

STAFF REPORT

TO: Chairman and Members, Engineering Services Committee
FROM: Roger Ashworth, Transportation Manager
DATE: 14 July 2008
SUBJECT: **RICHMOND RING ROUTE**

1 PURPOSE

To update the committee on recent work undertaken on establishing improvements to the Richmond ring route.

The Richmond Ring Route concept is being progressed to better manage traffic flows around the Richmond Town Centre. The need for the ring route comes from the following drivers:

- Proposed development in Richmond South
- Proposed development in Richmond West
- More traffic travelling to and from the schools on Salisbury Road
- Desire to create a more pedestrian friendly environment on Queen Street

The concept basically involves creation of a two-way circular traffic route via SH6, McGlashen Avenue, Talbot Street, Salisbury Road and Oxford Street. Modifications to the McGlashen Ave/Croucher Street/Talbot Street intersection have recently been completed and Transit New Zealand are progressing the State Highway intersection modifications.

Accordingly, the focus is now on the treatments necessary at the remaining intersections, namely:

- Oxford Street/Wensley Road;
- Salisbury Road/Queen Street; and
- Salisbury Road/Talbot Street.

Investigation has also been undertaken into the Salisbury Road/William Street intersection and the Oxford Street link so the major intersections and links between the schools, the town centre and the State Highway network can be considered for consistent treatment.

2 EXISTING SITUATION

The Oxford Street / Wensley Road intersection is a four arm roundabout which is currently operating at a good level of service and is predicted to do so for the next 20 years. The current average delays are approximately 8 seconds in the peak periods, with this increasing to a maximum of 20 seconds by 2027.

The Salisbury Road / Queen Street intersection is also a four arm roundabout which is currently operating at a good level of service. The current average delays are between 10 and 20 seconds in the peak periods, but the delay for some movements will increase to

over 5 minutes by 2027. The worst approach is the Salisbury Road north approach which will experience delays in excess of 2 minutes before 2017.

The Salisbury Road / Talbot Street intersection is a T intersection which will be under pressure as soon as the SH6/McGlashen Avenue intersection project is completed. Average delays of over a minute are expected in the PM peak with the right turn from Talbot Street being over 7 minutes.

The Salisbury Road / William Street intersection is a T intersection which is currently operating at a good level of service, except for the right turn out in the PM peak. This does not impact significantly to the overall delay at the intersection which is currently less than 5 seconds. This intersection will not be affected by the ring route changes; however forecast traffic growth does mean that the right turn out will be experiencing delays of over 5 minutes in 2017, although the number of vehicles undertaking the movement is small.

The Oxford Street link has not been modelled but the narrow width of this route reduces the capacity of the link and may impact on the success of the ring route concept. The current trafficable width can be less than 6 metres when cars are parked on both sides of the road.

3 ANALYSIS

A spreadsheet network model and individual SIDRA intersection models were developed to determine the impacts of the SH6 changes and potential changes in intersection control at these locations.

A full Scheme Assessment Report has been produced to determine the costs and benefits of different options for increasing capacity at the above locations.

4 FINDINGS

No changes to the Oxford Street / Wensley Street intersection are proposed. Traffic signals were found to increase the delay experienced by drivers at this location throughout the analysis period. The sight distance at this roundabout is currently restricted; however it is thought that this is a contributing factor behind the very low crash rate as road users may be more vigilant when using the intersection. The intersection could be re-investigated once the SH6 and other ring route changes have been implemented and the actual traffic flows are known.

Traffic signals are recommended for the Salisbury Road / Queen Street intersection as these will reduce the overall delay for motorists. Two options were considered, one with two lanes (plus cycle lane) on the Queen Street approach, and one with three lanes. The economically preferred option is the three lane option which has a capital cost of approximately \$890k and yields a BCR of 4.4, although TDC may prefer to proceed with the option which provides better facilities for cyclists (cost of \$870k, BCR of 4.0). Either way, it is recommended that signals be progressed to detailed design. Further consideration needs to be given to purchasing land from the south-eastern corner in order to obtain wider lane widths.

Traffic signals at the Salisbury Road / Talbot Street intersection would have immediate benefits in terms of reducing both delay and queue lengths. This option has a capital cost

of approximately \$650k and yields a BCR of 12. Accordingly, it is recommended that this option is progressed to detailed design and construction as soon as possible.

Installing traffic signals, or a roundabout, at the Salisbury Road / William Street would decrease the delay for right turning vehicles but would increase delay for all other movements, which makes such options un-economic. Traffic signals would have a capital cost of approximately \$700k but have almost \$6M in travel time and vehicle operating cost disbenefits.

Traffic signals at the Salisbury Road / Queen Street and Salisbury Road / Talbot Street intersections would give TDC the opportunity to control traffic flows on Salisbury Road, including 'throttling' the flows past the school to encourage motorists to use SH6. However, TDC currently do not have the facility to operate and control traffic signals. It is therefore recommended that TDC request NCC to operate them through their current facilities. This would work in a similar way to the Tahunanui intersection (owned by Transit) whereby NCC operates the signals but do not make changes unless specified by Transit.

In conjunction with the intersection improvements, widening of Oxford Street is recommended to enforce the message to the road user that this is an arterial route. This will require land purchase off 11 properties but has not been evaluated at this stage. As a short term solution, parking could be prohibited on the north-eastern side of the road and inset parking bays provided where the property boundaries are further away from the carriageway.

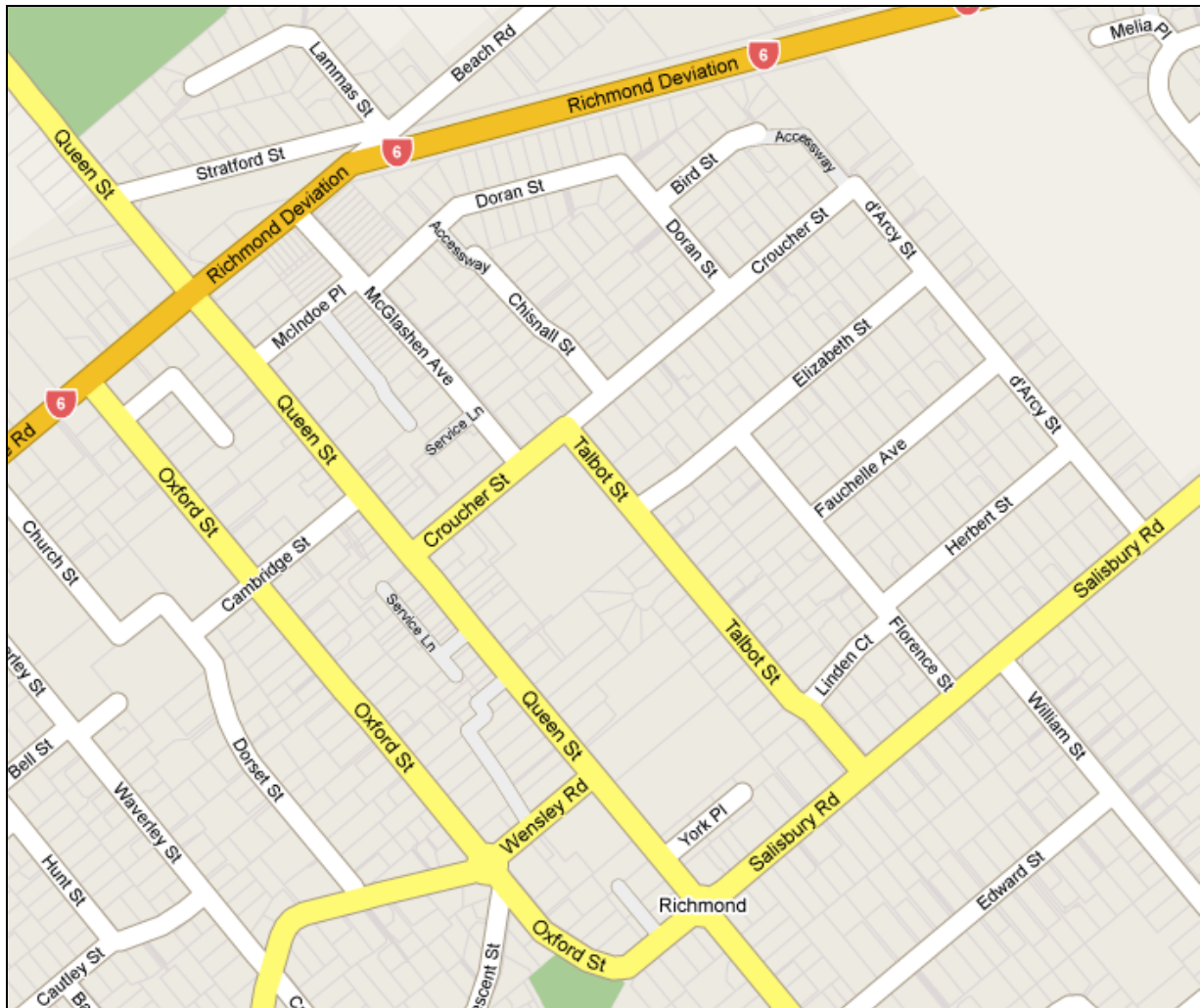
5 RECOMMENDATIONS

THAT this report be received and improvements forwarded to the Long Term Council Community Plan for funding consideration.

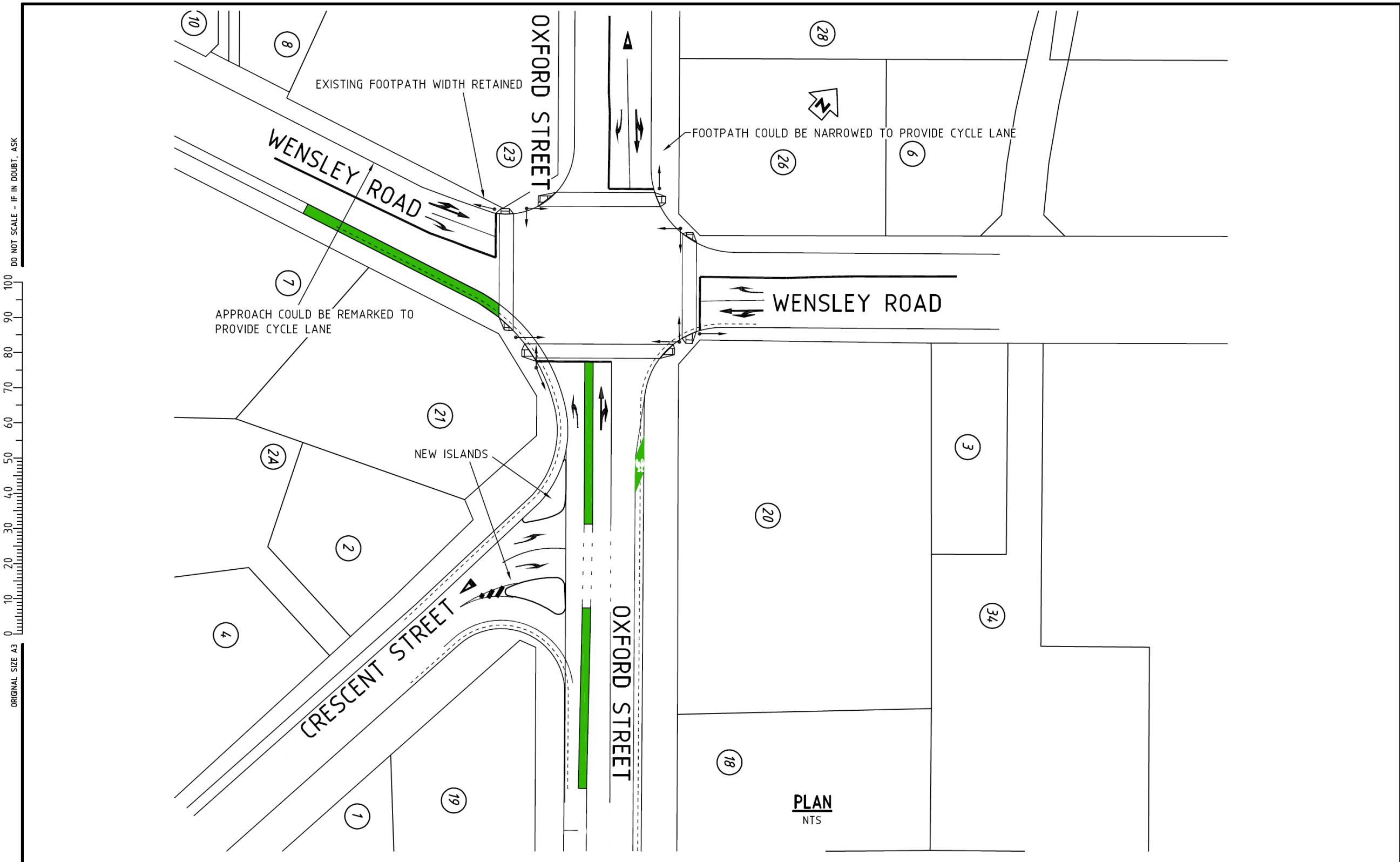



Roger Ashworth
Transportation Manager

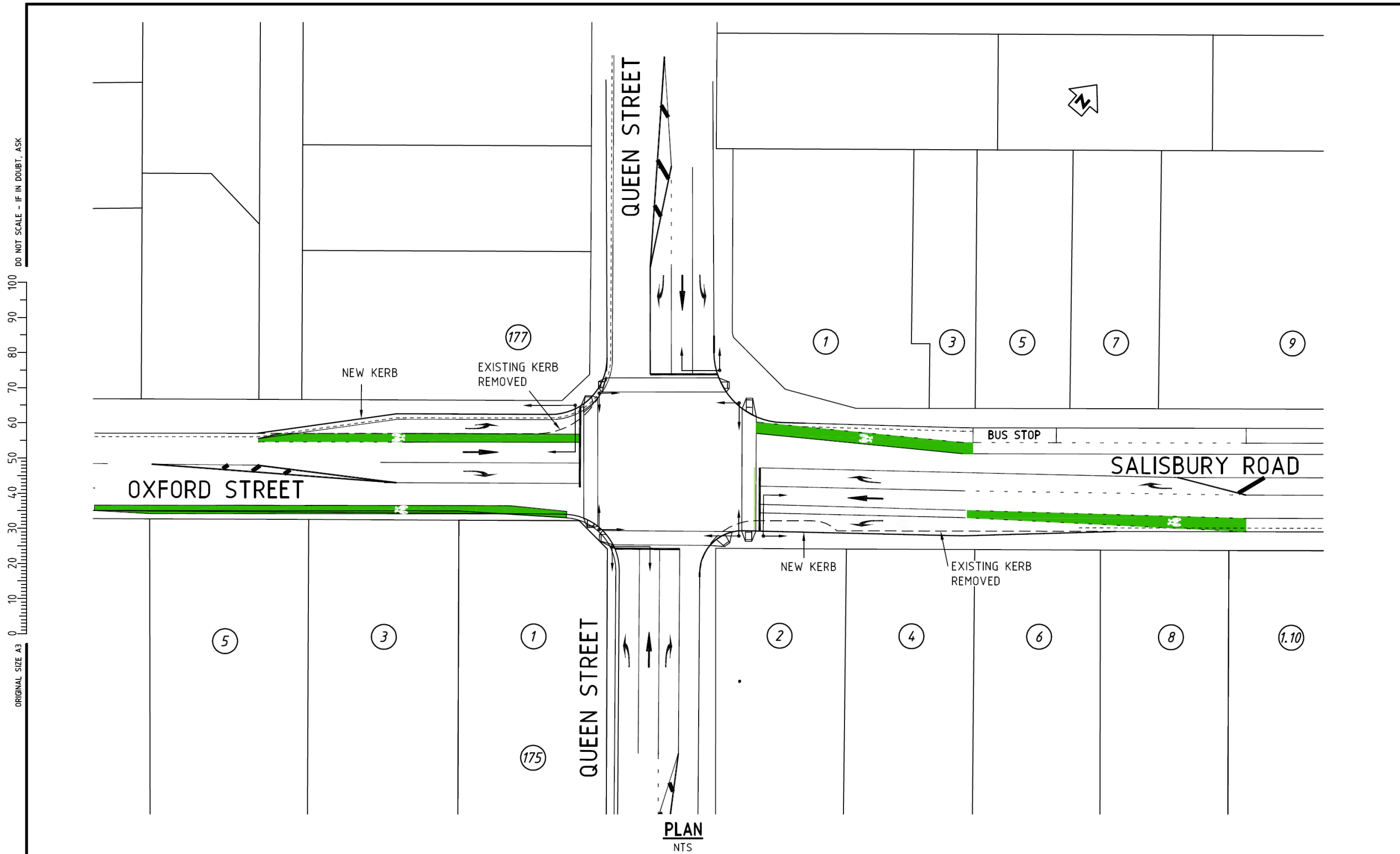
Appendix A: Location Plan




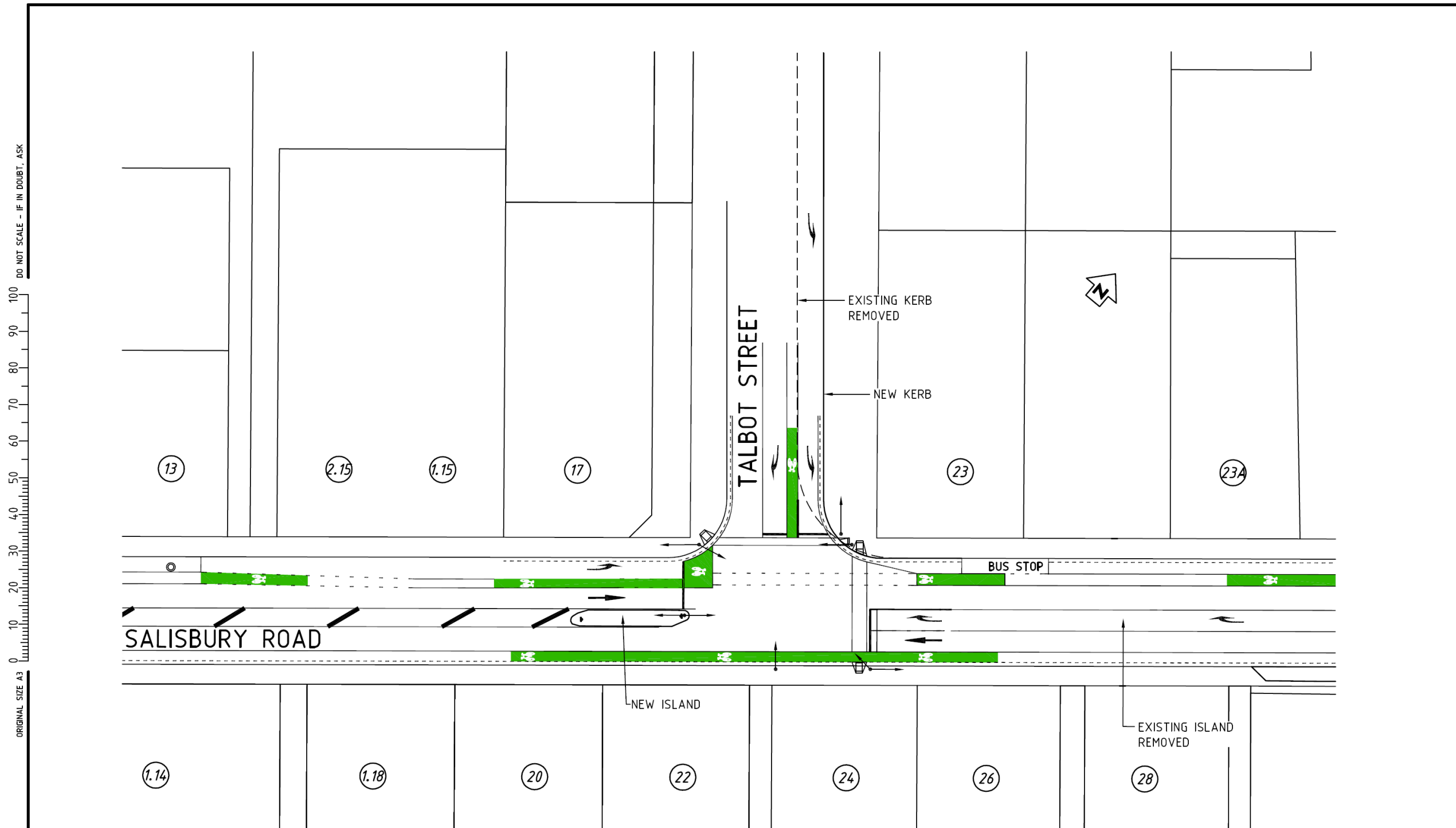
Appendix B: Scheme Plans (1 of 3)




	<p>RICHMOND RING ROUTE SCHEMATIC INTERSECTION LAYOUT</p>	<p>JOB No.:- Z1448842</p>	<p>FIG. No.:- 1</p>
	<p>Wensley Road, Oxford Street and Crescent Street junction</p>	<p>DATE: 13-06-08</p>	



	<p>RICHMOND RING ROUTE SCHEMATIC INTERSECTION LAYOUT</p>	<p>JOB No.:- Z1448842</p>	<p>FIG. No.:- 2</p>
	<p>Salisbury Road, Queen street and Oxford street junction</p>	<p>DATE: 13-06-08</p>	



PLAN
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	<p>RICHMOND RING ROUTE SCHEMATIC INTERSECTION LAYOUT</p>	<p>JOB No.:- Z1448842</p>	<p>FIG. No.:- 3</p>
	<p>Salisbury Road and Talbot Street junction</p>	<p>DATE: 13-06-08</p>	