



# **A24 HORSHAM ROAD JUNCTION WITH MILL ROAD, SOUTH HOLMWOOD**

**Local Committee for Mole Valley  
23 February 2005**

## **KEY ISSUE**

Members are asked to agree proposals, for reconfiguration of this junction, intended to address a history of traffic accidents.

## **SUMMARY**

This report summarises the accident statistics for this location, explores the reasons why accidents have occurred and gives justification for the measures proposed. Members are requested to give approval for implementation of the recommended scheme.

## **OFFICER RECOMMENDATIONS**

The committee is asked to:

- i) Approve the design and construction of the scheme shown on drawing 2283-154B attached as ANNEXE 3 (option 3).**
- ii) Agree that post construction monitoring of the junction improvement is undertaken.**
- iii) Note that the results of this monitoring along with any further improvements are reported to a future meeting of the Committee.**

## **1.0 INTRODUCTION AND BACKGROUND**

- 1.1 The junction of the A24 Horsham Road and Mill Road is located approximately 3 miles south of Dorking in South Holmwood. At this point the A24 Horsham Road is a dual carriageway with a central reserve approximately 7m wide. Mill Road forms a “T” junction with the A24 Horsham Road on the eastern side, is a single carriageway and is generally quite narrow. The A24 has a speed limit of 60mph. This was reduced in 1995 from the national speed limit (70mph for a dual carriageway). Mill Road is subject to a 40mph speed limit.
- 1.2 The problems at this junction can be summarised as follows:-
  - i) Due to the width of the central reserve on the A24, any long vehicles wishing to turn right out of Mill Road are not completely protected and overhang the offside lanes of either or both of the A24 north and southbound carriageways.
  - ii) Drivers on the A24 Horsham Road are often unaware or not expecting vehicles to emerge or turn into Mill Road, resulting in side impact accidents.
- 1.3 This junction was identified for an improvement in the “Proposed Road Safety Improvements Between Clarks Green Roundabout, Capel And The A24/A2003 North Holmwood Roundabout” report presented to the Mole Valley Local Committee on 23 October 2002. The proposals in that report recommended the construction of a roundabout. However, due to the high cost and the need for land outside Surrey County Council’s ownership, this scheme is not likely to be funded as part of the Local Transport Plan (LTP) in the future.
- 1.4 The possibility of closing the gap in the central reserve has also been considered. This would address many of the problems at this junction. However this solution has not previously been considered acceptable by local people as it would lead to community severance, disadvantage local businesses and increase journey times. It would also transfer turning related problems to alternative gaps in the A24 central reservation to the north, at the junction with Folly Lane and to the south at the junction with Green Road.
- 1.5 It is considered, that if the gap at this site were to be closed in isolation, drivers wishing to turn right out of or into Mill Road would use alternative gaps to the south and north respectively, thus increasing the likelihood of accidents. In addition, those who presently U-turn at the Mill Road junction will carry out the same manoeuvre further along the road, merely moving the problem elsewhere.

- 1.6 In order to address the problems at this junction, it was agreed at this Committee on 23 October 2002, to undertake further feasibility work in consultation with the Police.

## **2.0 POLICE CONSULTATION**

- 2.1 So that an agreed solution to the problem could be developed a site meeting took place on 6 August 2004 with the Police, a member of the Council's Central Design Team and a Council traffic signals engineer.

- 2.2 The following concepts were identified as worthy of further investigation:

- i) Vehicle Activated Signs;
- ii) Improvements to road markings in the central reserve;
- iii) Vehicle Activated Signs and improvements to the central reserve;
- iv) Traffic signals;
- v) Lane reduction on the A24 northbound lane with islands to allow a wider central reserve;
- vi) Lane reductions on the A24 northbound lane with road markings to allow a wider central reserve;
- vii) Lane reductions on the A24 northbound and southbound lanes with islands to fully segregate movements and provide a wide central reserve;
- viii) Lane reductions on the A24 northbound and southbound lanes with road markings to fully segregate movements and provide a wide central reserve.

- 2.3 These proposals were developed in more detail and assessed against a detailed study of accidents occurring over the last three years, and a newly commissioned traffic survey. The proposals were also examined by the County's Road Safety Audit Team. A second meeting was then held with the Police on 15 December 2004, to discuss the development of these initial proposals. As a result, options i), ii), iii) and iv) have been developed further.

## **3.0 ACCIDENT ANNALYSIS**

- 3.1 The accident statistics show there have been 6 personal injury accidents reported in the last 3 years (to 30/9/2004). All of these accidents occurred on the southbound carriageway. Only one was categorised as 'serious' and the remainder as 'slight'. There were no fatal accidents. Two accidents involved motorcycles and two involved manoeuvres in the central reserve. Only one accident happened in the dark.

3.2 This data was insufficient for a full assessment of the problems at this junction. Therefore all accident data available (from 1/1/1996 to 30/9/2004) for this junction was also examined to see if a clear pattern of accidents was evident. This indicated 23 personal injury accidents and showed similar results. 17 (74%) accidents in this period occurred on the southbound lane and 11 (48%) accidents were linked to manoeuvres across the central reserve. A summary of these accidents is shown in **ANNEXE 1**.

3.3 The data used, includes only those accidents that have resulted in personal injury. However, letters and regular phone calls have been received from local residents giving testimony of numerous near misses and damage only accidents. Due to most damage only accidents not being officially recorded, frequency and cause cannot be quantified.

#### **4.0 TRAFFIC ANALYSIS**

4.1 A 12-hour manual turning survey was undertaken to determine the numbers and types of vehicles using this junction and the manoeuvres undertaken.

4.2 These traffic survey figures can be used to determine how many times Vehicle Activated Signs would be triggered.

4.3 A vehicle activated sign, alerting the southbound traffic, would be triggered by vehicles turning right into Mill Road from the A24, traffic U turning on the A24 and traffic turning right out of Mill Road. During the 12-hour period when the count was conducted there would have been 379 instances when the sign would be activated with 33 of these due to HGV's. During the morning peak hour there would have been 39 instances with 2 due to HGV's and in the afternoon peak hour, 35 instances with none from HGV's.

4.4 The sign to advise northbound traffic would be triggered by vehicles turning right out of Mill Road and by vehicles U turning. During the 12-hour count there would have been 375 instances when the sign would have been activated. Thirty of these instances could be caused by HGV's. During the morning peak there were 58 instances with 6 from HGV's and in the afternoon peak, 27 instances but only one from an HGV.

4.5 The traffic survey results have been summarised and are shown in **ANNEXE 2**.

## **5.0 OPTIONS IDENTIFIED**

- 5.1 Following the analysis of accident data, traffic flows and discussions with the Police, four potential solutions were considered. To reflect what may be realistically achieved, these options have been limited to proposals that do not require land beyond the existing highway boundary. The options are shown in **ANNEXE 3**.
- 5.2 Surrey County Council's Road Safety Audit Team have conducted a Stage 1 Road Safety Audit of the recommended option. They recommend, ideally, that the gap be closed and that vehicles should be directed to turn elsewhere. However, if this is not acceptable, measures should be taken to prevent "U" turning and the central reserve should be widened to allow all vehicles to be fully contained within the central reserve without overhanging the carriageway.
- 5.3 The local community do not consider it acceptable to close the gap so alternative options have been identified in this study. Other features recommended by the Road Safety Audit Team have also been considered wherever feasible.
- 5.4 Where possible, options have been amended to include physical measures to prevent "U" turning. If an option is to be pursued, that includes banning U-turn manoeuvres, a traffic order would be needed to allow the Police to carry out enforcement.
- 5.5 If the U turning vehicles were prevented from undertaking this manoeuvre it would reduce the number of conflicting movements at this junction, although, there would need to be physical works to help this ban to be self-enforcing.
- 5.6 Some of the options allow for all movements except the U turn. However, from discussions with the Police it would be difficult to enforce a U turn ban. The options that allow for the U turn have sought to allow for all movements to take place safely. If these options are implemented, it is proposed to monitor the situation to establish if allowing the U turn continues to be a problem.
- 5.7 The Safety Audit Team also suggests widening the central reserve. This is not a practical solution, as it would require extensive realignment of the dual carriageway, the purchase of additional land and the realignment of Mill Road. This would prove extremely expensive and impossible if the land cannot be obtained.

5.8 A brief description of each option is listed below;

- **Option 1 – Vehicle Activated Signs (VAS) only- (Drawing 2283/156B)**

This option includes a VAS system with signs on the A24 Horsham Road (northbound and southbound approaches) in advance of the junction with Mill Road. The purpose of these signs is to warn drivers of vehicles entering and exiting Mill Road and manoeuvring through the central reserve. However, this option would not address the problem of vehicles overhanging the central reserve. The approximate cost of this scheme is estimated at £50,000

- **Option 2 - Restriction of the width of the Northbound Lane and providing a “U” Turn Ban - (Drawing 2283/152B)**

This option requires the removal of one northbound lane on the A24 Horsham Road. This will allow additional space to be provided to address the conflicting movements and provide protection for long vehicles to avoid them overhanging the offside lanes of the A24. This scheme would require the removal of a “U” turn facility. This may result in vehicles U turning at the next gap in the central reserve some 225m south of the A24/Mill Road junction. This gap is closer to the crest on the northbound carriageway and has less visibility to oncoming traffic and therefore may be less safe for U turns. The approximate estimated cost of this scheme is £100,000. It is thought conflict may arise in the case of vehicles exiting right out of Mill Road, intending to turn immediately left once on the A24 north bound carriageway. Drivers engaged in this manoeuvre would slow, and possibly stop at the end of the slip road, leading to the possibility of shunts as following drivers concentrate their attention on fast flowing traffic from the south.

- **Option 3 (recommended) - Vehicle Activated Signs (VAS) and Central Reserve Improvement - (Drawing 2283/154B)**

This option also incorporates the VAS system set out in option 1. In addition it addresses the conflict reported by drivers as they turn across the central reservation by setting out priorities. The design retains the U turn facility and the approximate estimated cost of this scheme is £65,000.

- **Option 4 – Traffic Signals - (Drawing 2283/151A)**

This option is to provide traffic signals at the junction. The benefits are that it allows for all vehicle movements under signal control and can be constructed within the highway limits. Whilst this option allows for all the vehicle movements that may take place, there are concerns that it could result in shunt type accidents due to the high speed of the road and because approaching drivers may not anticipate stationary vehicles in the carriageway ahead. Taking the traffic flow data obtained from the survey and applying an accident prediction formula it can be shown that the predicted accident rate for traffic signals at this location would be approximately twice the existing rate. Additionally, some delay in the flow of traffic may result. The estimated cost of introducing traffic signals is £250,000.

## **6.0 SUMMARY AND WAY FORWARD**

6.1 The four options above have been considered with regard to the findings of the Stage 1 Safety Audit report and views expressed by the Police and has led officers to recommend Option 3. The reasons for this are as follows:-

- i) Option 1, would represent an improvement in highway safety by warning approaching drivers on the A24 of vehicles crossing the carriageway ahead but does not address the problems with the layout in the central reserve or the problems with long vehicles overhanging the A24 from the central reserve
- ii) Option 2 would improve discipline for vehicle turning in the central reserve but would require the removal of the “U” turning facility for all vehicles, which may cause problems with police enforcement, disadvantage the local shops and residents could cause problems for the traffic turning from Mill Road heading northbound merging onto the A24 Horsham Road. In addition, the U-turn issues that exist at Mill Road would simply be transferred to other gaps along the route, providing no overall improvement.
- iii) Option 4, has the advantage of providing for all traffic movements but may cause additional accidents. It would be expensive to install and would introduce an inconsistent junction type as many drivers may be anticipating a roundabout similar to the others on the A24. A notable addition to this scheme could be the inclusion a pedestrian facility which would directly address the cause of the fatal accident that is mentioned in **ANNEXE 1**. However, there is already a pedestrian subway linking communities on either side of Horsham Road just 150 metres south of the Mill Road junction.

- 6.2 A roundabout in this location would address all the turning movements and provide a junction in the same style as the others along the A24. The predicted accident rate is also the lowest for the types of junction tested. However, it is not possible to construct this within existing highway limits. Initial enquiries have shown that obtaining the additional land necessary would prove extremely difficult and costs are estimated to exceed £2,000,000.
- 6.3 Option 3 addresses the conflicting movements and provides an advanced warning to the users of the A24 Horsham Road of the junction and central reserve gap at Mill Road. This could be provided at a relatively low cost in comparison to a roundabout or traffic signals. It does not fully address the issue of removing the U turn facility as recommended by the Road Safety Audit but it does provide priorities to help drivers coordinate movements. If implementation of this option is agreed, driver behaviour would be monitored to provide an assessment of the success of the scheme.

#### **7.0 FINANCIAL IMPLICATIONS**

- 7.1 It is planned that funding for this improvement will be allocated from the Local Transport Plan settlement during the coming financial year.

#### **8.0 SUSTAINABLE DEVELOPMENT IMPLICATIONS**

- 8.1 The scheme should provide a safer junction that will benefit the community as a whole.

#### **9.0 CRIME & DISORDER AND EQUALITIES IMPLICATIONS**

- 9.1 The recommended option will not tempt drivers to undertake illegal manoeuvres. There are no equalities implications associated with this report.



## **CONCLUSION AND REASONS FOR RECOMMENDATIONS**

The construction of a roundabout in this location would address the highway safety issues and facilitate the required traffic movements at this junction. It is considered that this measure would be the 'optimum' solution to the problems identified. However, the high cost and the need for additional National Trust land (which may not be available) means this proposal not likely to receive LTP funding.

As an alternative, the closure of the gap at this location would address the highway safety issues at a relatively low cost. However, this has not previously been considered an acceptable solution for the local community, due to severance issues.

The implementation of VAS is a relatively low cost solution that will highlight the potential hazards at this junction. The VAS should have a high impact by selective use. Nevertheless, the VAS would not remove the hazards or change the geometry at the junction.

Option 3, consisting of a VAS system and improvements to the central reserve appears to provide a solution which allows for all movements, does not have Police enforcement issues and has a relatively low cost, should it be pursued.

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**BACKGROUND PAPERS:** Previous Committee reports

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**ANNEXE 1****A24 Horsham Road / Mill Road Accidents**

	1/10/2001 to 30/9/2004		1/1/1996 to 30/9/2004 (All accidents)	
	Number	%	Number	%
No. accidents	<b>6</b>	<b>100</b>	<b>23</b>	<b>100</b>
Fatal	0	0	<b>1</b>	<b>4</b>
Serious	<b>1</b>	<b>17</b>	<b>3</b>	<b>13</b>
Slight	<b>5</b>	<b>83</b>	<b>19</b>	<b>82</b>
Dark	<b>1</b>	<b>17</b>	<b>5</b>	<b>22</b>
Wet	0	0	<b>4</b>	<b>17</b>
Pedestrian	0	0	<b>1</b>	<b>4</b>
Cycle	0	0	0	0
Motorcycle	<b>2</b>	<b>33</b>	<b>4</b>	<b>17</b>
HGV	0	0	0	0
HGV overhanging A24	0	0	0	0
On southbound lane	<b>6</b>	<b>100</b>	<b>17</b>	<b>74</b>
On northbound lane	0	0	6	26
Central reserve involved	<b>2</b>	<b>33</b>	<b>11</b>	<b>48</b>
Accidents per year	<b>2</b>		<b>3.2</b>	

**ANNEXE 2**

**Traffic Flows Total (7.00am to 7.00pm)**

	All Vehicles	HGV's
A24 Northbound	10108	556
A24 Southbound	10172	564
Mill Road Eastbound	824	18
Mill Road Westbound	997	30

**Traffic Flows AM Peak**

	All Vehicles	HGV's
A24 Northbound	747	56
A24 Southbound	1416	59
Mill Road Eastbound	52	1
Mill Road Westbound	252	6

**Traffic Flows PM Peak**

	All Vehicles	HGV's
A24 Northbound	1511	33
A24 Southbound	814	12
Mill Road Eastbound	124	1
Mill Road Westbound	72	1

**Turning Movements Total (7.00am to 7.00pm)**

	All Vehicles	HGV's
Left into Mill Road	783	10
Right into Mill Road	214	20
Left out of Mill Road	698	13
Right out of Mill Road	126	5

**Turning Movements AM Peak**

	All Vehicles	HGV's
Left into Mill Road	223	5
Right into Mill Road	29	1
Left out of Mill Road	86	1
Right out of Mill Road	6	0

**Turning Movements PM Peak**

	All Vehicles	HGV's
Left into Mill Road	51	1
Right into Mill Road	21	0
Left out of Mill Road	110	1
Right out of Mill Road	14	0

**U Turning Movements Total (7.00am to 7.00pm)**

	All Vehicles	HGV's
North to South	39	8
South to North	161	10
South to North and going to shops	39	2

**U Turning Movements AM Peak**

	All Vehicles	HGV's
North to South	4	1
South to North	22	5
South to North and going to shops	4	1

**U Turning Movements PM Peak**

	All Vehicles	HGV's
North to South	1	0
South to North	6	1
South to North and going to shops	1	0