A320 WOKING ROAD JUNCTION WITH
MOORFIELD ROAD
(SLYFIELD INDUSTRIAL ESTATE)

GUILDFORD LOCAL COMMITTEE

18th DECEMBER 2003

KEY ISSUE

This report examines potential solutions to traffic congestion on the A320 Woking Road in the vicinity of Slyfield Industrial Estate.

SUMMARY

The report sets out the recent history of improvements to the junction, and in particular 6 options which have been developed to reduce the congestion currently experienced. It sets out the advantages and disadvantages of each, and concludes that those options which would be effective to any degree would be very expensive, while those which are affordable would be largely ineffective. The report therefore recommends that no action be taken in the short term.

Report by

LOCAL TRANSPORTATION DIRECTOR

Surrey Atlas Ref.

GUILDFORD B.C. WARD(S)

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COUNTY ELECTORAL DIVISION(S)

WORPLESDON

STOKE

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GUILDFORD NORTH
OFFICER RECOMMENDATIONS

The Committee is asked to agree:

(i) that no further action be taken to develop any of the options described in this report.

(ii) that affected residents and businesses be so informed.

(iii) that any medium- to long-term solution to traffic congestion in the area should look to sustainable transport solutions such as Park and Ride, bus priority and other passenger transport measures, rather than traffic engineering measures alone.

INTRODUCTION and BACKGROUND

1 In 1998 Surrey County Council (SCC) proposed to implement a major improvement on the A320 that would have diverted the road through Stringers Common. This resulted in environmental protests at the loss of the Common Land. At the same time, a review (the ‘Fundamental Review’) of all of the County Council’s activities was undertaken in order to close the widening gap between service expectations and what was affordable. In the highways department, this resulted in the deletion of substantial numbers of schemes from the programme. One of these was the A320 scheme. SCC resolved instead to look at measures on the existing line of the road to reduce traffic congestion, and improve conditions for vulnerable road users including pedestrians and pedal cyclists. At the same time a commitment was given that the County would not take any Common Land in this area.

2 After further feasibility work, the junction was converted from a mini roundabout to a signalled “T” junction in August 2000. In addition to providing better conditions for pedestrians and cyclists, the signals allow traffic leaving the Industrial Estate in the morning peak period a reasonable opportunity to do so. It is not always appreciated that the previous mini-roundabout resulted in long queues of traffic within the Estate; unlike many such estates, there are significant volumes of traffic leaving the estate in the morning peak, including Post Office vans and others.

3 Officers advised at the time that significant traffic queues would be inevitable on the A320 unless Common Land was taken to provide additional highway width. In view of the commitment given earlier, a decision was taken that protecting the Common Land had to take precedence over the predicted traffic congestion.

4 In early 2002, following considerable pressure from tenants on the Industrial Estate and at least one local Residents’ Association, SCC began to look at options for improving this junction. The main cause of complaint has been the excessive queues that occur at the junction, in particular the queues on the A320 southbound during the morning peak.
This work was carried out in confidence to begin with. The reason for this was that proposals to build an incinerator on the Slyfield Industrial Estate, which had been refused planning permission by SCC, were still within the period when the applicant could have appealed against that refusal. Officers therefore did not want to be perceived as carrying out highway improvements that local people might have misunderstood to be associated with the incinerator. Since then the deadline has passed without an appeal being lodged, and therefore the need for confidentiality no longer exists.

In August 2002, SCC’s partner consultants Scott Wilson were commissioned to consider options for reducing traffic congestion on the A320 between Woking and Guildford. The focus of the work was the junction of the A320 Woking Road and Moorfield Road. A number of options have been investigated in an attempt to identify a scheme that would reduce congestion at an affordable cost. The options considered are outlined below, together with the advantages and disadvantages of each.

EXISTING TRAFFIC CONDITIONS IN THE AREA

One of the effects of the traffic congestion on the A320 has been to disperse trips across a wide local area. Traffic ‘rat-runs’ through unsuitable roads in Jacobs Well to jump the queue, and diverts via Clay Lane and Salt Box Road in order to avoid the queue and approach Guildford from different directions, such as London Road and Worplesdon Road. It is therefore important not simply to create more capacity on the A320, since if this was to encourage drivers to return to the A320 there might be no overall reduction in traffic congestion. Traffic surveys were therefore carried out during the spring of 2003, not just at the Slyfield Industrial Estate junction, but over a wide range of junctions to ensure that a full picture of traffic movement in the area existed.

OPTION 1 (SEE FIGURE 1)

This option consists of a new roundabout with an outer diameter of 40m and a central island diameter of 20m. The roundabout would be constructed between Woking Road and the edge of the premises that form the western boundary of the industrial estate.

The advantages of this option are as follows: -

- The removal of the traffic lights would improve the southbound traffic flow at the traffic signals.
- It would be possible to construct a significant proportion of the scheme without affecting the existing junction, thereby reducing the impact on traffic flows during construction.
- The exit from the Woodlands Road / Hazel Avenue roundabout would be improved.
- The queuing space for the right turners from the A320 to Moorfield Road would be increased by approximately 2 car lengths.
- The improved flow round a roundabout would offer improved journey times at off peak times.
10 The disadvantages of this option are as follows: -
• The heavy southbound traffic flow, during the peak time, would inhibit traffic attempting to exit from the industrial estate.
• The introduction of a roundabout would require the removal / relocation of the pedestrian and cycle crossing in Moorfield Road with a detrimental effect on pedestrians and cyclists.
• Approximately 1000m$^2$ of additional Common Land will be required to form the highway.
• The areas of land, on the east side of Woking Road, both north and south of the Moorfield Road are congested with underground pipes and cables. The cost of this option would therefore be significant.
• The improvement would increase traffic speed during off peak times and would therefore increase the risk of accidents at conflict points on the roundabout.
• The increased southbound flow may overload the Woodlands Road / Hazel Avenue Roundabout during peak times. This could in turn lead to traffic tailing back through the Moorfield Avenue junction.
• The creation of additional capacity may encourage the dispersed traffic described in paragraph 7 to return to the A320, with the perception that expensive works had been carried out to no great effect.

OPTION 2 (SEE FIGURE 2)

11 This option is similar to option 1, except that the outer diameter of the roundabout has been increased from 40m to 50m diameter, and the island diameter has been increased from 20m to 30m.

12 The advantages of option 2 the same as those listed for option 1 but with the addition of the following: -
• Increasing the size of the roundabout increases the length of the vehicle path between any two points. This will provide improved visibility so as to give vehicles a better opportunity to join the roundabout in high traffic flow conditions.

13 The disadvantages of option 2 are the same as those listed for option 1, with this addition: -
• The area of additional land required to form the highway would increase to approximately 1500m$^2$.

OPTION 3 (SEE FIGURE 3)

14 The aim of this option is to provide additional green time to the A320 traffic by banning the right turn from the industrial estate to the A320 northbound, towards Woking. Vehicles wanting to turn towards Woking would have to turn left out of the industrial estate and then make a U turn at the Woodlands Road / Hazel Avenue roundabout, approximately 80m south of Moorfield Road.
The advantages of this option are as follows:

- It would remove one of the conflicting manoeuvres, therefore providing additional green time for the A320 southbound movement.
- It would allow the A320 northbound to run continuously as there is no other manoeuvre that conflict with the northbound traffic flow.
- The scheme could be accomplished within the boundaries of current highway land.
- The scheme would not require diversion of any underground pipes or cables.
- The existing pedestrian and cycle facilities could be retained.

The disadvantages of this option are as follows:

- The banned turning movement will increase the volume of traffic at the Woodlands Road/ Hazel Avenue roundabout. This would increase the waiting time of vehicles trying to join the A320 from either Woodlands Road or Hazel Avenue, which may generate further complaints from residents. It would also increase queuing between Moorfield Road and the Woodlands Road / Hazel Avenue roundabout. This queue may extend back to the Moorfield Road traffic lights preventing traffic wishing to turn right into the industrial estate from doing so.
- Under the worst traffic flow conditions the whole area may become gridlocked.
- The scheme would require Moorfield Road, near its junction with the A320, to be reduced from 2 lanes to 1 lane thereby increasing the queue length.
- The scheme would have to be constructed at night or at weekends to minimise the impact on traffic.

OPTION 4 (SEE FIGURE 4)

The aim of this option was to reduce the most prevalent problem at this junction, the A320 southbound queuing. The current junction layout provides a short left turn lane into the industrial estate. However, this is only sufficient for 1 or 2 vehicles and quickly becomes inaccessible if a large vehicle is near the front of the A320 southbound queue. Traffic surveys at this junction shows that during the morning peak between 41% and 57% of southbound traffic turn left into the industrial estate, while during the afternoon peak the proportion of southbound left turners is between 22% and 29%. This option would provide a longer, 12 car lengths (66m) left turn lane to improve accessibility, along with some minor improvements to remove narrow points in the lanes between Moorfield Road and the Woodlands Road / Hazel Avenue roundabout.
The advantages of this option are as follows: -

- Queuing reduction on the A320 southbound (Also see disadvantages).
- Improved facilities and accessibility for vehicles wanting to turn left into the industrial estate.
- Minimal land take compared to the roundabout options (1 & 2).
- Pedestrian and cycle facilities from the year 2000 scheme can be retained.
- Lane widths on the link between Moorfield Road and Woodlands Road / Hazel Avenue Roundabout have been increased to reduce the narrow points observed on site.

The disadvantages of this option are as follows: -

- The creation of additional capacity may encourage the dispersed traffic described in paragraph 7 to return to the A320, with the perception that expensive works had been carried out to no great effect.
- The verge and footway on the east side of the A320 is heavily congested with underground pipes and cables. The cost of diverting those affected forms a significant part of the scheme construction cost.
- Improvements to the Moorfield Road junction may cause the location of the queuing to move. For example the queue may be redistributed to junctions closer to Guildford town centre.

**OPTION 5 (SEE FIGURE 5)**

The aim of this option was to investigate the possibility of improving the queues by reconfiguration of the traffic lights without increasing highway space and at a reasonable cost. Analysis and observation have shown that banning the right turn from Moorfield Road to the A320 northbound significantly improves junction performance and reduces southbound queuing. However, option 3 proved that the surrounding junctions could not support a complete ban on the right turn movement. This option therefore attempts to reduce the number of vehicles turning right out of Moorfield Road, by allowing the right turn to take place every second cycle of the traffic signals. Signs would be provided in Moorfield Road to encourage light vehicles to turn left and make a U turn at the roundabout. By encouraging only a limited number of vehicles left this will reduce the likelihood of the roundabout becoming overloaded.

The advantages of this option are as follows: -

- Provide additional flexibility for the control of the traffic lights.
- Reduces the green time given to the lightly trafficked right turn manoeuvre.
- Improved off peak traffic flows through the junction.
22 The disadvantages of this option are as follows: -
- Possible lack of perception and acceptance of the improvements by motorists.
- Increases the delay to vehicles that wait to turn right (e.g. goods vehicles).
- The analysis has shown that only minor improvements would be achieved during peak time.

OPTION 6 (SEE FIGURE 6)

23 The aim of this option is the same as that of option 4. The difference between option 4 and option 6 is that option 6 provides a 20-car length (110m) lane as opposed to a 12-car length (66m) lane shown in option 4. The similarities between options 4 & 6 are reflected in the advantages and disadvantages, all of which are the same for option 6 as for option 4, with the addition of the following listed below.

24 The additional advantage is: -
- Will slightly reduce the overall queue length, as an additional stretch of queuing area is provided.

25 The additional disadvantages are as follows: -
- The increased length of the left turn lane will not improve the performance of the junction. Analysis has shown that option 4 (12 car length lane) is optimal on traffic grounds.
- Further additional land will be required with no physical benefit to traffic.
- This option would require the removal of approximately six young oak trees from the back of the existing footway just south of Jacobs Well Road.
- Increase in cost estimate as a result of increased impact on underground pipes and cables.

CONSULTATIONS

26 Officers of Guildford Borough Council representing both the property and Environment & Planning departments have been involved throughout this project, since the Industrial Estate is owned by GBC. The officers concerned have had sight of an early draft of this report, and have expressed concern that the draft made no mention of additional traffic generation from SCC’s Civic Amenity site within the Industrial Estate. It is understood, however, that any additional generation is minor, within normal daily variation in traffic flows, and generally any additional traffic is during off-peak periods. If this were an application from a private developer, therefore, the Planning Authority would not be in a position to require highway improvements to provide additional capacity. It is accepted however, that should the extent or composition of the activities on the Industrial Estate change significantly, the question of access to the Estate would have to be re-examined. If significant additional traffic were generated, it would be the normal practice of SCC as Transport Authority and GBC as Local Planning Authority to expect any required improvements to be constructed at the developer’s expense.
The draft of this report was considered by the Transportation Task Group on 3rd November 2003. A variety of views were expressed. Some Members support the officers’ (and consultants’) conclusions. Others expressed preferences for one or more of the six options, while some would like to see modest widening on the west side of the junction to prevent congestion caused when larger vehicles are waiting to turn right into the Industrial Estate.

Local residents and businesses have not yet been informed of the conclusions of this report. Officers are in contact with Worplesdon Parish Council, Jacobs Well Residents’ Association and the Slyfield Industrial Estate tenants, and will be meeting with each organisation following the meeting of the Committee to explain the position.

FINANCIAL IMPLICATIONS

If the recommendations in this report are agreed, the project will be deleted from the programme, and no further costs will be incurred.

EFFECTS ON LOCAL TRANSPORT PLAN OBJECTIVES

<table>
<thead>
<tr>
<th>LTP OBJECTIVES</th>
<th>EFFECT (including delivery of TARGETS)</th>
</tr>
</thead>
</table>
| Safety         | Options 1 & 2 may increase off-peak traffic speeds, with negative effect on safety  
|                | Option 3 – no effect  
|                | Option 5 may increase non-compliance with traffic signals  
|                | Options 4 & 6 – no effect |
| Environment    | Options 1 & 2 would reduce pollution due to traffic congestion, but would require significant acquisition of Common Land.  
|                | Options 3 & 5 – no measurable effect  
|                | Option 4 – no effect  
|                | Option 6 – loss of six young oak trees |
| Economy        | Options 1 & 2 would reduce delays, thereby having a positive effect on the local economy.  
|                | Options 3 & 5 – no measurable effect  
|                | Options 4 & 6 – modest reductions in traffic congestion |
| Integration    | No effect |
| Accessibility  | No effect |
## EFFECTS ON LOCAL TRANSPORT PLAN STRATEGIES

<table>
<thead>
<tr>
<th>LTP STRATEGIES</th>
<th>EFFECT</th>
</tr>
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<tbody>
<tr>
<td>Passenger Transport</td>
<td>Options 1 &amp; 2 may have a positive effect on buses due to reduced traffic congestion and improved reliability. Options 3 &amp; 5 – no measurable effect Options 4 &amp; 6 - slight positive effect on buses due to modest reduction in traffic congestion &amp; improved reliability.</td>
</tr>
<tr>
<td>Walking</td>
<td>Options 1 &amp; 2 would have a detrimental effect on pedestrian movement. Options 3 &amp; 5 would allow retention of the existing facilities Options 4 &amp; 6 would allow retention of the existing facilities</td>
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<tr>
<td>Cycling</td>
<td>Options 1 &amp; 2 would have a detrimental effect on cycling. Options 3 &amp; 5 would allow retention of the existing facilities Options 4 &amp; 6 would allow retention of the existing facilities</td>
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<tr>
<td>School Travel</td>
<td>Options 1 &amp; 2, by virtue of their effects on walking and cycling, may have a detrimental effect on School Travel. Options 3 &amp; 5 – no measurable effect Options 4 &amp; 6 – no measurable effect</td>
</tr>
<tr>
<td>Traffic Management</td>
<td>Options 1 &amp; 2 offer improved traffic flow, but would increase delays to traffic leaving the Industrial Estate. Options 3 &amp; 5 – heavy traffic congestion possible Options 4 &amp; 6 – modest improvement in traffic flow</td>
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<tr>
<td>Speed Management</td>
<td>Those options which increase congestion may reduce average speeds, and vice versa. Any such effect would be modest, and is not a specific objective of the project.</td>
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<tr>
<td>Transport Telematics</td>
<td>No effect</td>
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<tr>
<td>Parking</td>
<td>No effect</td>
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<tr>
<td>Road Safety</td>
<td>Options 1 &amp; 2 may increase off-peak traffic speeds, with negative effect on safety Option 3 – no effect Option 5 may increase non-compliance with traffic signals Options 4 &amp; 6 - no effect</td>
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<tr>
<td>Travel Awareness</td>
<td>No effect</td>
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<tr>
<td>Highway Maintenance</td>
<td>No effect</td>
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<tr>
<td>Bridge Management</td>
<td>No effect</td>
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### MONITORING CARRIED OUT OR PLANNED

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<tr>
<th></th>
<th>EFFECT</th>
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<tbody>
<tr>
<td>‘Before’ monitoring</td>
<td>Accident records and extensive traffic counts</td>
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<tr>
<td>‘After’ surveys</td>
<td>This report recommends that no further action be taken. If this is agreed, no ‘after’ monitoring will be required.</td>
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</table>
CONCLUSIONS AND REASONS FOR RECOMMENDATIONS

33 Following a comprehensive analysis and review of this junction, it has been concluded that there are no simple cost-effective solutions that will provide a discernable all-round improvement to the junction. Those options which would be effective in reducing congestion would be very expensive, and even these run the risk of drawing traffic back onto the A320, and risking the perception of great cost having been incurred, to little effect. They would also require acquisition of significant areas of Common Land, with attendant legal requirements and delays. Those options which are affordable would be largely ineffective in reducing congestion.

34 However, during the study some enhancements to the functional programming of the traffic signal controller were identified and implemented. There was a resultant reduction of the southbound queue on Woking Road of up to 50%, with no adverse impact on the other approaches.

35 In the medium to long term, any growth in the level of traffic approaching Guildford on the three corridors north of the A3 (A320, A322 and A323) cannot be sustained. The Guildford Transport Strategy is based on the provision of Park and Ride facilities and improved passenger transport, including bus lanes and other bus priority measures. It is therefore recommended that work on this strategy should continue, with a view to identifying a site or sites, and funding opportunities for one or more Park and Ride facilities in north Guildford.

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BACKGROUND PAPERS: Scott Wilson Reports:
(2) A320 Junction with Moorfield Road (Slyfield Industrial Estate): Non-technical review of improvement options (September 2003)