

**Written Representation:**

**Flood Risk and  
Drainage Management  
Summary**

**regarding the application for  
Development consent to complete  
the Heysham to M6 Link Road**

**IPC Reference: TR010008**

**On behalf of  
Transport Solutions  
for Lancaster and Morecambe  
(TSLM)**

**Unique Reference: 10015381**

**April 2012**

## **Introduction**

- 1.1 My name is Michael Porter and I am a resident who strongly objects to the proposed scheme, which has significant adverse effects on Flood Risk and drainage Management. This report has been compiled on behalf of transport Solutions for Lancaster and Morecambe (TSLM) who are a large group of like-minded residents who object to the scheme.
- 1.2 The Application Documents are disjointed and confusing in places, which arises from the applicants use of an accumulation of other documents referenced for the previous stages of the planning process. Both Flood Risk and Drainage Management documents are spread across a range of Sections which are then referred to other appendices and annexes.
- 1.3 When looking further into the Halcrow Flood Risk Assessment 2009 the text of the Environmental Statement refers you to the Technical Appendix, Annex e, and indicates that there are three Technical Notes. The Note relating to Scour Analysis is missing.
- 1.4 Most baseline descriptions of the proposed route, whilst spread across several parts of the Application Documents, are generally found to be acceptable. TSLM do contend many of assumptions, outcomes and conclusions drawn as the input data into the modelling appears to be incorrect.
- 1.5 The regulatory and legislative context is covered in some detail with regard to national, regional and local guidance and policy. TSLM consider that the applicants coverage regarding the European Convention on Human Rights is particularly brief and the contravention of articles is dealt with more seriously.
- 1.6 In general the reference to planning guidance is acceptable but TSLM do highlight key areas with Planning Policy Statements that are particularly appropriate to the scheme circumstances. This attention relates mainly to PPS 1 - Delivering Sustainable Development, PPS 23 - Planning and Pollution Control, and PPS 25 - Development and Flood Risk.

## **Flood Risk**

- 1.7 The original Major Scheme Business Case, despite the published requirements in webTAG and other planning guidance, was presented with an Environmental Statement that didn't contain a Flood Risk Assessment. It was not until the original Planning Application was called in that an FRA was provided for the Planning Inquiry.



- 1.8 That original FRA was flawed in that there were no allowances for climate change, as required by the guidance at that time, PPG 25. The reliance of both the Inspector, and thereby the Secretary of State, on such inaccurate and inadequate evidence possibly contributed to the decision that was made.
- 1.9 The 2006 FRA was prepared using the old planning guidance when the revised PPS 25 was published in the same month as the FRA and would have been available in draft form. It failed to take account of any climate change parameters, nor consider the Sequential or Exception Test as required.
- 1.10 The 2009 FRA, on which the current Application Documents rely, belatedly included climate data , but then missed out all reference to Torrisholme. This continues to have substantial inaccuracies and omissions, making it not fit for purpose.
- 1.11 There are modelling inconsistencies within the 2009 FRA where the sensitivity of the results suggests a highly speculative accuracy of 1%. Original data from 2006 suggested an accuracy of between 4 - 6%. The EA and Defra also conducted research into various modelling packages and found ISIS was less precise than two other models.
- 1.12 Model assumptions of river gradient are also suspect, especially with flood conditions and Halton residents have shown the figures used to be exaggerated. The modelled flood heights also show inconsistencies in that climate change increases produce seriously understated flow increases.
- 1.13 When the modelling inaccuracies are recalculated it can be shown that, even with the bridge design amendments, there are concerns that the bridge will still trap debris during flood events, and thereby increase flood risk in Halton. Assumptions by the applicant regarding the way debris flows in the river have been shown to be ill-informed.
- 1.14 The Technical Note for Scour and Sedimentation is missing from the Application Documents but 2006 data does allow discussion. This suggests that there would be substantial scour and any mitigation would require many thousands of tonnes of rock to be placed on the river bed, causing substantial changes to the flows patterns and flood characteristics of the bridge.
- 1.15 Tidal locking was originally dismissed by the FRA but following substantial opposition the latest version included a Technical Note. Using EA data TSLM have recalculated the peak tidal levels over a time period as the guidance requires. At the time of opening extreme peak events will breach Skerton Weir.

- 1.16 By the time the 45 year design life of the bridge is reached there will be major breaches of Skerton Weir through tidal locking with substantial intrusion up-river.
- 1.17 The estuarine influence also plays a part in the risk associated with the Torrisholme area. Within 15 years regular flooding at 7.4m AOD can be expected with 1:200 year peaks reaching 8.14m. The road embankment will accentuate the flooding for areas surrounding Lancaster and Morecambe College.
- 1.18 Land topography between chainage 1500 and 2300 clearly shows the extent to which the potential flood will impact the area. This will have consequences for the Crematorium and the various sports facilities south of the embankment which all lie under the 10m contour line.
- 1.19 Flood risk insurance is no longer guaranteed to be provided for all homes. many insurers are selective about what they will accept and often have large excesses and increased premiums. By the adverse flood risk imposed on the western end of the route many individuals and businesses will suffer spiralling premiums for flood risk insurance.
- 1.20 There is a possibility that the SUDS schemes may not be maintained due to high cost of contaminated waste disposal, with a resultant flooding episode. Professional indemnity for the designers and local authorities may become prohibitive when the victims of such a scenario turn to litigation due to the blight imposed on them.

### **Drainage**

- 1.21 There are substantial errors and omissions associated with the Application Documents for the Drainage Strategy Report and Pollution Risk Assessments. The modelling assumptions and the actions and conclusions drawn from them are challenged.
- 1.22 Chosen rainfall data for the Pollution Risk Assessments has been taken from Penrith some 50 miles away, which sits in the rainfall shadow of the Lake District high peaks. This understates the rainfall that would apply to the scheme.
- 1.23 Information readily available from Lancaster University weather station shows average rainfall to be to be 1036.8 mm, with the 2000 annual total reaching 1521.8 mm. By using the inaccurate data of 900 mm the modelled results for drainage capacity will be severely compromised.



- 1.24 The Drainage Strategy Report also indicates that the average plus 20% climate change factor was used, but this ignores the fact that rain does not fall evenly throughout time and produces downpours.
- 1.25 Using the Lancaster University data for 10 minute downpour peak events it is possible to calculate outfall flow from each catchment. This shows that while 24 hour downfall can be accommodated the 10 minute downpour event breaches the EA restriction for catchments D and E.
- 1.26 The substantial volumes of rainfall will be fed into the un-named watercourse behind Russell Drive and accentuates the flash-flood risk to those properties plus others in Lancaster Road, lower Thorpe Avenue and Lancaster and Morecambe College. There are concerns that the model used to assess the drainage system failed to account for prolonged winter rainfall where the soils are usually near saturation.
- 1.27 Estuarine intrusion into the SUDS pond is a distinct possibility with revised predictive peak heights in the lower River Lune over 8 metres. This allows intrusion to the scheme boundary on the southern side, and where the SUDS attenuation pond is approximately 7-9 m AOD.
- 1.28 Evidence from pollution mobilisation studies shows that traffic related pollution, especially the toxic heavy metals, remain bound to the surface of soil particles and accumulate within the drainage system. The flow velocities that occur during storm events will readily transport the polluted sediment throughout the watercourses.
- 1.29 High levels of accumulated pollution will then have an adverse effect on the maintenance costs as physical removal of any one of Cadmium, Copper, Lead, Zinc, Chrome or Nickel would cause that material to be classified as hazardous under the Hazardous Waste Regulations 2005.
- 1.30 The route lies mainly on Glacial Deposits and also passes over part of the Lune and Wyre aquifer. The Roeburndale formation at the western end of the route is considered to have soils of high leaching potential. The deep, permeable, coarse textured soils will readily transmit a wide range of pollutants because of the rapid drainage.
- 1.31 Consequences for the Torrisholme end of the route are that pollution will remain for a substantial period, but the leaching process will then create a contaminated aquifer. This will compromise future use of what is becoming a scarce resource.

- 1.32 The EC Groundwater Directive (80/68/EEC) , transposed by the Groundwater Regulations 1988, prohibits the discharge of certain substances to groundwater and the pollution of groundwater by some other substances.
- 1.33 The Application Documents contain Pollution Risk Assessments which clearly indicate that Catchments C,D,E and F would fail quality standards in terms of sediment bound pollutants. Even if mitigation were provided catchments C,E and F would still fail to meet those standards.
- 1.34 Catchments A to E (including the quality failures C,D and E) all outfall into an un-named watercourse behind Russell Drive. This watercourse meanders to emerge into the River Lune south-west of the Salt Ayre landfill site. This is immediately adjacent to the boundary of the protected estuary.
- 1.35 TSLM contend that pollution incidents in catchment areas C,D, and E will produce adverse chronic impacts on the un-named watercourse and ultimately the lower Lune, which is an internationally protected site. Similarly, pollution incidents in catchment F will produce adverse chronic impacts on Howgill Brook, and to a lesser extent the upper Lune, which is a Biological Heritage Site of regional importance.
- 1.36 Earlier in the planning process LCC had considered and dismissed a Western Route as an option. The Application Documents cite a passage from the Inspectors Report in the Environmental Statement Technical Appendix (8.1.3) which stated:  
*"It seems clear to me that the western routes which continue to be promoted by some objectors would not, due to their adverse environmental impact on sites protected by European designation, satisfy the requirements of EU law".*
- 1.37 Because the scheme impacts on the same European designated site through chronic heavy metal pollution, which is confirmed through the applicants own Pollution Risk Assessments, TSLM contend that the scheme should be rejected and other alternatives sought to address the perceived traffic issues.