ITEM 4

A249 Swale Crossing

A report by the Director, Kent Highway Services to the Highways Advisory Board on 19th September 2006

Introduction

1. A new section of the A249 trunk road between Iwade and Queenborough was opened earlier this year which includes a major fixed bridge crossing of the Swale.

2. Kent Police have raised concerns about certain aspects of its construction, a view supported by the Cabinet Member for Environment, Highways and Waste, and this report summarises the concerns and the Highways Agency's response for Members information. A short discussion is also included

The Issues

3. Following a site visit on 20 April, the Chief Constable of Kent, Michael Fuller, wrote to the Rt. Hon. Alistair Darling, Secretary of State for Transport, raising a number of serious safety concerns.

   His comments were :

   - ***Lighting***
     No provision has been made for lighting the bridge, not even emergency lighting. The provision of lighting would afford additional safety to motorists who break down and for the emergency services who attend to deal with any incidents arising on the bridge itself.

   - ***Speed Limits***
     I am given to understand that the speed limit will be 70 mph which means that traffic will be travelling at motorway speeds. In the view of my officers such a high speed limit will be unsafe and too fast for the extraordinary road conditions. I ask that the speed limit be reviewed in light of this.

   - ***Hard Shoulder***
     There is to be no hard shoulder on the bridge and only a narrow pedestrian walkway. Although the bridge is not classified as a motorway but as a trunk road, I understand there is to be no hard shoulder and therefore no refuge for broken down vehicles. Therefore, the combination of fast flowing and high volume traffic approaching stationary vehicles will make road conditions particularly hazardous.

   - ***No Safety Phone***
     No safety phones will be provided for motorists who are in need of emergency assistance. Not everyone can rely on mobile telephones and if there are no safety phones provided, additional delay will be created in alerting the emergency services to any incident that occurs on the bridge. Furthermore, a motorist who breaks down at night will find themselves in dark, unlit and dangerous conditions and will need to walk to the nearest public telephone to seek assistance. I understand there are precedents for installing safety phones on trunk roads and this is clearly a case where emergency phones are needed.

- ***Handrail***
  The handrail that runs alongside the bridge is, in my view, too low to prevent anyone intent on jumping over the side and attempting to commit suicide. My officers have already had to deal with one man who has made unauthorised entry to the construction site and made threats to jump from the top of the bridge on three separate occasions. Furthermore, in the view of my officers, it is unlikely that this handrail would withstand a direct impact from a heavy vehicle. I am given to understand that higher safety rails and additional safety features which have been incorporated in the design of other bridges are not going to be put in place on this bridge. This I believe is an oversight.

- ***Bridge Closure***
  The emergency services will inevitably have to attend to deal with accidents and breakdowns on the bridge and police officers have raised safety concerns that at the moment they will be reliant upon placing cones in the road to effect a bridge closure. My officers feel this will not afford sufficient safety protection and will not prevent motorists who choose to drive through the cones. A physical barrier would give more visible sign of closure to oncoming traffic and would afford better safety protection to members of the emergency services or breakdown services dealing with incidents in the road. Such a barrier would also ensure that any bridge closures can be effectively enforced.

4. Whilst acknowledging the importance of the bridge and the economic benefits it would bring to the Isle of Sheppey, Mr Fuller sought urgent consideration and review of the concerns raised.

5. In replying, Dr Stephen Ladyman, Minister of State for Transport addressed each of the concerns in detail and his reply is annexed in Appendix A.

6. In summary, he emphasises the difference between motorways and trunk roads and accepts that there are balances to be made between benefits and cost and the sometimes conflicting constraints of safety requirements, environmental impact, buildability, operation, maintenance and other impacts. However, he is satisfied that the standards and advice notes which the Highways Agency uses ensure schemes are designed to be as safe as practically possible and are reviewed and updated as required.

7. On the basis of the above, Dr Ladyman concludes that the bridge has been designed in accordance with the standards relevant at the time and that there are no extraordinary conditions which would necessitate a departure to make the extra provisions sought.

8. Two concessions made were :

   (a) The situation with regard to potential suicide attempts would be kept under review and;

   (b) The possibility of a physical barrier to ease closure of the road in the event of an incident would be explored. Interim provisions were in place.

9. In responding, the Chief Constable emphasised the accumulation effect of the issues, the lack of safe haven, no lighting, high speed and delay in reporting an incident due to there being no emergency telephones and the greater risk these present to everyone, those in an incident, those dealing with an incident and those approaching the site of an incident.

10. The Cabinet Member for Environment Highways and Waste has recently written to The Highways Agency urging that the Chief Constable's concerns are addressed.

Discussion

11. This is a trunk road and the Highways Agency have a comprehensive Design Manual for Roads and Bridges (DMRB) which is supplemented with Interim Advice Notes as and when required. As the Agent for the Strategic Highway Authority they are responsible for the technical approval of the design and the standards employed therein.

12. With this nationwide role, it is important that they deliver a consistent approach to the implementation of standards and the application of any departures, either reduction or enhancement. In making such decisions, they no doubt consider other sites and installations on the network where similar conditions prevail.

13. With regard to the concerns raised and given that the bridge is built, there are potential constraints on what might be achieved, namely :

    (a) *Lighting*
    Any columns would have to be mounted on the outside of the parapet to avoid compromising its function under impact and causing a secondary incident by a column falling across the carriageway.

    (b) *Emergency Telephones*
    The same could be said of these but perhaps less critically.

    (c) *Hard Shoulder / Refuge*
    To provide this would mean losing the footway and it would still be of substandard width. This may present a less safe scenario than exists.

14. There was a technical appraisal of the outline scheme in 1997 at the points of interaction with the county highway. In relation to the these concerns, this raised the issue of lighting as follows :

    "The whole of the existing A249 is lit and the lighting may cause confusion on the proposed scheme

    Recommendation :

    The minimum value engineering option for lighting is to light the junctions, including the full length of the slip roads and about ½ km onto the main carriageway. It should be established if there will be a conflict with existing lighting and, if so, one way of resolving the problem would be to light the entire length of dual carriageway."

15. The notes of a subsequent meeting of all parties on 19 June 1997 record that :

    "The weather conditions also raised the importance for lighting"

    and*;*

    "It was agreed that The Highways Agency need to state that they are prepared to compromise safety issues if they do not light as recommended"

16. Obviously none of this insists that the whole length be lit, but it shows that the matter was considered.

17. Given all the circumstances and that there has since been an ongoing dialogue between the Highways Agency and the Police, of which we do not know the details, it might be reasonable for the County Council to :

    (a) By way of comparison and reassurance seek advice from The Highways Agency about other similar sites around the country, the standards employed, geometry of carriageway, traffic flows and the related accident/incident records and;

    (b) Given the short length of road and roundabouts at each, coupled with the expressed concerns, pursue the imposition of a 50 mph speed restriction as the most practical means of reducing the perceived risk.

18. However, it is a fact that the responsibility for the design and maintenance of this trunk road rests with the Government and its Highways Agency, not Kent Highway Services, and the consequences of operational incidents are matters for them and the police to resolve.

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APPENDIX A

DEPARTMENT OF TRANSPORT'S DETAILED RESPONSE TO THE CHIEF CONSTABLE'S CONCERNS

Street Lighting

Street lighting on the scheme has been provided in accordance with the recommendations of TA 49/86 “Appraisal of New and Replacement Lighting on Trunk Roads and Trunk Road Motorways” which is one of the standards in the DMRB. The standard identifies areas where lighting should normally be considered and these do not apply to the bridge.

While the provision of lighting would be of assistance in the event of a breakdown or accident the cost of providing and maintaining it, the risk to those maintaining it and the environmental impact would more than offset these benefits. Conditions on the bridge would not be sufficiently different to those elsewhere on the trunk road network to make an exception.

Speed Limit

The curvature and gradients on the bridge and its approaches are consistent with a design speed of 70 mph when assessed against DMRB standard TD 9/93 “Highway Link Design”. There are no extraordinary conditions, as defined in TD 9/93, in the design and construction of the road which would require a speed limit of less than 70 mph, and indeed would suggest to the driver that a lesser speed was appropriate.

Hard Shoulders

As you state in your letter, an all purpose dual carriageway, such as that across the bridge, would not normally have hard shoulders which are usually provided only on motorways. To have provided a hard shoulder would have added about six metres to the width of the bridge, increasing the impact of the bridge and the approach road on the environmentally sensitive marshland and significantly increasing the cost.

There is a total of 8.7 metres of carriageway between kerbs and this is sufficiently wide for two lines of traffic to pass a broken down vehicle, albeit at a reduced speed. In addition, it would be possible for a vehicle to pull onto the 1.3 metre wide walkway on the outer edges of the bridge. This walkway is not intended to be a pedestrian footway because pedestrians will be prohibited from using the bridge. However, it will provide an adequate area within which the occasional stranded motorist could wait for rescue.

Traffic flows over the bridge are not high for a dual carriageway and the provisions outlined above are considered sufficient in the circumstances.

Emergency Telephones

Emergency telephones are not normally provided on all purpose dual carriageways although, as you state in your letter, there is precedent for doing so in certain conditions. The conditions of the bridge are not considered significantly different from the rest of the A249 dual carriageway which does not have emergency telephones.

Handrail

The bridge parapet has been designed in accordance with the requirements of the Highways Agency's Standard "The Interim Requirements for Road Restraint Systems" (IRRRS). The tubular metal rail on top of the vertical concrete upstand is not purely a handrail. It is an integral part of the parapet and will act in conjunction with the concrete upstand. The overall height of the composite parapet is 1.2 metres in accordance with the requirements of the IRRRS. On structures where pedestrian and cyclists are permitted, parapets are 1.5 metres high and 1.8 metres high where equestrians are permitted. Pedestrians, cyclists and equestrians will be prohibited from using the bridge and therefore a 1.2 metre high parapet is permitted.

Although the Highways Agency does provide high parapets to bridges in locations where there is a high possibility of suicide attempts, for example close to a mental health facility. However, there are cost and aesthetic considerations in providing higher parapets. The additional height would increase the weight on the bridge and the wind pressure requiring a stronger more expensive structure. Notwithstanding the alleged suicide attempt a few months ago, the Highways Agency does not see the need to take further precautions at present. However, the situation will be kept under review once the road is opened.

The parapet had been designed to withstand the direct impact of a car or light van but not that of a heavy goods vehicle. The IRRRS sets out the condition for providing high containment parapets that would withstand the impact of a heavy goods vehicle. That is where there is something in the immediate vicinity of the bridge which, if struck by a vehicle leaving the bridge, would give rise to a disproportionate loss of life or unacceptable secondary event. Examples are a school, hospital, chemical or petroleum works and a high speed road carrying more than 25,000 vehicles a day. None of these are present below the Sheppey Crossing. High containment parapets capable of withstanding the impact of an HGV have been provided on the section of the bridge across the railway line.