

542/791

Gloucester/Linwood Signalisation

COSTS (Costs net of thirds-party contributions in brackets)

Total	Renewal	Backlog	Unallocated	Growth
\$344,496	\$68,899	\$118,507	0	\$157,090
(\$179,138)	(\$35,828)	(\$61,623)		(\$81,687)

COST ALLOCATION

Primary Driver:	Continued poor safety performance of existing roundabout Significant peak hour delays.
Secondary Driver:	
Capacity discussion:	
References:	

ATTRIBUTES

Project Manager:	Lorraine Wilmshurst
Work Planned:	Removal of roundabout intersection and replacement with traffic signals.
Location:	Gloucester St/Linwood Avenue intersection
Special features being addressed:	Pedestrian and cycle safety
A statement of the outcomes being addressed (LoS, Community Outcomes):	Improved Level of Service (trip time reliability) Increased network safety (particularly pedestrians and cyclists)
Options considered:	Various signal layouts
Implications of not doing the project:	Continued poor safety performance of existing roundabout Significant peak hour delays
Linkages with other projects:	Worcester/Linwood intersection treatment

Location of other relevant supporting information:

Report to Council of outcome from public consultation.

Report to Hagley/Ferrymead Community Board meeting on 29 October 2003.

Various Council reports (see website)

Project Cost Allocation Summary

Background

Project No	542/791	Activity	Transport and City Streets
Project Name	Gloucester/Linwood Signalisation		
Project Manager	Lorraine Wilmshurst		
Year first spend on the project	2001	Project Scope	
Year of first cost allocation	2006		
Year of current cost allocation	2006		
Project cost	\$344,496		

Level of Service Definitions

Measure	Ratio	Primary Driver	Continued poor safety performance of existing roundabout Significant peak hour delays
Existing Capacity	100.0		
Existing Demand	143.0		
Total Capacity	200.0	Secondary Driver	
Design Capacity Year	2031		
End of Life Year	2046		
Backlog Capacity	43	Capacity Discussion	
Growth Capacity	57		
New Work Capacity	100		
% Backlog of New Work	43	References	
% Growth of New Work	57		

Localities:

locality	percentage	comment
Linwood	100	

Operations and Maintenance

O&M Cost Share	\$0
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Renewal

Stand Alone Renewal Cost	\$68,899	Renewal Scope	Standard assumption for renewal component of Road Network Improvements
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New Works

Stand Alone New Works Cost	\$344,496	New Works Scope	Standard assumption for new work component of Road Network Improvement.
Renewal Cost Share	\$68,899		
New Work Cost Share	\$344,496		

Preliminary Cost Shares

Backlog Cost Share	\$118,507
Growth Cost Share	\$157,090

Growth project

Stand Alone Growth Cost	\$344,496	Growth Project Scope	Standard assumption for growth component of Road Network Improvements.
Growth Cap	\$344,496		

Unallocated costs

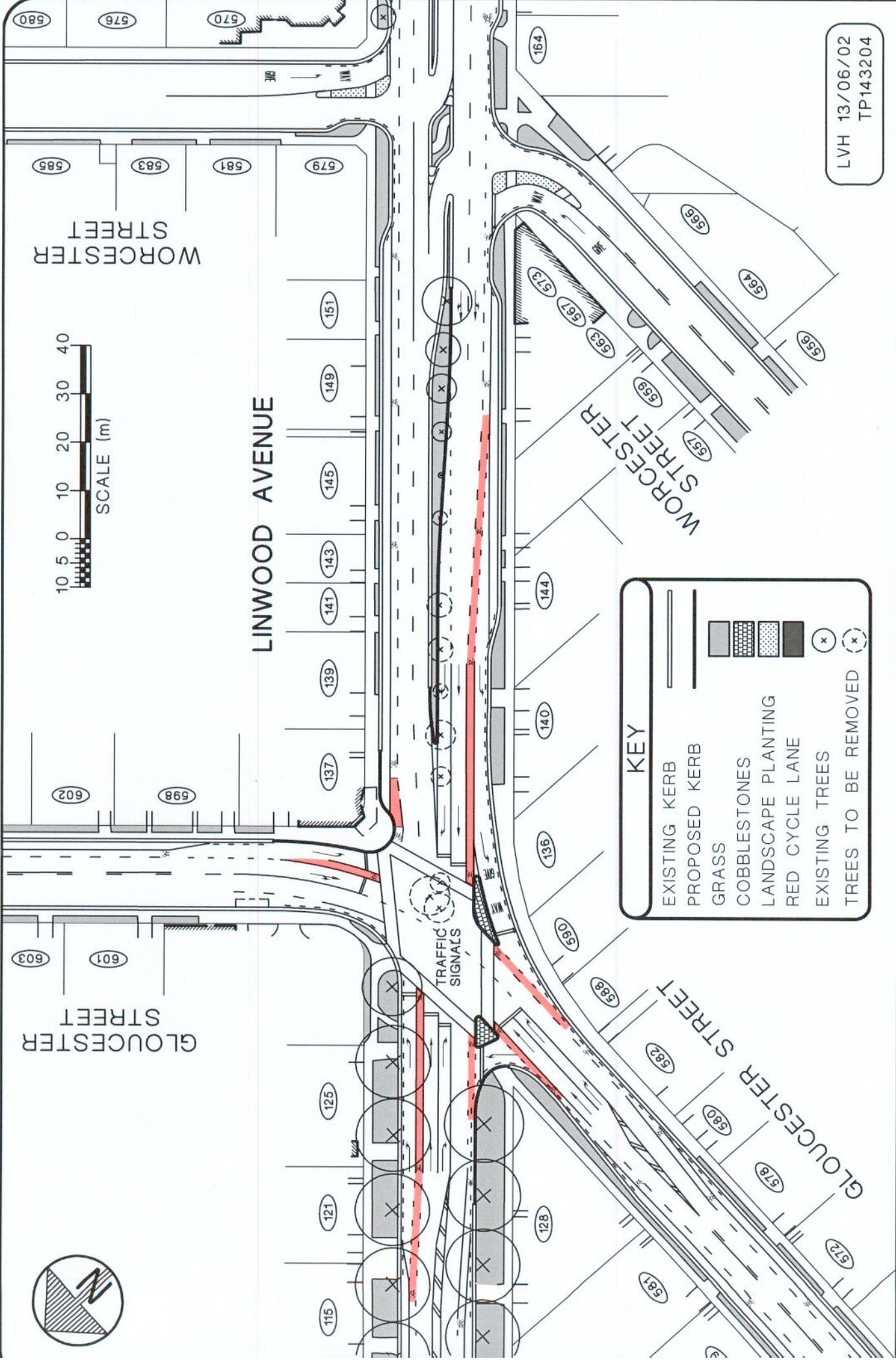
Unallocated Cost Share	\$0
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Project funding

External Funding	\$165,358
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Summary of Cost Allocation

	%	Total Cost	Net Cost
O&M		\$0	\$0
Renewal	20%	\$68,899	\$35,828
Backlog	34.4%	\$118,507	\$61,623
Growth	45.6%	\$157,090	\$81,687
Unallocated	0%	\$0	\$0
External Funding			\$165,358
Project Total	100%	\$344,496	\$179,138



Worcester Street

LINWOOD AVENUE

Gloicester Street

Worcester Street

KEY

- EXISTING KERB
- PROPOSED KERB
- GRASS
- COBBLESTONES
- LANDSCAPE PLANTING
- RED CYCLE LANE
- EXISTING TREES
- TREES TO BE REMOVED

LVH 13/06/02
TP143204

LINWOOD AVENUE/GLOUCESTER STREET INTERSECTION

1. LINWOOD GLOUCESTER PROPOSED TRAFFIC SIGNALS

Officer responsible City Streets Manager	Author Lorraine Wilmshurst, DDI 941-8662
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The purpose of this report is to inform the Council of the outcome of the public consultation on the above and to seek approval to proceed with the installation of the traffic signals at the intersection of Linwood Avenue and Gloucester Street.

BACKGROUND

This intersection forms a capacity restraint on a significant route east of the city. Linwood Avenue is a major arterial east west route between Avonside and Mt Pleasant. It currently carries around 10,500 vehicles a day east of the intersection. Gloucester Street is a minor arterial route providing access between north Linwood and Wainoni with the City Centre. Gloucester Street south of Linwood Avenue carries around 8,100 vehicles per day. The total traffic volume through the intersection is very high for a roundabout with the current lane configuration.

Installation of traffic signals appears to be the only viable option. The angles of the approach roads restricts changes to the approach geometry of the existing roundabout. Significant land purchase would be required to realign the roads and construct a suitable two lane roundabout. Such a change would also effect significant trees on Linwood Avenue west of the intersection.

The proposed signals will reduce delays at the intersection and are also likely to significantly improve safety. Cyclist and pedestrian facilities will be provided.

The Committee at its July 2002 meeting resolved:

"That the project be approved for the purpose of consultation by way of written submissions and that if any submitter wishes to be heard, then such hearings be held by the Land Transport Subcommittee plus the Chairman of the Hagley/Ferrymead Community Board."

DISCUSSION

A publicity leaflet was distributed to all residences in the area – Linwood Avenue from Buckleys Road to Brittan Street, Tancred Street from Hereford to Woodhouse Street, Gloucester Street from England Street to Woodhouse Street, Worcester Street from Tancred Street to Wyon Street, Hereford Street from Tancred to Linwood Avenue and Rochester Street.

A copy of the leaflet was posted to the three residents groups adjoining the project area - Englefield Neighbourhood Committee, Linwood Neighbourhood Committee, and Linwood North Residents Association. Enlarged copies with an A4 explanation were sent to the three churches in the area – St George's Presbyterian Church, Linwood Baptist Church, Linwood Salvation Army Church - the Linwood Library and the Linwood Service Centre for display.

The responses to the publicity leaflet were one written submission, 15 comments on the space on the leaflet, and two phone calls. Twelve of the responses were in favour of the work proceeding for the installation of the traffic signals and two indicated that they were not. Several other comments were made:

- Three expressed concerns about the loss of trees and one asked could daffodils be planted in the median.
- A request was received asking that the relocated position of the inbound bus stop in Gloucester Street be reviewed and residents in the vicinity be consulted.
- One comment questioned the safety of pedestrians crossing the slip lane Linwood into Gloucester Street.

CONCLUSION

The responses to the leaflet indicate that the majority of the public are in favour of the work proceeding. The request to look at the relocation position of the bus stop will be investigated further and the resident who was concerned about pedestrian safety has been contacted.

The Land Transport Subcommittee has heard the two submitters wishing to be heard in person and the recommendation of the Subcommittee is detailed following.

REPORT OF THE LAND TRANSPORT SUBCOMMITTEE

The Committee also considered a supplementary report on the meetings of the Land Transport Subcommittee of 26 September 2002 and 4 October 2002.

At the 9 July 2002 meeting of the Committee approval had been given to this project for the purposes of consultation and it was agreed that any oral submissions be heard by the Land Transport Subcommittee plus the Chairman of the Hagley/Ferrymead Board.

The Land Transport Subcommittee met on two occasions, on 26 September 2002 and 4 October 2002, to hear and consider an oral submission from Mr and Mrs Britnell of 563 Worcester Street regarding the proposal.

In addition a petition tabled at the Council meeting of 26 September 2002 signed by 143 people seeking deferment of the decision on the placing of traffic lights at the Gloucester Street/Linwood Avenue intersection had also been referred to the Land Transport Subcommittee for consideration and was accordingly discussed at the meeting of 4 October 2002.

The recommendation of the Subcommittee was:

'That the oral submission and petition be noted, but that it be recommended to the Sustainable Transport and Utilities Committee that the installation of traffic lights at the Linwood /Gloucester intersection proceed.'

Recommendation: That the Council approve the installation of traffic signals at the intersection of Linwood Avenue and Gloucester Street.

11. GLOUCESTER STREET/LINWOOD AVENUE TRAFFIC SIGNALS

Officer responsible City Streets Manager	Author Brian Neill, Network Operations Team Leader, DDI 941-8616
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The purpose of this report is to outline the problems and actions to be taken to improve traffic management at the Gloucester Street/Linwood Avenue intersection.

BACKGROUND

The Council recently installed traffic signals at the Gloucester Street/Linwood Avenue intersection. The traffic signals replaced a roundabout that had a number of safety deficiencies and did not cater at all well for pedestrians and cycle movements through the intersection.

Since the installation of the signals a number of drivers have commented that the right turning movement from Gloucester Street west into Linwood Avenue can be hazardous if the view of approaching traffic from the north-east Gloucester Street approach to the intersection is blocked. Pedestrians have also indicated that Linwood Avenue traffic approaching the intersection from the south-east and using the left turn slip lane into Gloucester Street west is a problem due to the speed of the vehicles entering the slip lane.

POST CONSTRUCTION ROAD SAFETY AUDIT

A post construction road safety audit of the new traffic signals has been carried out. The audit team considered the way in which drivers are reacting to the new traffic signals. The team identified a number of safety hazards and suggested that all should be addressed in an effort to improve on the work that has already been carried out at this junction.

“Serious” hazard rankings were given to the following safety issues:

1. The stated right turn from Gloucester Street west into Linwood Avenue.
2. The Linwood Avenue south-east approach merge to the intersection where two lanes terminate immediately north of the Worcester Street intersection.
3. The inadequate length of the right turning bay in Gloucester Street west approaching the intersection where, during peak traffic in particular, queues extend from the intersection encouraging some drivers to travel on the wrong side of the roadway.
4. The random use of a left turn lane from the north-west Linwood Avenue approach to the intersection by drivers travelling along Linwood Avenue. Some drivers use the lane to continue south-east along Linwood Avenue.

The following matters were considered important and needed to be addressed by the Council:

5. The presence of a hazardous low kerb on the “splitter” island that acts as a refuge for pedestrians who often need to stop to give way to traffic using the left turn slip lane from Linwood Avenue into Gloucester Street West.
6. The speed of traffic using the left turn slip lane from Linwood Avenue into Gloucester Street west conflicting with pedestrian movements across the lane. The audit team suggested that consideration be given to the installation of a marked pedestrian crossing.

The audit team also had concerns about the following:

7. The lack of tactile pavers on kerb crossings where pedestrians stand.
8. The shortness of the lane marking tapers on the approaches to an exit from the northern Linwood Avenue approach to the intersection.
9. Difficulties had been encountered in providing adequate widths to the cycle lanes on some approaches to the intersection.
10. The extent of the broken yellow “no stopping” line along the south side of Gloucester Street west does not provide safe passage for cyclists when there is a car parked near the bus stop outside 581 Gloucester Street. The team recommends that the “broken yellow” line be extended to the bus stop.

The audit team also registered concerns about the poor surface finish on approaches to the intersection where traffic signal loops have been installed. Concerns were also noted about tree growth that may obscure the view of the traffic signals, the presence of an "out of date" advance directional sign on the south-east Linwood Avenue approach to the intersection and the level of street lighting on the minor arterial approaches to the intersection.

AUDIT ANALYSIS

The City Streets Unit has, together with City Solutions, agreed to address all aspects of the post construction road safety audit for the Gloucester Street/Linwood Avenue intersection. A "lead" right turn arrow has now been provided for Gloucester Street west traffic with appropriate changes to the lane markings on this approach. This was seen as the most urgent issue to address.

A number of options were considered for reducing the speed of traffic using the left turn slip lane from Linwood Avenue into Gloucester Street west. It is recommended that a raised platform be constructed within the slip lane to support a new "zebra" pedestrian crossing. Apart from some minor maintenance matters the other hazards identified by the safety audit team involve changes to laning and other road markings in Linwood Avenue between Gloucester Street and Hereford Street.

ROAD MARKING PLAN

Arrangements are being made to implement the attached road marking plan. The plan proposes to limit the flow of traffic between Gloucester Street and Hereford Street to one lane in each direction with improved right turn facilities at the Worcester Street intersection. Cycle lanes will be extended along Linwood Avenue to Hereford Street.

With the elimination of two lanes of traffic in favour of a single lane through this section of Linwood Avenue, pedestrians will find it easier to cross Linwood Avenue at the Worcester Street intersection. Pedestrian safety will also be enhanced if a proposed "zebra" pedestrian crossing is installed on a raised platform within the left turn slip lane from Linwood Avenue into Gloucester Street west.

CONCLUSION

A number of traffic management deficiencies have emerged since the installation of traffic signals at the Gloucester Street/Linwood Avenue intersection. Action has already been taken to remove a number of hazards that were identified during a post construction road safety audit of the new traffic signals. Proposals are in hand to address other issues raised in the audit and to alter road markings along Linwood Avenue between Gloucester Street and Hereford Street to improve safety and address hazards identified by the safety audit team.

The City Streets Unit intends to construct the extensions to the median island nosings at Worcester Street as part of this work. The Board and the Council have previously considered the problem of traffic continuing across Linwood Avenue from both Worcester Street east and Worcester Street west. A number of drivers regularly travel against the flow of traffic to execute this manoeuvre; the median island extensions and associated road markings will serve to all but eliminate this practice.

Staff

- Recommendation:**
1. That the information be received.
 2. That the Board support the traffic management proposals for the section of Linwood Avenue between Gloucester Street and Hereford Street.
 3. That a "zebra" pedestrian crossing be installed within the left turn slip lane from Linwood Avenue into Gloucester Street west. The pedestrian crossing will link with an existing pedestrian/splitter traffic island and the footpath on the south-west corner of the intersection outside No 136 Linwood Avenue.

Chairperson's

- Recommendation:** That the recommendations be adopted.



LINWOOD
LINWOOD

LINWOOD AVENUE / GLOUCESTER STREET INTERSECTION

KEY

- EXISTING KERB
- PROPOSED KERB
- PROPOSED CYCLE LANE
- EXISTING NO STOPPING
- EXISTING TREE
- GRASS
- LANDSCAPE PLANTING
- COBBLES

ISSUE A
13/10/03
TP162601 L/H1

