6. ALDWINS ROAD SPEED LIMIT

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PURPOSE OF REPORT

1. The purpose of this report is to provide the Council with the information it requested, and to achieve a resolution on the appropriate speed limit on Aldwins Road.

EXECUTIVE SUMMARY

2. Linwood College requested the Hagley/Ferrymead Community Board to consider reducing the 60 km/h speed limit on Aldwins Road to 50 km/h to improve the safety for students. The Hagley/Ferrymead Community Board recommended that Council reduce the speed limit along Aldwins Road between Ferry Road and Linwood Avenue to 50 km/h and support the installation of a barrier fence either side of the signalised crossing at its meeting of 12 September 2007.

3. The Council supported the Hagley/Ferrymead Community Board's request for the speed limit on Aldwins Road at the Linwood College to be reduced from 60 to 50 km/h and that a barrier fence be constructed in the Aldwins Road median along the Linwood College frontage, either side of the pedestrian signals.

4. The speed limit on Aldwins Road between Ferry Road and 100 metres south of Linwood Avenue was increased from 50 km/h to 60 km/h on 1 February 2004.

5. A speed camera is located on Aldwins Road facing south towards the signalised pedestrian crossing.

6. An independent consultant reviewed the existing speed limit on Aldwins Road using the Land Transport Rule, Setting of Speed Limits 2003 and determined that the appropriate speed using "The Rule" is 60 km/h. The consultants report recommended "retain the speed limit outside Linwood College at 60 km/h".

7. Comments on the Council's request to reduce the speed limit from 60 km/h to 50 km/h were requested from the Director of Land Transport NZ (now NZ Transport Agency) and the Commission of Police. If the Council proposed to change the speed limit, Section 7.1(2) of 'The Rule' states that the Commissioner and the Director "must be consulted in accordance with Section 7.1(1). Both support the retention of the existing 60 km/h speed limit on Aldwins Road. (**See letters attached 1 and 2).**

8. The New Zealand Transport Agency (NZTA) has confirmed that 60 km/h is seen as being appropriate.

9. The Police have also assessed the situation and have stated that the enforcement of speed limits can not be pursued if they are not installed in accordance with "The Rule".

10. The installation of a barrier fence along the median strip, either side of the school gate signalised crossing point, to prevent pedestrians crossing the roadway other than at the signals provided for them, has now been completed. The barrier fence now prevents this risky activity as reported to the Board in September 2007.

11. Further to this work and subject to endorsement by the Board/Council, the barrier fence will be extended towards the Aldwins Road/Harrow Street intersection.

12. It is proposed that a signalised crossing at the Aldwins Road/Harrow Street intersection for both cyclists and pedestrians will be installed. $100,000 has been allocated for this additional work which will occur as part of the Linwood College "Cycle Bubble" project programmed for the 2009/10 financial year.

13. The fact that traffic signals stop traffic for students to cross the road and an additional signalised crossing facility is proposed means that there is no real safety improvement if the speed limit were to be lowered to 50 km/h.

14. This report therefore recommends that the 60 km/h speed limit remain and that further safety improvements be considered.

FINANCIAL IMPLICATIONS

15. The cost of the recommendations in this report is nil.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

16. As above.

LEGAL CONSIDERATIONS

17. As a Road Controlling Authority, the Christchurch City Council has the powers to set or review a speed limit in accordance with the Land Transport Rule, Setting of Speed Limits 2003. The requirements of 'The Rule' are set out in Legal Considerations later in this report.

Have you considered the legal implications of the issue under consideration?

18. As above.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

19. Aligns with Transport and Greenspace activities by contributing to the Council's Community outcomes – Safety and Community.

Do the recommendations of this report support a level of service or project in the 2009-2019 LTCCP?

20. The recommendations contribute to improve the level of service for safety and access.

ALIGNMENT WITH STRATEGIES

21. Align with the Christchurch Road Safety Strategy and Safer Christchurch Strategy.

Do the recommendations align with the Council's Strategies?

22. The recommendations align with the Christchurch Road Safety and Safer Christchurch Strategies.

CONSULTATION FULFILMENT

23. Comments on the Council's request to reduce the speed limit from 60km/h to 50 km/h were requested from the Director of Land Transport NZ (now NZ Transport Agency) and the Commission of Police. If the Council proposed to change the speed limit, Section 7.1(2) of 'The Rule' states that the Commissioner and the Director "must be consulted in accordance with Section 7.1(1). Both support the retention of the existing 60 km/h speed limit on Aldwins Road. (**see Attachment 1 and 2**).

24. The New Zealand Transport Agency (NZTA) has confirmed that 60 km/h is seen as being appropriate.

25. The Police have also assessed the situation and have stated that the enforcement of speed limits can not be pursued if they are not installed in accordance with "The Rule".

STAFF RECOMMENDATION

It is recommended that the speed limit on Aldwins Road between Ferry Road and 100 metres south of Linwood Avenue remain at 60 km/h at this stage and therefore not to be included in the schedule of proposed new speed limits to be consulted on as presented in a separate report.

Note: This report was provided to the Hagley/Ferrymead Community Board on 5 August 2009 for its information. The Board's recommendation follows.

HAGLEY/FERRYMEAD COMMUNITY BOARD RECOMMENDATION

It is recommended that the Council reaffirm its decision of 11 October 2007, which was to reduce the speed limit on Aldwins Road between Ferry Road and Linwood Avenue to 50 km/h.

The Board also **resolved** to request a report from staff to investigate rephasing the traffic lights to look at increasing pedestrian safety and reduce pedestrian waiting times.

BACKGROUND

26. Linwood College requested the Hagley/Ferrymead Community Board to consider reducing the 60 km/h speed limit on Aldwins Road to 50 km/h to improve the safety for students. The Hagley/ Ferrymead Community Board recommended that the Council reduce the speed limit along Aldwins Road between Ferry Road and Linwood Avenue to 50 km/h and support the installation of a barrier fence either side of the signalised crossing at its meeting, of 12 September 2007.

27. The Council supported the Hagley/Ferrymead Community Board's request for the speed limit on Aldwins Road at Linwood College to be reduced from 60 to 50 km/h and that a barrier fence be constructed in the Aldwins Road median along the Linwood College frontage, either side of the pedestrian signals.

28. An independent consultant (Facey Consultants Ltd) was engaged to review the existing speed limit on Aldwins Road and to obtain the information that is legally required for enabling speed limits to be changed, and to recommend changes if necessary.

29. The consultant recommended to, "retain the speed limit outside Linwood College at 60 km/h".

30. The speed limit on Aldwins Road between Ferry Road and 100 metres south of Linwood Avenue was increased from 50 km/h to 60 km/h on 1 February 2004.

31. Aldwins Road is defined in the roading hierarchy as a major arterial road. Buckleys Road to the north and Ensors Road to the south are also defined as major arterial roads and form a major arterial route between New Brighton and Brougham Street. Aldwins Road carries about 28,000 vehicles per day.

32 Aldwins Road has a raised median with four traffic lanes (two in each direction) and parking on each side of the road. Pedestrian traffic signals have been erected on Aldwins Road outside Linwood College. A speed camera is erected on Aldwins Road facing south towards the signalized pedestrian crossing.

33. Within the section from Ferry Road to Harrow Street, land uses are typically mixed. There are some small commercial premises near Harrow Street and Ferry Road but the majority is residential. Linwood College on the western side near Harrow Street is a major generator of traffic and pedestrians. Opposite Linwood College is the Parkwood Rest Home.

34. The Council has constructed a barrier fence along the median strip to prevent pedestrians crossing mid block between Linwood College and Harrow Street. This proposal was as a result of the previous report that was done to provide the information to go to the Hagley/Ferrymead Board meeting.

LEGAL CONSIDERATIONS

35. The Land Transport Rule, Setting of Speed Limits 2003 sets out a number of criteria that a speed limit must meet.

"Section 2.6 Role of road controlling authorities in reviewing and setting speed limits.

36. A road controlling authority, for roads under its jurisdiction:

    (a) must consider the safe and appropriate speed limit for a road with regard to the function, nature and use of the road, its environment, land use patterns and whether the road is in an urban traffic area or a rural area;

    (b) must review speed limits in accordance with this rule.

37. As well as the quantitative requirements for setting a speed limit, there are also qualitative requirements outlined in 'The Rule'. These qualitative requirements indicate what a road in each speed limit should look like and how it should function. To quote from 'The Rule':

Schedule 1, Speed limits New Zealand, clause 2.3 Arterial route speed limits

Speed limits of 60 and 80 km/h are primarily intended as limits for arterial routes. A 50-, 70- or 100-km/h speed limit may also be appropriate on an arterial route in some circumstances.
The geometric features and general appearance of the road and surrounding development should be consistent along the entire length of the arterial route speed limit.
On a long route (more than 3 km), where the level of development on a short section (less than 1 km) varies from the predominant development along the route, it may be appropriate to install a constant speed limit over the entire route. In this situation it is essential that the specified geometric design criteria are complied with and that traffic responds safely to the posted limit, despite the variation in development."

and;

"Schedule 1, Speed limits New Zealand, clause 2.5 60-km/h speed limit

A 60km/h speed limit is an arterial route limit that may apply to roads in urban areas meeting specific design requirements. This speed limit may be appropriate where the roadside is fully developed, if the road geometry and other design features can safely provide for the activity generated by the development, when the traffic is operating at the higher speed.

A 60km/h limit is only suitable on roads that primarily serve the needs of through traffic, (i.e., a high proportion of the traffic should travel along the road for a significant proportion of its length). The road should have consistent geometric features over the whole length of the restriction to reinforce its route function.

Examples of the necessary design features include solid or flush medians, multiple lanes, frontage service roads, well-spaced intersections, restrictions placed on turns at minor intersections, property boundaries set back and linking of signals to discourage higher or lower speeds.

If a proposed 60km/h speed limit will raise the existing speed limit, the road controlling authority should conduct a safety audit, as recommended in 3.6, to identify any deficiencies that require attention to provide a safe environment for all road users."

38. Based on the qualitative criteria above, it is clear that consistency is considered important to meet the expectations of drivers. The route of Ensors Road/Aldwins Road/Buckleys Road is a major arterial route with generally consistent treatment that supports a higher speed limit. There are solid medians with turning restrictions, multiple traffic lanes, reasonably consistent roadside development and coordinated traffic signal control. The section of Aldwins Road around Linwood Avenue (Eastgate shopping centre) has had the speed limit reduced because it is a significant retail development with high pedestrian movement but the remainder of the route has a speed limit of 60km/h, but as noted above that meets the expectations of drivers and hence the qualitative criteria for the speed limit on Aldwins Road are met.

39. A speed limit rating survey was carried out to determine the appropriate speed limit. The average rating calculated between Harrow Street and Ferry Road was 17. This is sufficient to consider either 50 or 60 km/h under the speed limit rule. However, when applying other criteria in "The Rule" the appropriate calculated speed limit is 60 km/h which is explained below.

40. A legal opinion dated 11 July 2008 confirmed that the Council can alter or set a speed limit on any road that does not comply with the Land Transport Rule, Setting of Speed Limits 2003, Rule 3.2.5(a) provides only if the road or speed limit complies with Rule 3.2.5 (a) and (b) and 3.2.6.

"*Rule 3.2.5(a) Speed limits that differ from the calculated speed limit.*

A road controlling authority may propose to set a speed limit that differs from the calculated speed limit but may set the proposed speed limit in accordance with Section 7, only if; (a) a speed limit different from the calculated speed limit is the safe and appropriate speed limit for a road with regard to the function, nature and use of the road, its environment, land use patterns and whether the road is in an urban traffic area or a rural area".

Rule 3.2.5 (b) and 3.2.6 only apply where proposed speed limits are less than 50 km/h. The speed limit that is being proposed in this situation is 50 km/h.

41. When Land Transport NZ advisers became aware of this issue they emailed the Council to advise of an example in the North Canterbury Area where a council set a speed limit which did not comply with the guide lines of the Land Transport Rule, Setting of Speed Limits 2003. Land Transport deemed the speed limit was not legal and therefore the Police were unable to carry out any enforcement. The appropriate speed limit has now been installed.

42. As a Road Controlling Authority, the Christchurch City Council must comply with the Land Transport Rule, Setting of Speed Limits 2003.

TRAFFIC SPEED RECORDS

43. The Council has two sites on Aldwins Road where speed surveys are regularly conducted. These are south of Marlborough Street and south of Bass Street.

44. A long period of road works has prevented any new traffic data being obtained.

45. Limit signs were erected and are the "before" survey results. Subsequent surveys were taken after the signs were erected and are the "after" survey results.

46. The speed survey results are shown below. The speed surveys are based on free running vehicles and include only the first vehicle of any platoon that is driving along the road. This is achieved by excluding all vehicles that are less than 4 seconds behind the vehicle in front. Including all vehicles in the count would create an artificially low survey result by including vehicles that want to travel faster but can not because they are following a slower vehicle.

SPEED SURVEY RESULTS

Date	Speed Km/hr	Location of count	Direction	85%ile speed km/h	Mean speed km/h	Standard deviation
02/04	50	Aldwins south of Marlborough	Southbound	58.7	52.6	7.91
02/04	50	Aldwins south of Marlborough	Northbound	59.8	53.7	8.3
02/04	50	Aldwins south of Marlborough	Combined	59.4	53.2	8.13
07/05	60	Aldwins south of Marlborough	Southbound	61.6	56.1	7.18
07/05	60	Aldwins south of Marlborough	Northbound	59.8	53.3	8.61
07/05	60	Aldwins south of Marlborough	Combined	60.8	54.6	8.08
06/07	60	Aldwins south of Marlborough	Southbound	63.7	57.7	8.05
06/07	60	Aldwins south of Marlborough	Northbound	61.2	53.7	10.48
06/07	60	Aldwins south of Marlborough	Combined	62.6	55.6	9.6
02/04	50	Aldwins south of Bass	Southbound	57.6	51.8	7.03
02/04	50	Aldwins south of Bass	Northbound	58	52.1	6.96
02/04	50	Aldwins south of Bass	Combined	57.6	52	6.99
07/05	60	Aldwins south of Bass	Southbound	60.1	55	6.11
07/05	60	Aldwins south of Bass	Northbound	59.4	53.4	7.4
07/05	60	Aldwins south of Bass	Combined	60.1	54.6	6.5
06/07	60	Aldwins south of Bass	Southbound	60.8	55.1	6.87
06/07	60	Aldwins south of Bass	Northbound	59.4	53.6	7.39
06/07	60	Aldwins south of Bass	Combined	60.1	54.4	7.17
07/05	60	Buckleys north of Carnarvon	Southbound	63.4	57.6	7.22
07/05	60	Buckleys north of Carnarvon	Northbound	61.6	56.3	6.28
07/05	60	Buckleys north of Carnarvon	Combined	62.6	57	6.85
09/05	60	Ensors at rail crossing	Southbound	62.3	56	7.89
09/05	60	Ensors at rail crossing	Northbound	63.7	56.8	8.75
09/05	60	Ensors at rail crossing	Combined	63	56.4	8.37

47. The results of the speed surveys show that traffic speeds on Aldwins Road did increase as a result of the increase in speed limit. Note that south of Bass Street near Linwood College, traffic speeds did not increase as much as to the north. The presence of the speed camera may have had some effect on keeping the speed down in this section.

48. The results of the speed surveys for south of Bass Street are shown in the attached graphs (**see Attachment 3 and 4**).

SPEED CAMERA SITE

49. The Police operate a speed camera site in Aldwins Road opposite the Linwood College in front of the Parkwood Rest Home.

Following is a table showing the results of the camera operation over the last five years.

Fin Year	Vehicles	Average Speed km/h	Percentage 60+	85th Percentile
2003/04	22710	50.10	3.95%	56 to 60 km/h band
2004/05	124360	51.73	5.80%	56 to 60 km/h band
2005/06	105573	52.39	7.08%	56 to 60 km/h band
2006/07	118436	52.27	6.36%	56 to 60 km/h band
2007/08	40376	52.36	6.45%	56 to 60 km/h band

CRASH RECORDS

50. Crash records were sought from Land Transport New Zealand for Aldwins Road. The records were from 1998 to 2008. These records covered the period before and after the increase of the speed limit from 50 km/h to 60 km/h in February 2004.

51. Neglecting the crashes at the Ferry Road intersection and the Harrow Street intersection, there were 36 crashes in that period. Eight of these crashes occurred at the Edmond Street intersection. Nineteen of the crashes (6 injury crashes) were between 1998 and 1 February 2004, a period of 6 years and 1 month. Seventeen crashes (4 injury crashes) occurred after the speed limit increased, a period of 4 years and 6 months.

52. The total crash rate therefore increased from 3.1 crashes per year to 3.8 crashes per year after the speed limit increased. The injury crash rate reduced from 1 injury crash per year to 0.9 injury crashes per year.

53. On face value it would appear that the crash rate generally has increased since the speed limit was increased but the injury crash rate has reduced. However, under close examination it was found that two of the injury crashes since the speed limit was raised, were due to pedestrians crossing Aldwins Road heedless of the traffic. These crashes will be addressed by erection of the fence on the median and the injury crash rate will be significantly reduced.

54. Hence, it can be concluded that although the speed limit was raised and the total number of reported crashes increased, the number of injury crashes reduced and specific treatment of the causes of some of the injury crashes will further improve the crash rate. It should be noted that the reporting rate for non injury crashes is variable and has generally increased across the city in recent years and this may account for the increase in total crashes.

PEDESTRIAN SURVEY

55. A survey of pedestrians crossing Aldwins Road between Ferry Road and Harrow Street before and after school was undertaken by the Council. It should be noted that the survey was carried out during the recent long term road works on Aldwins Road and the results may not be fully representative of pedestrian usage. The survey also did not count the number of people crossing at the pedestrian signals but only those crossing mid block.

56. The survey showed that in the morning peak hour between 8.30 and 9.15 am, 27 pedestrians crossed between the pedestrian signals and Harrow Street. Four crossed between the pedestrian signals and Ferry Road.

57. In the afternoon between 2.30 and 3.05 pm, 30 pedestrians crossed between the pedestrian signals and Harrow Street and one between the pedestrian signals and Ferry Road.

58. It should be noted that two of the crashes after the speed limit increased and one crash before the speed limit change involved pedestrians crossing away from the traffic signals. To address these problems, the Council intends to install a fence on the median strip between the pedestrian signals and Harrow Street and also towards Bass Street. This fence will encourage pedestrians to cross using the pedestrian signals outside the school, which is the safest method of getting students to the school.

DISCUSSION

59. The hierarchy and description of pedestrian crossing points are listed below:

(a) Grade separation. Pedestrian over bridge or underpass. Used for motorways and railways and some multi-lanes arterials.

(b) Signal controlled pedestrian crossing. Pedestrian controlled traffic signals. Used on high volume Arterial Roads. Used to stop traffic to allow people to cross the road. This is the ultimate at –grade crossing facility.

(c) 40 km/h School Zone. Part time speed limit outside schools. Variable speed limit signs operate before and after school to provide a safer environment for children crossing the road.

(d) Flashing yellow warning lights on approaches to pedestrian crossings. Warning device under trial in Christchurch and Auckland. Trial sights do not involve schools.

(e) School Patrol. 'Lollipop' signs controlled Kea or Zebra crossing. Patrol system used by schools to stop traffic when people are crossing the road. Used on Kea and Zebra pedestrian crossing points.

(f) Kea crossing. School patrol without a Zebra pedestrian crossing. Outside schools where the main pedestrian demand is before and after school.

(g) Zebra pedestrian crossing. Marked pedestrian crossing. A pedestrian crossing authorised by the road controlling authority. Motorists must yield right of way to pedestrians on any part of the crossing.

(h) Solid median with 'chicane' crossing point. Long median island or solid median. Where long median islands or solid medians are wide enough, a 'chicane' or 'staggered' pedestrian facility is provided to increase.

(i) Road narrowing with pedestrian island. Pedestrian island with kerb extensions. On Arterial and Collector Roads. Kerbside parking is normally prohibited by extending kerbs out into the carriageway whenever pedestrian islands are installed.

(j) Pedestrian island. Traffic island on road centreline. Traffic island specifically installed on Arterial and Collector Roads to assist people to cross the road. Normally used in conjunction with a Flush median.

(k) Flush median. Continuous painted median. On Arterial and Collector Roads.

(l) Road narrowing. Kerb extensions in parking lanes. To shorten the distance for people crossing the road. Reduces exposure to traffic and identifies the preferred crossing point.

60. A signal controlled pedestrian crossing facility as used in Aldwins Road at Linwood College is listed second in the hierarchy list, above a 40 km/h School Zone. It is important to note that a signal controlled pedestrian crossing "stops the flow of traffic" where as the 40 km/h School zone only "lowers the operating speed of vehicles". Therefore the signal controlled pedestrian crossing is considered to provide a safer crossing facility for both the students and for the residents of the Parkwood Rest Home.

61. The total number of reported crashes between Ferry Road and Harrow Street has increased since the speed limit was raised. The number of non injury crashes in particular has increased but the reporting rate is very variable and can be influenced by many external factors such as an increased willingness to report minor non injury crashes. The number of injury crashes has reduced since the speed limit was raised. Preventing pedestrians crossing Aldwins Road mid block by erecting a fence on the median will further enhance pedestrian safety. All pedestrians from Linwood College will be encouraged to cross Aldwins Road at the pedestrian signals. Two of the four injury crashes after the speed limit was raised were due to pedestrians crossing the road close to but not on the signalized pedestrian crossing. By addressing these crash types, the injury crash rate will reduce significantly.

62. Traffic speeds have increased as result of the speed limit increase but this has not lead to an increase in injury crashes. Mean speeds are still well below the posted speed limit and the graphs show that speeds during the hour when students arrive at school reduce even further. Speeds are also lower on Aldwins Road than on either Buckleys Road or Ensors Road suggesting that drivers have recognized the increased activity around the school and take more care.

63. If the section of Aldwins Road outside Linwood College was to have the speed limit reduced to 50 km/h, drivers could reasonably contest that the speed limit is inconsistent and that similar speed environments along the route should be treated with a similar speed limit. There is a clear difference in speed environment through the Eastgate shopping centre with the dense retail land uses compared to the speed environment at Linwood College where activity only occurs for short periods twice a day during school terms. The inconsistency would lead to drivers not respecting the speed limit. Drivers may not even be aware that the speed limit is reduced for that section because there is no clear distinction between the speed environment of the different sections and they are driving to the speed limit that prevails on the other similar sections of Ensors Road/Aldwins Road/Buckleys Road.

64. If the speed limit outside Linwood College was reduced to 50 km/h, it would require the speed limit between Linwood College and Linwood Avenue to also be reduced to 50 km/h Leaving the speed limit at 60 km/h would be confusing to drivers to have such frequent changes in speed limit as would be created if only the speed limit outside Linwood College was reduced.

65. It is considered that reducing the speed limit outside Linwood College would not improve safety. It could lead to further changes in the speed profile and thus reduce safety outside Linwood College and on other parts of the road network. The issues of pedestrian safety are being addressed by the erection of a fence on the median to prevent pedestrians crossing mid block.

CONCLUSION

66. The speed limit in Aldwins Road outside Linwood College has been assessed under the Land Transport Rule, Setting of Speed Limits 2003 (The Rule) by an independent consultant familiar with the requirements.

67. It was found that the appropriate speed limit as calculated using "The Rule" is 60 km/h. Aldwins Road also fits the general criteria for a 60 km/h speed limit as defined in the "The Rule".

68. The New Zealand Transport Agency (NZTA) has confirmed that 60 km/h is seen as being appropriate.

69. The Police have also assessed the situation and have stated that the enforcement of speed limits can not be pursued if they are not installed in accordance with “The Rule”.

70. The fact that traffic signals stop traffic for students to cross the road and an additional signalised crossing facility is proposed, means that *there is no real safety improvement* if the speed limit was to be lowered to 50 km/h.

71. Speed Limits must be reviewed in accordance with ‘The Rule’ (Section 2.6). The road controlling authority may set a speed limit that differs from the calculated speed limit in accordance with Section 7 and using other criteria specified in ‘The Rule’. However, these have not been met in this case.

72. Therefore the speed limit in Aldwins Road should remain at 60 km/h.