

5. PRESTONS ROAD - SAFETY IMPROVEMENT

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PURPOSE OF REPORT

1. The purpose of this report is to provide an update to the Shirley/Papanui Board on the safety improvement works for Prestons Road (east of Grimseys Road), clarify the Council's recommended safety improvement option, and seek the Board's approval to proceed to informative consultation, final design and installation.

EXECUTIVE SUMMARY

Location

2. Prestons Road is a minor arterial road, which connects a residential zone to a rural area. east of Grimseys Road, only the northern side of Prestons Road is developed for a distance of several hundred metres. East of the residences, the road is rural on both sides. There is a speed limit in the fully rural section of 80km/h. The limit changes to 50km/h in the rural/residential section, and remains 50km/h in the fully residential section.

Project Initiation

3. Motorists travelling on Prestons Road between the Grimseys Road intersection and the 80 km/h zone are exceeding the speed limit in both directions. This has been recognised as a safety issue and in 2002, the Board passed a specific resolution seeking the investigation of a rural threshold. This project was initiated in response to the Board's resolution.

Consultation

4. An initial issues consultation survey was sent out to residents in an extended zone around Prestons Road in September 2004. One hundred and seventy four surveys were sent out and seventy three responses were received. The residents identified that speed is an issue along the length of Prestons Road between Redwood School and the 80km speed zone. Additionally, the majority of residents identified the section between Grimseys Road and the 80km/h speed zone as having a major problem.
5. As a result of the consultation, the project study area has been focused on the semi-rural section between Grimseys Road and the 80km/h speed zone. The project's aim was seen as being consistent with the purpose behind the Board's resolution.

Option Development

6. Three options were developed for the section between Grimseys Road to 80km/h zone including a consultant's recommendation, a simple rural threshold and a full rural threshold. Analysis of these options included investigation into the existing vehicle speeds in the study area and also a review of the effects of other rural thresholds in Christchurch. It should be noted that the surrounding environment within the 50km/hr zone (which is rural on the south side and residential on the north) has been a major factor in determining the potential effectiveness of the developed options.
7. **Preferred Option:** The proposed solution is a three stage process.

Stage 1

Installation of a simple rural threshold, which includes two large 50/80km/hr speed signs with no physical changes to the traffic lane widths, (see attached).

Stage 2

Analysis to determine the success of the threshold will then be undertaken (including speed surveys) one year after installation of the simple rural threshold.

Stage 3

Based on the results of this analysis, further improvements may be required and installed.

8. This three stage process is the preferred solution since the simple threshold is a cheaper option than a full rural threshold and it may be just as effective, given the surrounding environment. Additionally once Board approval is obtained, this option can be installed within one month compared to the full rural threshold, which would require several months. It is therefore recommended that the option as detailed in the attachment proceed to final design and installation.

FINANCIAL AND LEGAL CONSIDERATIONS

9. The estimated total cost for the simple rural threshold is \$12,000 inclusive of all consultation, design, and project management.
10. The Prestons Road rural threshold is part of the Safety Improvement Programme and is programmed for construction in the 2005/2006 financial year.
11. There are no legal implications.

STAFF RECOMMENDATION

It is recommended that the Board approve the safety works for Prestons Road, a simple rural threshold (as detailed in the attachment) to proceed to informative consultation and final design and installation, on the basis that post construction speed surveys will be undertaken and analysed one year after installation.

CHAIRPERSON'S RECOMMENDATION

1. That staff monitor the situation for a period of six months, with a view to reporting back to the Board with the outcome of such monitoring in September 2006.
2. That the Board request a review of the speed and safety issues pertaining to Prestons Road (between Marshlands and Main North Roads) in light of comments detailed in paragraph 30 of this report.
3. That the Board request the speed check trailer be placed in Prestons Road.
4. That staff liaise with the Road Safety Co-ordinating Committee to arrange for a speed camera to be located in the area.

BACKGROUND ON PRESTONS ROAD SAFETY WORK

Study Area

12. Prestons Road is a minor arterial road, which connects a residential zone to a rural area. west of Grimseys Road it is fully residential. East of Grimseys Road, only the northern side of Prestons Road is developed for a distance of 490m. The remainder of the road is rural.
13. Prestons Road's width varies from 13.2 metres in the urban section, to 7.6 metres in the rural section. There is no kerb and channel in the rural and rural/residential sections, however, there is a large timber-lined drain on the northern road boundary and a swale drain on the opposite side. The speed limit in the fully residential section is 50km/h, and this extends into the rural/residential section, ending where the residences cease. The limit east of that is 80km/h.
14. Redwood Primary School is located on Prestons Road between Main North Road and Grimseys Road.

Project Initiation and Development

15. Council was aware that vehicles were travelling faster than the posted 50km/h limit in the rural/residential section, and started investigations to address the problem. The Traffic and City Streets Unit commissioned a traffic study of Prestons Road in May 2002 which was undertaken by an external consultant. The conclusion of the report was that the very nature of the rural/residential section favoured a driving speed of 70km/h, and that little in the way of threshold treatments would induce a speed change below that level.
16. The consultant's report advised that a full rural threshold would be best placed 80m west of the Grimseys/Prestons Roads intersection. As this would place the threshold into the fully residential section, officers subsequently believed that it meant 80m east of the intersection – in the rural/residential area. The report also proposed to increase the speed limit, between the proposed threshold and the existing 50 km/h signs east of Grimseys Road, to 70 km/h. Hence, the report did not support the rural threshold at the eastern end of the rural/residential area (the 50/80 speed zone change). Further, it recommended against a speed reduction device in the area further east of Grimseys Road – unfortunately, this is precisely the area that the speed reduction is required.
17. As a result of concerns raised by the community regarding speed on Prestons Road in the rural/residential section, the Board sought a report on rural threshold in November 2002.

“Redwood Residents’ Association, Prestons Road Rural Threshold

18. *As a representative of the Redwood Residents’ Association, Mr Geoff Olds made a deputation in regard to high traffic volumes and speed on Prestons Road. The group anticipated that during the work to widen the Styx railway overbridge, motorists would choose to use Prestons Road and potentially endanger children attending Redwood School. As they understood there were no funds to provide a roundabout at the Grimseys/Prestons Roads intersection, the group requested the installation of a rural threshold on the eastern junction where the speed is reduced from 80kph to 50kph. The important aspects of the threshold would be large twin 50 kph signs, concrete kerb defining the road edge, a flush median strip and planting to give the visual perception of a narrow way.*

The Board received the deputation and requested a staff report for a future meeting on options and costs of providing a rural threshold at the Grimseys/Prestons Roads intersection.”

19. This Prestons Road rural threshold capital project was commenced following the Board's request, and placed on the programme for work in 2005/06.
20. An investigation into the Council's intranet of Council meetings, has confirmed that since the Board's request in November 2002, no further presentations or deputations have been formally made or recorded with respect to this project.

Initial Consultation

21. An initial issues consultation survey was sent out to Prestons Road and other local residents in September 2004, which extended beyond the rural/residential section. One hundred and seventy four surveys were sent out and seventy three responses were received.
22. The residents identified that speed was an issue along the length of Prestons Road between Redwood School and the 80km/hr speed zone. Additionally, the majority of residents also identified the section between Grimseys Road and the 80km/h speed zone as having the major speed problem. Comments received included complaints of excessive speed throughout the day and night, including heavy vehicles, with vehicles not slowing down on entrance to the 50km/h speed zone.
23. As a result of the feedback the principal aim of the project was focused on the reduction of speed at which motorists travel along Prestons Road between Grimseys Road and the 50/80km/h speed limit boundary, to an acceptable level. The main objectives of the project are:
 - To manage the speed of vehicles on Prestons Road within the 50 km/h speed zone.
 - Improve the safety of motorists residing in the living zone defined by the boundaries of Grimseys Road and the speed limit boundary.
 - Clearly identify the transition from the urban to semi rural zones.
 - Ensure that adequate provision is made to enhance or maintain safety for different modes of transport.
24. To meet the project objectives, it was considered that further options over and above the consultant's report (produced in 2002) were considered necessary, as the report did not specifically address the speed control requirements in the area in question.

Speed Surveys

25. The latest speed surveys were undertaken in September 2005. The results show that there is a speeding problem in both directions within the 50km/hr speed zone. The surveyed 85 percentile directional speeds are based on 24 hour, seven day count averages and are summarised below (and also illustrated in the attachment).

Location	Eastbound	Westbound
300m inside proposed threshold (west of 50/80km/h zone)	74	64
At proposed threshold	77	81
200m outside proposed threshold (east of 50/80km/h zone)	80	83

Rural Threshold Research

26. One of the options assessed to address the speeding problem east of Grimseys Road is the installation a full rural threshold at the 50/80km/h transition location. To establish the appropriateness of this solution and its potential success, research into studies on three existing thresholds within Christchurch (50/100km/h thresholds) and a number of independent consultant analysis reports was undertaken.
27. The review revealed the following:

"One of most important factors in the sustained effectiveness of the threshold downstream of the device was selecting a site as close to the rural/urban boundary as practical¹." In the case of Prestons Road, the rural/urban boundary is not clearly defined, as there is a length of rural/residential road between the fully rural and fully residential.

"Motorists' speed will be determined by the environment rather than regulatory signs. 2" For Prestons Road, the rural/residential zone is an environment that does not strongly encourage speed reduction from the 80km/h area.

¹ Roberts Road Traffic Management Review, CCC July 2005

² Rural Speed Thresholds, CCC April 2003

Analysis of speed data at the location of the thresholds in the studies, three months prior to threshold installation and one year after installation, has shown a range in speed reduction from 6% to 18%. It should be noted that the sites analysed have different road environments to that of Prestons Road. Therefore, it cannot be automatically assumed that the introduction of a full threshold on Prestons Road will have the same percentage of effectiveness.

28. Based on this research, in particular the nature of the surrounding environment, the ability for a full rural threshold to result in significant speed reduction changes along Prestons Road is questionable. The impression gained from research thus far, is that even if a full threshold is installed, vehicles are most likely to drive at a speed conducive to the road environment – in this case assessed at 70km/h.

OPTIONS

29. Five options were assessed to improve safety along Prestons Road. Two options west of Grimseys Road and three east of Grimseys Road, as described in the following paragraphs.
30. Two options were developed to investigate safety issues at the Prestons/Grimseys Roads intersection and at the Redwood Primary School, as identified during the initial consultation. The proposed solutions included a roundabout at the intersection and a school speed zone outside the primary school. These options have not been progressed further for this project as they are outside the scope of the immediate speed control requirements. They will, however, be prioritised alongside other speed/safety projects.
31. Three options were assessed as part of the Prestons Road safety improvement works, to specifically address the speeding problem in the rural/residential section, as follows:

(a) **Consultant's Report Recommendation** (see attachment)

The consultants who undertook a review of Prestons Road speed in May 2002 proposed that an urban–rural threshold be installed on Prestons Road approximately 80m east of Grimseys Road. (Note the report actually states 80m west of Grimseys Road, however, this would place the threshold into the fully residential section. Hence officers subsequently believe that the report means 80m east of the intersection; in the rural/residential area.) This option also proposed to increase the speed limit, between the proposed threshold and the existing 50 km/h signs east of Grimseys Road, to 70 km/h.

32. It is considered that the information presented in this report is substantially correct, in that:
- The speed environment in the rural/residential section is conducive to 70kmh, and that threshold treatments at the current 50/80kmh boundary are not likely to significantly reduce speeds below this.
 - The most appropriate place for a speed control threshold on Prestons Road is a few metres east of the Grimseys/Prestons Roads intersection, where the transition from rural to residential is clear.
33. However, as this project was specifically established to seek speed reduction in the rural/residential section, the option presented here is not supported. It will not decrease the speed within the semi rural 50 km/h area and, in fact, it recommends increasing the speed limit in this area. The traffic study assessed the speed environment as 70km/h. This option would legalise current driver behaviour and reflect the appropriate speed limit for the environment. It would not, however, meet the expectations of the residents in the semi rural area and will not enhance the safety for traffic, cyclists and pedestrians.

(b) **Full Rural Threshold**

34. This option proposed a “full rural threshold” placed at the western limit of the northern residences (at the 50/80km/h boundary). It would have the standard rural threshold layout with narrow 2.5m lanes, a short flush median 1.5m wide, a 1.25m wide shoulder with a kerbed threshold, creating the constriction along Prestons Road. Standard rural threshold signs and cycle lanes will be installed behind the kerb line in the landscaped area.
35. This proposal has a low confidence of success to manage speed within the 50km/h rural/residential area (as indicated, the traffic study confirms the speed environment here is 70km/h). The full rural threshold may have *some* effect on traffic speed, but the transition between high speed and low speed environments is not striking enough to reinforce the speed reduction message of the full threshold. The primary effect on speed is expected to come from the speed limit posted on large signage, rather than the threshold structure itself. This option costs approximately \$35,000. This is therefore considered to be a high cost for an option with a low confidence of success.

(c) **Simple Rural Threshold** (see attachments 2 and 3, figure 1)

36. The “simple rural threshold” proposes two large signs, including “Welcome to Redwood” text and no physical changes to the traffic lane widths at the current 50/80km/h boundary. The standard rural threshold signs are installed in the berm area.
37. This is the recommended option. It is considered that it has the same potential to reduce vehicle speeds as the full threshold (i.e. low confidence) includes the large speed limit signage - drivers should have a clear understanding of the speed limit in this semi rural area. It is a lower cost option with the same level of success as the higher cost option above.

PREFERRED OPTION (see attachment 2)

38. It is proposed that option (c) is installed. Speeds will subsequently be monitored to confirm the success (or not) of this option. This project is within budget at \$12,000 (including all consultation, design and project management). It is a much cheaper option than that of the full rural threshold and may be just as effective. Additionally, once Board approval is obtained, this option can be installed within one month, compared to the full rural threshold, which would require several months. The proposed solution is a three stage process detailed as follows:

Stage 1

Installation of a simple rural threshold, which includes two large 50/80km/hr speed signs with no physical changes to the traffic lane widths, as shown in attachment 2.

Stage 2

Analysis to determine the success of the threshold will then be undertaken (including speed surveys) one year after installation of the simple rural threshold.

Stage 3

Based on the results of this analysis, and considering any local environmental changes, further improvements may be required and installed.

39. The stage 1 recommended option is a simple rural threshold to be placed at the eastern end of the residential properties (see attachment 3 figure 1). It is based on achieving a balance between the known effectiveness (and ineffectiveness) of other rural thresholds in Christchurch, a consultant’s study about the speed environment along this section of the road, the desire of the community for speed control actions at this location, and cost.

Project Process

40. Other than the instalment of the rural threshold signs there are no changes to the road environment. The positioning and installation of a rural threshold for optimum effectiveness is primarily a matter based on technical assessments. It is therefore considered that a community engagement process considering inputs and options will not add value to the recommended option. Therefore, it is not considered necessary to seek community feedback on the recommended option. It is proposed that once approval is obtained from the Board, letters informing the community of the option for the simple rural threshold be mailed out. It is anticipated that the signs could be installed within one month, depending on the delivery capabilities of sign contractors.
41. Stages 2 and 3 will provide an opportunity to assess the effectiveness of the simple rural threshold on vehicle speed. It is proposed that additional speed surveys are conducted 12 months after installation and then analysed to determine the effectiveness (or ineffectiveness) of the simple rural thresholds and determine if further improvements are required.
42. It is acknowledged that the proposed simple rural threshold does not fulfil the community's expectation of a full rural threshold, as proposed in the November 2002 delegation. However, it does partially fulfil the request, with large speed signs, and is expected to have the same level of effectiveness. This project is within budget at \$12,000 (including all consultation, design and project management). It is a much cheaper option than that of the full rural threshold and it may be just as effective. Additionally, once Board approval is obtained, this option can be installed within one month, compared to the full rural threshold which would require several months. The specific Board resolution requires staff to report on *"the options and costs of providing a rural threshold at the Grimseys/Prestons Roads intersection"*. This investigation and report has taken the liberty of interpreting the resolution's intent to investigate a threshold for speed control in front of the rural/residential properties, and has proceeded with accordingly.