5. FENDALTON ROAD - PROPOSED "NO U-TURN" AT HOLMWOOD ROAD

General Manager responsible:	General Manager Environment
Officer responsible:	Transport and City Streets Manager
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PURPOSE OF REPORT

1. The purpose of this report is to seek the Board's approval to ban U-turns on Fendalton Road for city bound motorists at the Holmwood Road intersection (refer attached photo).

EXECUTIVE SUMMARY

2. Some motorists travelling into the city on Fendalton Road are attempting to conduct U-Turn manoeuvres at the Holmwood Road intersection.

3. These manoeuvres are not provided for within the intersection design resulting in disruptions to the city bound traffic stream on Fendalton Road. Other adverse effects include sudden lane changing and/or braking by following vehicles, queuing and an increased potential for nose to tail collisions.

4. Four options were considered to address the concern including the "status quo".

5. The views of affected motorists have not been obtained as it is considered impracticable.

6. The preferred option involves the installation of a regulatory "No U-Turn" sign and road markings to rationalise traffic movements.

FINANCIAL AND LEGAL CONSIDERATIONS

7. **Cost**
$4,000 approximately.

Legal Considerations

Land Transport Road User 2004 and Traffic Control Devices 2004 Rules provides for the installation of "No U-Turn" signs and road markings.

STAFF RECOMMENDATION

It is recommended that the Board agree that:

U-Turns be prohibited on Fendalton Road at the Holmwood Road intersection for vehicles travelling in a south easterly direction.

CHAIRMAN'S RECOMMENDATION

For discussion.

BACKGROUND ON FENDALTON ROAD – PROPOSED "NO U-TURN" AT HOLMWOOD ROAD

8. Periodically city-bound vehicles travelling on Fendalton Road attempting to conduct a U-turn manoeuvre around the central median at the intersection of Fendalton Road and Holmwood Road can cause disruption to the city-bound traffic stream and a reduction in the level of road safety.

9. The "T" junction of Fendalton Road and Holmwood Road has been designed to accommodate full turning manoeuvres into and out of Holmwood Road. Some vehicles approaching the intersection on Fendalton Road from the north take advantage of the gap in the median and attempt a U-turn manoeuvre. There is no provision within the median to accommodate these vehicles and therefore they slow or queue in the through traffic lane. This can significantly disrupt the city-bound traffic flow, can lead to sudden braking and evasive manoeuvring for following vehicles. Motorists attempting the manoeuvre also increase the delay for vehicles turning right out of Holmwood Road and also obstruct the visibility for motorists turning right into Holmwood Road.

CRASH DATA

10. A recent search of the land Transport New Zealand crash database (CAS) reveals seven reported crashes at the intersection of Holmwood Road and Fendalton road in the past five years. Only one of these crashes involved a rear end collision associated with a "stopped" or "slow moving" traffic lane. It is uncertain if this crash was attributed to an obstructed through lane as a result of a U-turning vehicle or merely as a result of slow moving traffic (refer attached diagram).

11. Information obtained from a local resident suggests that there have been many near misses and unreported crashes as a direct consequence of city-bound u-turning traffic. Observations by Council staff endorse this view.

SURVEY DATA

12. To quantify the extent of the problem surveys were conducted during the morning and evening commuter peak periods as well as during an off peak period. In the evening peak 15 vehicles attempted the U-turn. On four occasions the manoeuvre caused significant disruption to the through traffic stream. The surveyors personally witnessed several near *"nose to tail"* collisions. In the off peak period nine vehicles conducted the U-turn with two instances of near collision being witnessed. During the morning peak 13 vehicles conducted the U-Turn with only two instances of disruption to the traffic stream. The following key points were noted from the surveys;

    - In the majority of instances the U-turn is conducted without affecting the through traffic stream.
    - The U-turn is most prevalent either during periods of lighter traffic flow eg. between platoons of traffic, or during periods when the city bound lane is heavily congested and traffic is either slow moving or stationary (11 of the 13 U-turns recorded in the morning peak occurred under heavily congested conditions).
    - The adverse effects of the manoeuvre are most severe when the manoeuvre is attempted under "free flowing" conditions with moderate traffic volumes. This is due to the higher operating speeds of following traffic.
    - The behaviour of some motorists conducting the manoeuvre was extraordinary, with little or no warning to following motorists some drivers stopped in the traffic lane to conduct the U-turn apparently oblivious to the mayhem their actions were creating to other motorists.

13. The surveys demonstrated that the manoeuvre is somewhat "opportunist" in that most motorists appear to be mindful of the consequences of attempting the manoeuvre during difficult conditions and it is mostly attempted when the motorist has a reasonable expectation that it can be completed without conflict. Suffice to say, as noted, there are exceptions to this with one instance where up to four following vehicles, including a truck, narrowly avoided colliding with each other.

OPTIONS

Four main options were considered to address the problem. These are outlined as follows:

A **Status Quo** (capital cost = nil)

14. On average around 80% of motorists conducting the manoeuvre do so without creating any significant adverse effects. However the balance can create some quite serious concerns with respect to road safety. Vehicles within the through traffic stream have been observed making sudden lane changes, sudden braking and stopping. Increased delay and queuing were observed. The potential for a collision is considered significant.

B **Accommodate the U-turn Manoeuvre through Changes to the Central Median** (capital cost = $41,000) (refer attached map)

15. This option involves creating a "U-turn" *bay* in the central median by realigning and reforming the median. A lamppost will need to relocated and new kerbing and channelling will be required within the median. The option will accommodate a single U-turning vehicle. A second vehicle will present an identical problem to that which exists at present. Vehicles attempting to turn right out of Holmwood road will be required to wait until any U-turning vehicles have cleared the median area before conducting the right turn. This will add delay to already difficult manoeuvre. The forward visibility for motorists turning right into Holmwood Road is likely to be affected by a u-turning vehicle, particularly a truck or larger vehicle. The option could include a solid triangular *"seagull"* island to better define turning manoeuvres.

C **Install a Regulatory 'No U-Turn" Sign and Improved Delineation of Turning Areas with Road Markings** (capital cost = $4,000) (refer attached map)

16. This option involves the installation of a "No U-Turn" sign in the central median facing the city-bound traffic flow on Fendalton Road and better delineation of where turning traffic ought to be positioned within the median gap through the use of paint markings. The capital cost is minimal and the option is likely to prove successful during busy traffic periods. During off peak periods some (likely to be less than existing) vehicles may continue to attempt the manoeuvre.

17. Restricting U-turns will require motorists to select other alternatives for changing direction. The nearest opportunity for U-Turning is within a purpose built facility to the north of the Holmwood Road intersection between Wairarapa Terrace and Clifford Street. There is no gap in the median at Wairarapa Terrace therefore there are no other U-turn opportunities between the facility south (City side) of Clifford Street and the end of the median at Wood Lane. This is a distance of approximately 550m. Should U-turns be restricted at Holmwood Road, the alternatives for motorists are limited but are likely to include the following:

18. Continue towards the City along Fendalton Road to the point where the median terminates at Wood Lane. An exclusive right turn lane forms at this point on the approach to the Deans Avenue/Harper Avenue intersection. A U-turn manoeuvre can be accommodated here although right turning traffic approaching the Deans Avenue/Harper Avenue intersection may be disrupted. However, traffic is generally slowing or queued on the approach to the intersection, which reduces the potential for a rear end collision.

19. Turn left into Holmwood Road, conduct a U-turn within Holmwood Road then conduct a right turn out of Holmwood Road. This is a more circuitous route but likely to have the least impact on the safety and efficiency of Fendalton Road

D **Remove Right Turns out of Holmwood Road by Extending the Central Median with Provision for Right turns into Holmwood Road Only** (capital cost = $53,000) (refer attached map)

20. This option removes both the ability of vehicles to conduct the U-turn manoeuvre and the ability of vehicles to turn right out of Holmwood Road. The option eliminates the problems associated with U-turning traffic and simplifies the intersection considerably. Three of the seven reported crashes involved a right turning vehicle out of Holmwood Road failing to give way to city-bound vehicles on Fendalton Road. The right turn out of Holmwood Road is a difficult manoeuvre in that both city-bound lanes on Fendalton Road need to be crossed as well as ensuring there is a suitable gap in the traffic stream coming out of the city. Some right turning vehicles take refuge within the median gap, thereby conducting the turn in two parts. Option B would prevent this from occurring and further increase the delay for traffic turning right out of Holmwood Road. Option D removes the right turn out of Holmwood Road completely and would therefore improve the overall safety and efficiency of the intersection.

PREFERRED OPTION

21. After careful consideration, **Option C** is favoured as it provides the most cost effective solution to the problem.

DISCUSSION

22. The problem is not immediately evident in the reported crash data, however it is suspected that many collisions associated with the U-turn manoeuvre are rear end/nose to tail low impact collisions that are likely to be unreported. The account of at least one local resident residing on the corner reinforces this view as does the eyewitness accounts of the staff conducting the intersection surveys. The manoeuvre is more popular during periods of lower traffic flow which reflects that motorists attempting the manoeuvre have an appreciation of the risks involved to themselves and other road users and the adverse effect on traffic flow generally.

23. There are essentially two categories for the options to resolve the problem; either ban the U-turn manoeuvres or accommodate them more safely.

24. Banning the manoeuvre by the installation of regulatory “No U-turn” signage will reduce and discourage the manoeuvre but will not eliminate the problem, particularly during off peak periods. However this solution is cost effective. Accommodating the manoeuvre is both costly and will have ramifications on the overall intersection performance. There is likely to be increased delay for right turning motorists out of Holmwood Road (already a manoeuvre experiencing considerable delay) and large vehicles conducting the U-turn will obstruct the forward visibility for motorists turning right into Holmwood Road. Also providing for the manoeuvre is unlikely to involve the accommodation of more than one vehicle at a time. Should a second U-turning vehicle arrive, this vehicle will need to queue in the through traffic lane which will present the same problem again.

25. Removing the U-turn as well as the right turns out of Holmwood Road (Option D) would result in the re-routing of approximately 1,450 vehicles per day (10 times peak hour count) most likely into Garden Road, Queens Avenue and Wairarapa Terrace. These roads are classified as “local” roads in the City Plan and should not serve this function[1]. Holmwood Road is classified a “Collector” road and the collection and distribution of traffic from within the local catchment is an entirely legitimate function for a road of this classification[2]. Therefore restricting right turn exiting manoeuvres at the Fendalton Road intersection would be difficult to justify in the context of the road hierarchy and the intended function of roads in the vicinity.

[1] local Roads *“These roads function almost entirely as accessways and are not intended to act as through routes for motor vehicles”.* City Plan Vol 2 Section 7 Transport.

[2] Collector Roads “ *Collectors distribute and collect local traffic within and between neighbourhoods and link rural communities”.* City Plan Vol 2 Section 7 Transport.

CONSULTATION

26. During the peak hour survey periods an average of 14 motorists/hour were recorded conducting the U-turn manoeuvre. It is anticipated that the total number conducting the manoeuvre over an entire day is likely to be equivalent to ten times the peak hour flow or 140 vehicles/day. It is difficult to ascertain exactly where these motorists originate from but it is likely they comprise some motorists living on Fendalton Road between the dedicated U-turn facility (southeast of Clifford Street) and Holmwood Road. They may also comprise some of the motorists emerging from Wairarapa Terrace wanting to head away from the City (north west) but prevented due to there being no gap in the median. Given the relatively low number of motorists affected relative to the overall traffic volume and the likely difficulties in targeting them specifically, no consultation is considered practicable. Also the manoeuvre is considered mostly "opportunist" and it is likely that motorist are already using alternatives during times when the manoeuvre is considered too dangerous.

CONCLUSION

27. Leaving the situation unattended is likely to give rise to further vehicle conflicts and disruption to traffic flow. Accommodating the manoeuvre will be costly and will have implications on the performance of the overall intersection. Banning the manoeuvre through regulatory 'No U-turn" signage is considered the most cost effective solution to the problem. The number of motorists disadvantaged by this restriction is considered insignificant in the context of the actual and potential adverse effects of permitting the manoeuvre to continue.

ASSESSMENT OF OPTIONS

28. **The Preferred Option**

	Benefits (current and future)	**Costs (current and future)**
Social	Improvements to the level of road safety and efficiency for road users	Cost savings from injury to persons and property and travel time
Cultural	N/A	
Environmental	N/A	
Economic	Cost savings from injury to persons and property	$4,000

Extent to which community outcomes are achieved:

Primary alignment with community outcome "a safe city"

Impact on Council's capacity and responsibilities:

Low

Effects on Maori:

Nil

Consistency with existing Council policies:

Road Safety Strategy, Metropolitan Christchurch Transport Strategy.

Views and preferences of persons affected or likely to have an interest:

The impact is limited to a small percentage of the general motoring public which is considered impracticable to target

Other relevant matters: