



**ST JOHNS HILL ROAD
RAILWAY BRIDGE**

**LOCAL COMMITTEE FOR WOKING
20 OCTOBER 2005**

KEY ISSUE:

To determine the mitigation measures to prevent vehicle incursion onto the railway at St Johns Hill Road railway bridge.

SUMMARY:

Having deferred its consideration of the proposals at its meeting on 6 April 2005, the Committee welcomed the proposed modifications to the scheme presented at its meeting on 18 July 2005, and broadly supported the scheme as modified with a strong preference to have no traffic signals; Officers were requested to have further consultations on this basis.

Officers had previously consulted a range of statutory bodies, local residents and distributed a postal questionnaire to 2200 properties locally, which yielded a 25% response, on the proposals.

Responsibility to assess the risks and provide any mitigation measures rests jointly with the Highway (Surrey County Council) and Railway

(Network Rail) infrastructure authorities. Therefore, Officers progressed further consultation about risk and mitigation with Network Rail and explored the reasoning behind their previous statement that:

“Network Rail believes it is important that traffic lights are in place at this narrow bridge to prevent head on collisions between road vehicles which could lead to debris falling onto the railway below”

Following these discussions, Network Rail reiterated that they believe traffic signals are important at this bridge for the reasons stated above. However, they also indicated being open to an alternate priority system if Surrey County Council could justify such a system with appropriate written supportive evidence.

Officers, having reassessed the evaluation of risk and mitigation measures available at this railway bridge, cannot justify or recommend that a priority system is a viable alternative to the traffic signal proposal shown on drawings 3386/318B attached to this report.

This report explains the reasoning behind the Officer recommendation to promote a traffic signal installation at St Johns Hill Road railway bridge.

CONSULTATIONS:

County Divisional and Borough Ward Members.

Network Rail.

Previously

Local Residents; Postal Questionnaire within the local area; Emergency Services; The Utility Companies & Woking Borough Council.

OFFICER RECOMMENDATIONS:

The Committee is asked to agree

that the proposals shown on drawing 3386/318B be implemented in accordance with Government guidance to mitigate the potential for vehicular incursion onto the railway.

INTRODUCTION and BACKGROUND

1. After the road/rail collision at great Heck in February 2001, the Secretary of State for Transport agreed to recommendations made by the Health and Safety Commission and the Highways Agency about how best to mitigate, as far as possible, against similar incursions in future.
2. The mitigation included a joint programme of work by Highway and Railway infrastructure authorities to assess and prioritise the risk of vehicles leaving the road and getting onto the railway at sites for which they were responsible. The infrastructure authorities would jointly fund measures at those sites identified as high risk. The Department for Transport published guidelines 'Managing the accidental obstruction of the railway by road vehicles' in February 2003.
3. The Committee received a report about traffic signal and barrier proposals to mitigate vehicle incursion onto the railway at St Johns Hill Road railway bridge at its meeting on 6 April 2005. The Committee deferred its consideration of the proposals pending full local consultation.
4. Officers organised an evening meeting for residents in St John's Lye memorial hall on 15 June 2005, attended by approximately 90 people, and a postal questionnaire, distributed to 2,200 properties locally, yielded a 25% response, 301 in favour and 257 against the proposal.
5. The Committee received a modified traffic signal and barrier layout at its meeting on 18 July 2005, following discussions with local residents and additional investigative work by Officers to corroborate the data used. Members welcomed the proposed modifications and broadly supported the scheme. However, there was a strong preference to have no traffic signals, notwithstanding Network Rail's indication that they also believed traffic signals were important to prevent incursion of vehicles onto the railway at this location. Therefore, the Committee requested Officers to have further consultations on this basis.

ANALYSIS AND COMMENTARY

6. At the Committee's meeting on 18 July 2005, Members noted the varying local views about the proposals and whilst safety was an important factor, convenience was also a consideration; the Committee therefore, indicated a preference for no traffic signals.
7. Having gauged the varying public opinion about the traffic signal proposals, Officers progressed further consultation to re-evaluate and re-assess the risk factors and mitigation measures with Network Rail, who jointly with the County Council are responsible for preventing accidental incursions by road vehicles onto the railway.
8. The Department for Transport's publication 'Managing the accidental obstruction of the railway by road vehicles' again guided both authorities

through the process of re-evaluating the risk and the determination of appropriate proposals to best mitigate, as far as possible those risks.

Assessment of Risk

9. Using the Department for Transport's (DfT) guidance the lead authority in risk ranking and assessment is the Highway authority. To assist the process the DfT identifies why vehicles usually leave the road:

- a driver fails to negotiate a bend or is tired or inattentive. In the extreme case, a driver who has fallen asleep or is taken ill may make little attempt to recover the situation;
- a conflict between vehicles causes one to swerve or results in a collision. In the latter case, speeds are likely to be reduced before leaving the road.

Whilst the above situations include the extreme case, they also include situations that could occur during normal routine driving conditions.

10. For each bridge under assessment, the DfT guidance provides a proforma risk ranking score sheet. This identifies 14 risk factors associated with the potential for a vehicle to leave the road. Each factor contains a score based on the severity of the risk and the total accumulated score reflects the level of risk at a bridge site.

11. St Johns Hill Road railway bridge is a single carriageway brick arch structure with parapets susceptible to vehicle impacts, carrying a reverse curve 30 mph 'C' classified road with vehicle priority signing, over the high speed Waterloo to Portsmouth, Southampton and Exeter railway.

12. The St Johns Hill Road railway bridge assessment scores 106. Using an indicative national distribution of scores only 8% of sites might score over 100 and from a sample of 500 sites collated by Network Rail only 3% scored above 105. The St Johns Hill Road railway bridge is a very high-risk site for potential vehicle incursion onto the railway.

13. Whilst the temporary traffic signal and associated barrier installation at this site reduces the overall high score, only permanent mitigation measures can provide a sustainable reduction in the level of risk.

Mitigation Measures

14. The mitigation measures described within the DfT guidance range from advisory speed limits, traffic calming, warning signs and altering devices, to containment measures assuming a vehicle leaves the carriageway, i.e. safety barriers. However, the DfT also note that "barriers, etc. are likely to be less effective at points where the risk is of a head on impact (e.g. at dogleg, kiss, dead end or right-angled bend sites).

15. The geometry of the St Johns Hill Road railway bridge has the potential for head on impact and is a double dogleg (reverse curve); it therefore fits within the category of sites where containment alone is insufficient.

16. The Committee at its meeting on 18 July 2005 indicated a preference for no traffic signals. A system of vehicle priority, from the southeast, which operated before the installation of the temporary signals and barriers, is the assessed alternate option to the proposed permanent traffic signal installation.
17. Both options require the same level of safety containment barriers, signing and road marking. Therefore, the operational differences between the two focus on how they control and or regulate the two opposing flows of vehicles wishing to cross the bridge from opposite directions.

Option Testing

Permanent traffic signals

18. The permanent traffic signal layout is a positive system of control, which in the absence of a demand from either approach will show red 'Stop' traffic signals on both approaches. The system, linked with carriageway sensors to detect vehicle flows and volume, coupled to an intelligent electronic signal controller that varies signal settings accordingly to control and manage traffic, is suitable for this location. Furthermore, in normal circumstances traffic signals normally enhance drivers' awareness that they are approaching a potential danger or conflict site, requiring additional caution.
19. The County's Network Management Centre undertakes monitoring of all traffic signal installations remotely, response to a fault would normally occur within 24 hours. Apart from a major electrical power failure, the permanent signal installation can cater for minor faults.

Priority system

20. The system of vehicle priority, from the southeast, is a passive system of control, relying on drivers to understand and obey the signs associated with the hazard. Vehicle priority is normally utilised where drivers' have good inter-visibility with the opposing vehicle flow, inter-visibility is moderate at St Johns Hill Road railway bridge. Approaching vehicles do occasionally meet head on whilst crossing the bridge requiring one to reverse backwards. Personal injury collisions associated with the existing priority layout are on record.

Scenarios

21. Three driver scenarios were considered for each potential option:
 - (A) all drivers obey the signs and regulations;
 - (B) some drivers disregard or fail to obey the signs and regulations;
 - (C) a driver unconsciously lost control.

Each option also had its score assessed using the DfT risk ranking proforma.

22. In scenario (A), both options perform equally well; vehicles are not in conflict being controlled whilst crossing the bridge. In scenario (B), differences

appear when drivers' disobey the signs and regulations, particularly when drivers' are tired or inattentive and conflict occurs whilst vehicles cross the bridge with the potential for head on collisions. In scenario (C), neither option copes with an unconscious or out of control driver.

SCENARIO	OPTION	
	Traffic Signals	Priority
A	✓	✓
B	✓	X
C	X	X

- 23. In scenario (B), the priority system, drivers' cannot be influenced or prevented from ignoring and or disobeying the priority signs. The geometric layout at the bridge cannot be altered; therefore, the inter-visibility between the approaching flows of vehicles cannot be improved. The resultant potential conflict at the bridge could result in an incident where a vehicle and or debris are very likely to foul the railway below.
- 24. In scenario (B), the traffic signal option, the use of red-light enforcement cameras will help influence driver behaviour and reduce the likely occurrences of drivers disobeying a red 'Stop' traffic signal. The presence and or operation of traffic signals can influence the behaviour of inattentive or tired drivers' and make them aware of a potential hazard. The traffic signal option should perform better than the priority system at reducing the potential conflict at the bridge.

Option Risk Assessment

- 25. The resultant DfT risk ranking evaluation scores for each option gave the priority system a score of 80, whilst the traffic signal system scored 71; the lower the score the better.
- 26. As a guide, the DfT suggest that an increase of two in the overall risk score implies a doubling of the risk, so 6 is twice as bad as 4, and 12 is eight times worse than 6.
- 27. The resultant difference of nine between the two options under consideration at the St Johns Hill Road railway bridge implies that the risk associated with the priority system is nearly 30 times worse than that of a comparable traffic signal proposal. The risk ranking assessment is hard to ignore.

Bridge strength assessment

- 28. The St Johns Hill Road railway bridge requires strengthening. The strengthening works will be programmed to coincide with the implementation of the vehicle incursion measures, thereby reducing the overall inconvenience and disruption locally and on the highway network. The

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strengthening work is scheduled to take place during the 2006/07 financial year.

Legal Responsibilities

29. The legal responsibility to assess the risks and provide any mitigation measures to prevent accidental incursions by road vehicles onto railway property falls jointly on the Highway authority and the Railway infrastructure authority. The DfT guidance sets out what has been agreed about the responsibilities of the Highway authority and the Railway infrastructure authorities in this matter, and who should pay for what.

Network Rail

30. Officers met with representatives of Network Rail to consult further about the potential risks and mitigation measures available to prevent vehicle incursion onto the railway at St Johns Hill Road railway bridge.
31. Network Rail had previously stated, "Network Rail believes it is important that traffic lights are in place at this narrow bridge to prevent head on collisions between road vehicles which could lead to debris falling onto the railway below".
32. Using the DfT guidance as the basis for the discussions the potential risks and alternate mitigation measures were examined and debated, in particular the traffic signal proposal in comparison with a system of vehicle priority across the bridge.
33. Each of the scenarios described in this report (paragraph 21 above), along with the outputs from the DfT risk ranking evaluations (paragraph 25 above); and the implications of differential DfT scores were debated. The likelihood of bridge strengthening was discussed, along with the likely overall programming of any necessary work.
34. The resultant outcome from the meeting, confirmed in writing by Network Rail, is that Network Rail believes traffic signals are important at this bridge for the reasons stated above (paragraph 31). However, they also confirmed being open to an alternate priority system if Surrey County Council could justify such a system with appropriate written supportive evidence.
35. With due consideration of the legal responsibilities in this matter and based on the re-evaluation of risks and reconsideration of mitigation measures contained in this report, Officers believe they are unable to provide Network Rail with written supportive evidence to substantiate the adoption of a priority system of vehicle mitigation measures in substitution for the traffic signal proposal.
36. The proposal before this Committee for consideration and determination is therefore, a traffic signal system comprising containment barriers, red light enforcement cameras, fault control equipment and includes the layout modifications previously presented to the Committee at its meeting on 18 July 2005. The proposal is as shown on drawing 3386/318B attached to this report.

FINANCIAL IMPLICATIONS

37. Network Rail and the County Council would jointly fund the cost of this proposal. The County Council has made funds available for the mitigation measures from the County's budget for bridge strengthening.

SUSTAINABLE DEVELOPMENT IMPLICATIONS

38. There are no specific sustainable development implications.

CRIME & DISORDER IMPLICATIONS

39. There are no specific crime and disorder implications.

EQUALITIES IMPLICATIONS

40. The proposal should raise no equalities implications.

CONCLUSIONS AND REASONS FOR RECOMMENDATIONS

41. Having re-consulted Network Rail and reassessed the scale of risk, together with further consideration of the mitigation measures available, Officers cannot justify or recommend to promote anything other than a traffic signal installation at the St Johns Hill Road railway bridge; as shown on drawing 3386/??? attached to this report.

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BACKGROUND PAPERS:	Reports of 6 April 2005 & 18 July 2005 "Managing the accidental obstruction of the railway by road vehicles" Published by the Department for Transport, February 2003.

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