brown Street
- High Street to Road 12 (Brown Street extension)

A cross-section detailing how these links could be accommodated within a standard 20m road corridor is shown below. Larger scale plans showing the new roads and pedestrian-cycle links can be found in Appendix Two.



Road 5 (Collector) - Reallocation of space within the road reserve can provide for traffic calmed streets and attractive off-road pedestrian-cycle links.

It is important to remember that these proposed road alignments only make up a basic framework or 'skeleton' for the road network, to achieve the most important connections. The addition of smaller or dead-end roads such as cul-de-sacs to access and service particular developments can still be used in addition to the key links to provide choice without compromising the overall network.

6.3 Legibility – easy to understand movement networks

Legibility refers to the ease with which a person can 'understand' a movement network, in other words how easily they can find their way around.

Traditional 'grid' type street alignments such as is evident in Carterton are usually easy to understand and navigate as streets are predictable and a choice of various street alternatives will still typically result in the traveller ending at or close to a desired location. More recent developments utilising curved and particularly cul-de-sac type street alignments can conversely become quite confusing. Particularly in the case of cul-de-sacs this can make movement networks difficult to navigate by those unfamiliar with them, as a journey down a street seemingly heading in the right direction can often end in a dead-end, but it is not until that dead-end is reached that the error in route choice is obvious. Tools such as signage ('for example 'No Exit' or directional signage) can play an important part in legibility.

In Carterton the prevalence of the 'grid' street alignment greatly contributes to how easy it is for people to find their way around. This is however lessened somewhat in the newer subdivisions in the northern half of Carterton where curved streets and cul-de-sacs are evident. An excellent example is Kenwyn Drive where a connection to a formed road (private but publicly accessible) just to the north is not available – despite it being only a few metres away and quite visible. This prevents a Kent Street-Belvedere Road linkage and means a lengthy alternate route of either Connolly's Line of Taverner Street must be used. Neither case is likely to be convenient for pedestrians or cyclists.

A Carterton South example is Daffodil Grove – where an obvious connection north to Brooklyn Road is prevented by a segregation strip.

A useful comparison could be drawn to the ease of understanding a completed 'grid' network as shown in the diagram overleaf. A fully completed 'grid' network might not be desirable for other reasons, but does provide a good illustration as to how easy such as network is to navigate, as do the examples below from other towns. Connection breaks are denoted by an '**x**'.

In many cases the breaks in the movement network as shown in this example would not be evident until the route was at least partway travelled, meaning that backtracking would be necessary. Other clues for legibility can include use of signage and materials. In the latter case the most common in evidence is form sealed surfaces such as footpaths and roads, but these can extend to other clues as the simple features to emphasise entry points.

The draft structure plan makes extensive use of fairly straight alignments that provide obvious connections between existing (and in one case a proposed) street alignments. The legibility of the alignments can also be increased through its character – for example the wider 'collector' link provides a visual clue that it is a 'link' that goes somewhere.

An example of the relative lack of connections in a cul-de-sac dominated development relative to a grid network. Despite the short distance 'as the crow flys', the distance between points A and B are by road connection quite long, confusing, and inconvenient.

The development of short 'cul-de-sacs' within the structure plan area is not precluded. These types of roads may be entirely appropriate for some developments, most likely accessed of the proposed roads shown in the structure plan. With the main links in place the network will remain legible and easy to understand. A good example of how this can be achieved is at Endelave Way, where a main connection through the subdivision is present (Endelave Way) and two smaller cul-de-sacs' serve to 'fill-in' the development area.

6.4 Modal Choice – ease of getting around

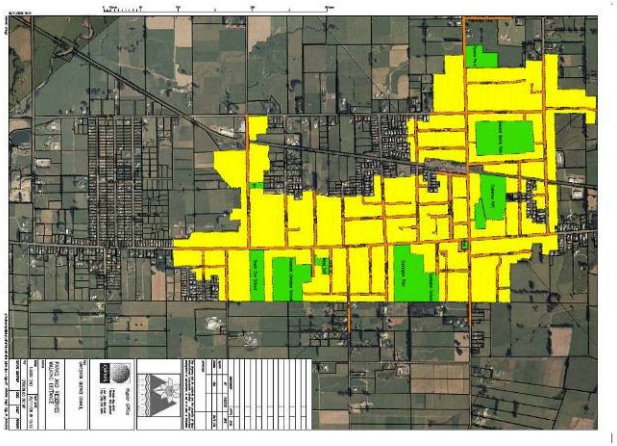
Although facilities in the form of carriageways, footpaths and crossings have been provided for in Carterton South, in many places the fragmented and dispersed nature of past development coupled with resultant large block sizes and a lack of routes along key pedestrian/cycle desire-lines mean that it is simply too far to walk or cycle for those options to be very attractive. The solution to this issue largely lies in the development of a well connected and easy to understand (legible) network. The ways in which these two qualities of good urban design will be achieved has already been outlined in the previous two sections.

A good example of how the structure plan will address this issue is demonstrated by the following diagrams (overleaf). This diagram shows the respective walkability to local park/open spaces within Carterton. The first shows the existing situation (houses within walkable distance of 500m in yellow) and how even houses in close proximity to the open space may not be able to access it without travelling some distance a circuitous route. It also highlights the absence of recreation open space in Carterton South.

The second diagram shows the situation in Carterton South with the structure plan roads in place (houses within walkable distance in blue).

Although applied only to open spaces in these examples, the principle will also hold true for access to other facility and services such as the town centre and train station. Although these destinations might be more than 500m and thus less walkable, the distance will become shorter with the new links in place, and certainly more accessible by cycle.

Also important to attractiveness is personal safety, both in real and perceived terms. This is covered in section 7.0 under the heading of 'CPTED'.



Walkability to public open space in Carterton South both without (top) and with (bottom) the structure plan links in place.

6.5 Sense of Place/Identity (respecting the character of Carterton South)

Movement corridors also have an important and sometimes overlooked secondary function. They are very important parts of the public realm that connect our neighbourhoods and communities. Or if designed poorly or are subject to factors such as very high levels of traffic use, can divide those communities.

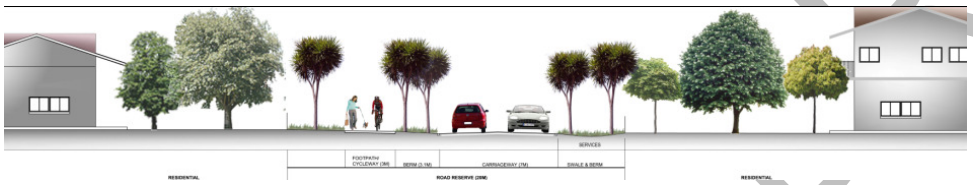
The streets, foot and cycle paths, and parks are the spaces in between residential properties, and their appearance, use and even location/absence can make a significant positive or negative contribution to local identity, character or sense of place. This is discussed further under the sense of place heading, however when considering connectivity and movement corridors in the southern half of Carterton it is evident that these corridors have been provided in different forms and lend different characters.

Features such as the ranges visually dominate east-west movement corridors, and are often the best vantage points in the urban area from where to view those features. To be successful in this however the orientation of those corridors also means that these features also play a higher part (through being more visible) in local sense of place, identity and character. Significantly such a contribution to sense of place also assists in legibility, with 'landmarks' and features providing easily recognisable points along a route.

For these reasons the orientation of east-west streets is intentionally on the same alignment as existing streets such as Dalefield Road and Brooklyn Road, which are almost perpendicular to the ranges and thus provide excellent views through the urban area to the ranges, and excellent reference points for orientation.

The cross-sectional diagrams below are explored further in the 'Identity' section of this report, however quick reference here easily identifies that the features of principal significance in each are the road reserve. It is this part of the public realm that is most visited by members of the community and of which Council retains most control. The retention of a non-urban or semi-rural feel to the streetscape in this area then is of great significance to achieving a semi-rural character.

Local road



Collector with no on-street parking

Collector with on-street parking

Existing 'urban swale' drains. Aside from being more environmentally friendly, the dominance of the motor car is reduced. Perceptions of 'scruffy' seal can be addressed by concrete edge strips, and these will also help address 'edge-break' of the seal wit consequent maintenance benefits.