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# Beverley Integrated Transport Plan

Monitoring and Evaluation Plan

Submitted by



**EAST RIDING**  
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# Beverley Integrated Transport Plan

## Monitoring and Evaluation Plan

September 2013

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## 1. INTRODUCTION

- 1.1 The Department for Transport is responsible for demonstrating that its funding for local-level investment has provided value for money for the taxpayer. It is also responsible for ensuring that lessons are learnt from this evidence to inform future decision making. The Departmental approach to achieving this varies to reflect the nature and scale of the programme under consideration. In the context of devolution it is also the responsibility of local authorities to account for their own spending, and to understand/review the success or otherwise of their investments.
- 1.2 The Beverley Integrated Transport Plan (BITP) achieved Programme Entry status in December 2011. Development of the scheme has progressed following the announcement, with a submission for Full Approval on 5 February 2013. This scheme monitoring and evaluation strategy has been produced as required by the DfT and has followed the Guidance set out in the DfT publication “Monitoring and Evaluation Framework for Local Authority Schemes” dated September 2012 as well as the latest Draft “Best Practice Guidance for planning the Fuller Evaluations of Local Authority Major Schemes” February 2013.
- 1.3 The guidance document states that there are three levels of monitoring; standard, enhanced and fuller evaluation. All ‘Development Pool’ schemes are required to prepare a standard monitoring evaluation, schemes costing over £50M are required to monitor further measures, with a selection of schemes required to undertake a fuller evaluation which consists of assessment of the delivery process, outcomes and impacts and value for money. The BITP is required to undertake a fuller evaluation as it was identified in a list of schemes in Appendix 4 of the September 2012 Guidance document requiring fuller evaluation. The September 2012 Guidance Appendix 4 identifies the BITP for further evaluation as the scheme costs more than £10million and had an adjusted BCR of less than 2. Representatives of the DfT have also advised that fuller evaluation of this scheme is appropriate to provide future information to the Local Authority on schemes of this nature (i.e. a relief road) and to clarify and quantify the nature and range of the effects of such schemes.
- 1.4 This document therefore presents the Monitoring and Evaluation Plan for the BITP which includes the standard, enhanced and fuller monitoring and evaluation assessment methodologies.
- 1.5 The standard measure requirements for the scheme are presented in Table 1.1 reproduced from the Guidance document. The enhanced monitoring measures for

the scheme also reproduced from the Guidance document are presented in Table 1.2.

**Table 1.1 – Standard Measures**

Item	Stage	Data Collection timing	Rationale
Scheme Build	Input	During delivery	Knowledge
Delivered Scheme	Output	During delivery / post opening	Accountability
Costs	Input	During delivery / post opening	Accountability
Scheme Objectives (Maximum three)	Output / Outcome / Impact	Pre or during delivery / post opening (up to 5 years)	Accountability
Travel Demand	Outcome	Pre or during delivery / post opening (up to 5 years)	Accountability / Knowledge
Travel Times and Reliability	Outcome	Pre or during delivery / post opening (up to 5 years)	Accountability / Knowledge
Impact on the Economy	Impact	Pre or during delivery / post opening (up to 5 years)	Accountability / Knowledge
Carbon	Impact	Pre or during delivery / post opening (up to 5 years)	Accountability / Knowledge

**Table 1.2 – Enhanced Monitoring Measures**

Item	Stage	Collection timing	Rationale
Noise	Impact	Pre or during delivery / post opening (up to 5 years)	Accountability / Knowledge
Local Air Quality	Impact	Pre or during delivery / post opening (up to 5 years)	Accountability / Knowledge
Accidents	Impact	Pre or during delivery / post opening (up to 5 years)	Accountability / Knowledge

- 
- 1.6 The fuller evaluation encompasses the requirements of the standard and enhanced monitoring measures, but aims to generate further evidence on:-
- Whether the scheme was delivered effectively and efficiently;
  - The casual effect of the scheme on anticipated outcomes and whether these have contributed to the intended impacts; and
  - Whether it had any unintended adverse or positive effects.
- 1.7 The fuller evaluations tries to answer the following higher level questions and does so by an evaluation of the standard and enhanced data collected:-
- How was the scheme delivered? This is done by what is referred to as the Process Evaluation;
  - What difference did the scheme make? This is done by what is referred to as the Impact Evaluation;
  - Did the benefits justify the costs? This is done by what is referred to as the Economic Evaluation;
- 1.8 The fuller evaluation builds on and uses the data from the required standard and enhanced monitoring measures. The standard and enhanced monitoring measures required and detailed in this report are listed below:-
- Scheme Build (standard monitoring)
  - Delivered Scheme (standard monitoring)
  - Outturn Costs (standard monitoring)
  - Scheme Objectives (standard monitoring)
  - Impact on Travel Demand (standard monitoring)
  - Travel Times and Reliability (standard monitoring)
  - Impacts on the Economy (standard monitoring)
  - Carbon (standard monitoring)
  - Noise (enhanced monitoring)
  - Local Air Quality (enhanced monitoring)
  - Accidents (enhanced monitoring)

## 2. SCHEME BACKGROUND AND CONTEXT

### 2.1 Background

- 2.1.1 The historic Anglo Saxon town of Beverley in the East Riding of Yorkshire is suffering from worsening traffic conditions throughout much of the day. Peak hour problems are now spreading into other times of the day and the weekends. The popularity of Beverley as a place to live, work and visit continues to grow. It has a thriving town centre, which is a popular destination for shopping and tourism but these visitors mix with commuters and through traffic as they enter and leave Beverley. The nature of the road network in Beverley, with narrow medieval streets and a one-way system, also presents problems for traffic movement.
- 2.1.2. This situation leads to traffic congestion in the town, which is often at its worst on some of the key routes that pass historic buildings in Beverley such as Lairgate, Hengate (St. Mary's Church) and Keldgate (the historic Beverley Minster). The A164 and the A1174 also experience severe congestion; these are the main routes into the town and, for many people, these routes are the gateway into the whole of the East Riding. This congestion is wasteful of people's time and causes frustration. There are other issues that have arisen as a result of this traffic congestion - traffic noise and air pollution in the town are made worse, and queues of traffic make it difficult for people to get around the town centre on foot, particularly for people with mobility difficulties. The presence of traffic queues spoils the atmosphere and views in the town, which can be an issue for visitors and local businesses. East Riding of Yorkshire Council is therefore determined to take action to alleviate the current traffic and congestion issues in Beverley town centre. After considering numerous different options, a package of measures has been developed to tackle these problems and improve conditions for motorists and those travelling by other means. The package of schemes is collectively termed the Beverley Integrated Transport Plan (BITP).
- 2.1.3 The scheme drawing can be found at Appendix 2a. The detailed components of the BITP that were approved at Programme Entry are summarised as follows:-

- The construction of the Beverley Southern Relief Road (BSRR) linking the A164 Victoria Road corridor near Wm Morrisons with the A1174 Hull Road corridor near Figham Common with an associated bridge over Long Lane and the Hull-Beverley railway line;
- Upgrading the Grovehill roundabout to include signals and capacity improvements;
- Widening of the eastern approach arm to three lanes at Hull Bridge Road/Swinemoor Lane roundabout;
- The prevention of motorised vehicles (except emergency vehicles) from using Flemingate Level Crossing; and
- The reclassification of the road network within and around Beverley including all associated signing work.

## 2.2 Scheme Costs

2.2.1 The estimate of the total outturn costs for the BITP as submitted in the Full Approval bid on 5 February 2013 was **£21.561m**. Table 2.1 overleaf presents the scheme estimate.

**Table 2.1 – Estimate of Total Outturn Cost as included in the BAFB submission February 2013**

<b>Cost Heading</b>	<b>As per BAFB (including any adjustments advised by DfT)</b>	<b>Currently Estimated Cost</b>
Preliminaries	£2.145m	£2.453m
Traffic Management	£0.185m	£0.075m
Construction	£13.242m	£9.934m
Detailed Design	£1.111m	£1.188m
Project Management/Supervision	£0.926m	£1.219m
Utility Diversions	£1.942m	£1.632m
Land Costs	£1.000m	£1.537m
EMV from Quantified Risk Assessment	£2.538m	£2.320m
Inflation	£4.165m	£1.203m
<b>Total Outturn Scheme Cost</b>	<b>£27.254m</b>	<b>£21.561m</b>

## 2.3 Delivery Timeframe

2.3.1 The current overall scheme programme was updated on 6 March 2013 and indicates the main construction contract commencing on 26 July 2013 and completion of the works on 18 January 2015. This programme included a section entitled 'Monitoring and Evaluation Data Requirements' and provided initial details of what data sets might be required to comply with an approved Monitoring and Evaluation Plan. The programme also identified key milestones in the progress of the scheme construction. This Report provides more details of the proposed Monitoring and Evaluation Plan and is to be submitted to the DfT for their approval.

### 3. SCHEME OBJECTIVES AND OUTCOMES

3.1. The objectives of the improvement measures are to address the traffic issues in Beverley town centre and ensure that the Beverley transportation systems can meet the future needs of the travelling public in East Riding of Yorkshire. Specifically, the primary objectives for the BITP are as follows:

- To alleviate traffic congestion in the town centre;
- Contribute to the town centre economy; and
- Improve the town centre environment and streetscape.

3.2 The anticipated outcomes from the delivery of the BITP are:

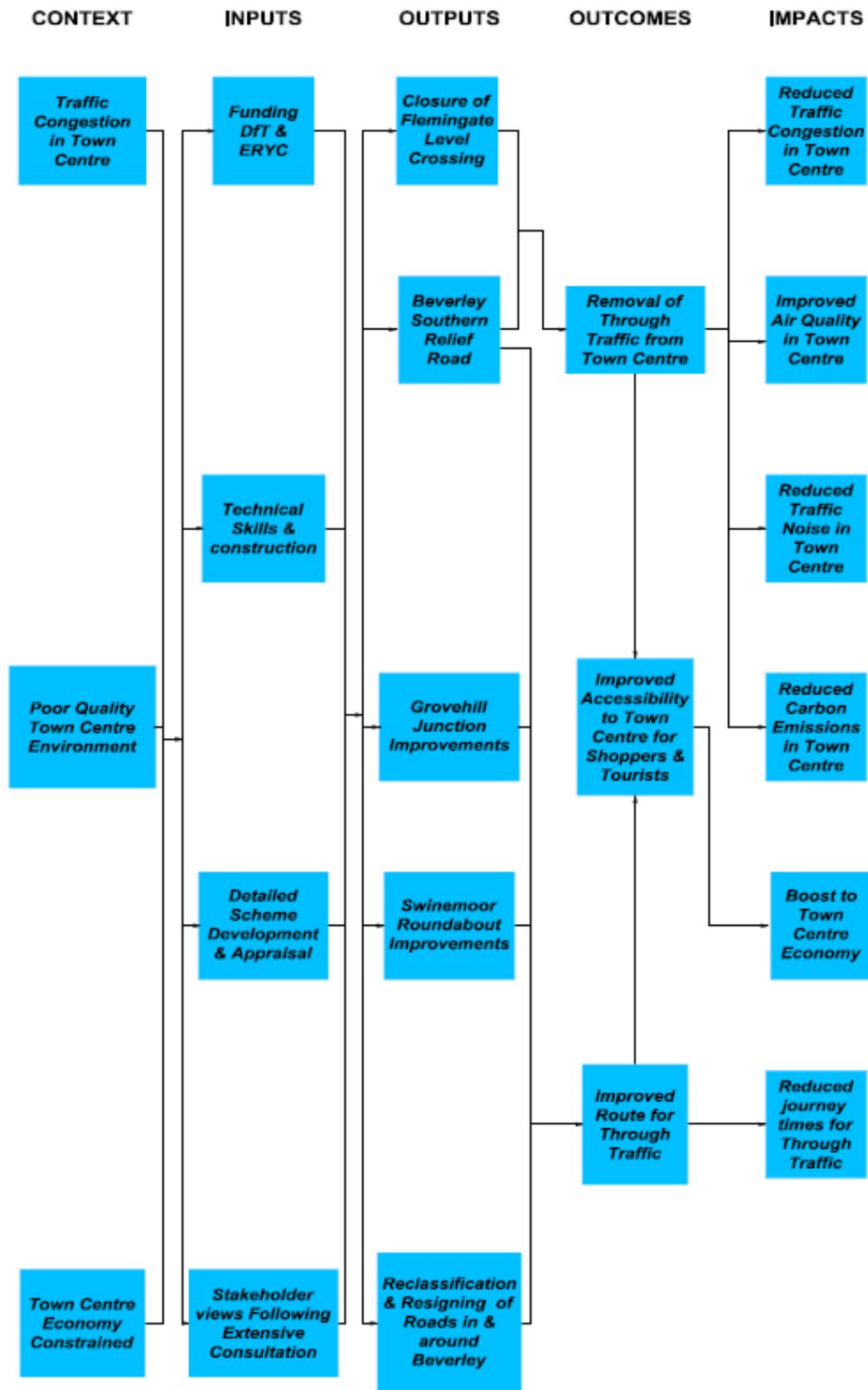
- Reduced through traffic in the town centre
- Reduced journey times on key routes into and around the town centre
- Improve the town centre economy through enhanced environmental conditions

3.3 The BITP scheme will achieve these objectives and outcomes through the removal of through traffic from the town centre. This will be achieved by providing a more direct and quicker route for traffic wanting travel from one side of Beverley to the other without having to negotiate the town centre. The reassigned traffic will travel on the new Beverley Southern Relief Road (BSSR) and A1174 creating a new strategic route between the A164 to the southwest of the town to the A1035 to the northeast towards Bridlington. The level crossing at Flemingate will also be closed to traffic thereby making a key route through the town centre impossible to all but emergency services and sustainable transport modes.

3.4 In addition to reduced journey times for traffic travelling around Beverley, journey times into the centre of Beverley for shoppers and tourists will also be reduced due to the overall reduction in traffic in the town centre. This will ensure that Beverley town centre becomes a more attractive destination for shoppers and tourists and as a result will have a positive impact on the local economy.

- 3.5 A Logic Map has been developed for the project to clearly identify the Context of the scheme and the expected Outputs, Outcomes and Impacts delivered following the construction of the scheme. The evaluation of the expected outcomes of the project will be monitored as detailed in this Monitoring and Evaluation Plan to determine if the scheme achieved its intended objectives. The Logic Map is shown in Figure 3.1.

Figure 3.1 – Logic Map



## 4. EVALUATION OBJECTIVES AND RESEARCH QUESTIONS

- 4.1 The Monitoring and Evaluation Plan is summarised in the BITP Monitoring and Evaluation Framework and is presented as a summary table at Appendix 4a.
- 4.2 The Framework identifies the items to be measured under either the Standard or Enhanced Monitoring procedures outlined in the DfT's "Monitoring and Evaluation Framework for Local Authority Major Schemes"(September 2012).
- 4.3 The Framework also identifies details of the specific data to be collected, collated and assessed. The Framework also provides details of when the data can be collected and when the results of the data reviewed is reported. The main reports to be produced are the Interim Report and a Final Report. The Interim Report is to be produced within a year after the opening of the scheme. The Framework at Appendix 4a clarifies what measures will be included in The Interim Report. The Final Report is to be completed some five years after completion of the scheme. This delay is mainly due to the fact that some measures require the collection of data over a considerable period of time (e.g. accident data) before any conclusions can be made.
- 4.4 For Fuller Monitoring and Evaluation of a scheme more detailed and specific questions need to be asked. These questions are referred to as Research Questions and the details of these questions are outlined in the next section of this report. These Research Questions relate to the same measures detailed for the Standard and Enhanced monitoring but are tailored to the specific scheme design and content and aims of the project in its local context.
- 4.5 In addition to the Interim and Final reports a Baseline Data Report will be produced within three months after the completion of the scheme. The Baseline Data report will provide details of all the data collected at that point in time. It will also collate and present all the existing comparative data from the Best and Final Bid (BAFB) modelling work as appropriate.

## 5. RESEARCH QUESTIONS AND OUTLINE OF THE MONITORING AND EVALUATION APPROACH

5.1 This section outlines the research questions and the evaluation approach to each of the measures and individual items identified in the BITP Monitoring and Evaluation Framework. The list will also identify what stage the research question is applicable to, i.e. standard monitoring, enhanced monitoring or fuller evaluation, the audience the research question is aimed at, and the rationale for the question. Along with each of the questions will be a brief explanation of how the effect of the scheme on each measure will be evaluated. In terms of the local authority the main audience will be the Project Board. The members of the Project Board are outlined in the organogram, which provides details of the BITPs' overall Project Management Structure and the project Board itself, located at Appendix 5a of this report.

### 5.2 Scheme Build

5.2.1 **How did the construction programme at commencement compare with the outturn programme?** – (This question is part of the standard monitoring and supports the fuller evaluation of the process). The programme at the start of works will be compared to the final programme at completion, along with the compensation events and change control records. This data is to be reviewed to establish where delays occurred. The programme data will be contained in the Baseline Data Report to be produced within three months after the completion of the scheme. Significant delays will be investigated to understand whether lessons could be learnt. This work will be reported on in the Interim Monitoring and Evaluation Plan report to be produced within a year after the completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

5.2.2 **Did the context of the scheme change during the scheme build?** – (This question is part of the standard monitoring and supports the fuller evaluation of the process). The context of the scheme prior to construction will be assessed against that during and just after construction to establish whether changes occurred during or just after the construction period, and if so investigate why and the implications on the achievement of the objectives of the scheme. The scheme context prior to

construction will be taken from the BAFB documentation. This data will be contained in the Baseline Data Report to be produced within three months after the completion of the scheme. The analysis of this data will be provided in the Interim Monitoring and Evaluation plan report to be produced within one year after the completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

**5.2.3 Were any changes made to the Stakeholder Management Plan and why?** – (This question is part of the standard monitoring and supports the fuller evaluation of the process). The Stakeholder Management Plan prepared prior to construction will be compared to its condition following construction to establish whether the plan was adhered to and where changes were made to the plan and why. The Stakeholder management plans will be presented in the Baseline Data Report to be produced within three months after the completion of the scheme. The analysis of this data will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after the completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

**5.2.4 What conclusions can be drawn from analysis of the risk management plan?** – (This question is part of the standard monitoring and supports the fuller evaluation of the process). The risk management plan as updated immediately prior to the start of construction will be compared to the risk management plan following completion of the scheme to establish how well anticipated risks were predicted and what unanticipated risks materialised if any. The risk management plans will be contained in the Baseline Data Report to be produced within three months after the completion of the scheme. The review and analysis of this data will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year following completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.3 Delivered Scheme

- 5.3.1 **Were there any changes to the scheme following funding approval?** – (This question is part of the standard monitoring and supports the fuller evaluation of the process). A review of any changes made to the scheme after the DfT Full Approval submission will be completed. Details of the scheme as described in the BAFB submission documentation will be contained in the Baseline Data Report to be produced within three months after the completion of the scheme. If any changes are identified we will provide a full explanation and assess the implications of the changes. This work will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after the completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.4. Outturn Costs

- 5.4.1 **How did the outturn costs compare to the cost estimate?** – (This question is part of the standard monitoring and supports the fuller evaluation of the economics). We will compare the final cost estimate prior to commencement of construction with the actual outturn costs, providing analysis broken down into the categories used on the full approval submission forms. Pre-construction cost estimates will be detailed in the Baseline Data Report as will any other actual elements of the outturn costs should they be available prior to the production of the baseline data report, which is to be produced within 3 months of completion of the scheme. The analysis of this data will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after the completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge and public accountability.
- 5.4.2 **Where were any additional outturn cost or cost savings incurred?** – (This question is part of the standard monitoring and supports the fuller evaluation of the economics). The outturn costs will be compared against the pre-construction cost estimates to establish where and when cost or cost savings were incurred. This work will be provided in the Interim Monitoring and Evaluation plan report to be produced within one year after of the completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge and public accountability.

## 5.5 Scheme Objectives

5.5.1 Table 5.1 identifies the three main objectives of the scheme and a basic description of what measures will be used to evaluate the success of the scheme in achieving these objectives.

**Table 5.1 – Scheme Objectives and Measurement**

Objective	Measurement
To alleviate traffic congestion in the town centre	Comparison of before and after traffic flows in the town centre, and comparison of before and after journey times into the town centre.
Contribute to the town centre economy	Carry out a before and after questionnaire survey of local town centre businesses to establish the impact of the scheme on the town centre businesses experienced and perceived economic activity.
Improve the town centre environment and streetscape	Comparison of before and after air quality and noise conditions in the town centre.

5.5.2 **Has the scheme alleviated traffic congestion in the town centre?** - (This question is part of the standard monitoring and supports the fuller evaluation of the impacts). This is to be assessed by a comparison of existing 2009 and 2011 traffic counts, journey time surveys (representing prior to construction conditions), the opening year Do Something modelled Origin Destination and journey time data (representing the predicted post construction conditions) against new post construction traffic counts, journey time surveys and Origin Destination data to be collected within one year after the completion of the scheme. Appendix 5b provides more details regarding the collection and assessment of the appropriate post construction traffic data to be collected. Appendix 5f provides preliminary details of the ANPR camera sites proposed to derive a town centre Origin Destination matrices and identify quantities of actual post scheme construction through traffic. All the existing and predicted traffic data will be provided in the Baseline Data Report, which is to be produced within 3 months of completion of the scheme. The review and assessment of this data will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year of the scheme completion. This information will be made

available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

**5.5.3 What is the experience and perception on economic activity of town centre business as a result of the scheme and its impact on town centre congestion?**

– (This question is part of the standard monitoring and supports the fuller evaluation of impacts). A postal questionnaire of all businesses within the town centre, to be completed both prior to construction of the scheme and within a year after the completion of the scheme. This survey will be used to identify businesses experience and perception of the effects of the scheme on traffic congestion in the town centre and town centre businesses economic activity. Appendix 5c provides details of the pre-construction period questionnaire. The questionnaire has been sent to all business addresses registered within the town centre for business rates. A similar questionnaire will be sent out to all business in the same area some 12 months after completion of the scheme. A review of business addresses in the town centre suggests that in 2013 there were some 699 businesses located in the town centre. The results of this survey work will be reported in the Baseline Data Report and the review and analysis of this data will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after the completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

5.5.4 In addition to the postal survey, building vacancy rates will be recorded. This data is contained in the Local Plan Annual Monitoring Report and is collected annually by ERYC. The results of this survey work for both prior to the scheme construction and after scheme construction will be reported in the Baseline Data Report and the review and analysis of this data will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after the completion of the scheme.

5.5.5 Stakeholder workshops were also considered as a method to answer this research question. However ERYCs' consultation and survey team concluded that these would not be needed. The team came to this conclusion for two reasons firstly they were not confident of getting representative and meaningful attendance or of obtaining useful results or information from such workshops and secondly they had already obtained a good response rate to the postal questionnaire.

**5.5.6 Has the scheme had an impact on the town centre environment and streetscape?** – (This question is part of the standard monitoring and supports the

fuller evaluation of impacts). A comparison of the noise and air quality conditions at key town centre locations both prior to and post construction of the scheme is proposed. In the case of noise before and after noise surveys will be undertaken at key locations in the town centre and on certain locations along Swinemoor Lane and Hull Road. The results of these surveys are also to be used for the assessment of noise as described in paragraph 5.10.1 of this report. The results of this work will be provided in the Baseline Data Report and reviewed and assessed in the Interim and Monitoring and Evaluation Plan Report to be produced within one year after completion of the scheme. Appendix 5d provides details of the location of the noise survey locations. Appendix 5d also provides details of when the post construction surveys should be undertaken.

- 5.5.7 The impact of the scheme on air quality is to be assessed by a review of the data from ERYCs' NO<sub>x</sub> diffusion tube survey. Appendix 5e contains details of the location of the NO<sub>x</sub> diffusion tubes location within Beverley and Beverley town centre. Appendix 5e also contains the results for the 2012 NO<sub>x</sub> diffusion tube survey. The details and results of this survey work will be provided in the Baseline Data Report to be provided within three months after the completion of the scheme. The Interim Monitoring and Evaluation Plan report to be produced within one year after the completion of the scheme will provide a before and after comparison of this data . This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.6 Impact on travel demand

- 5.6.1 **Has the quantity of through traffic in town centre roads decreased?** – (This question is part of the standard monitoring and supports the fuller evaluation of impacts). The total quantity of traffic on the town centre roads is to be assessed by a comparison of before and after traffic counts and the flows predicted by the Do Something SATURN model. This question is more specific and seeks to confirm that the scheme actually removes through traffic from the town centre. In order to test this scenario an Origin and Destination survey for traffic movements within the town centre, using automatic number plate recognition (ANPR) and matching techniques will be completed after the construction of the scheme Appendix 5f provides preliminary details of the proposed location of the ANPR cameras required for the proposed town centre Origin Destination survey to be carried out within one year after completion of the scheme. The results will be compared against the BAFB SATURN modelling results for the opening year do minimum conditions. This work involves the same data as collected and collated for the assessment of the Scheme Objective measures and as such the existing and predicted data collected and collated will be available in the Baseline Data report, which is to be produced within 3 months of completion of the scheme. The analysis of this work will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.
- 5.6.2 **Has the total quantity of traffic both in the town centre and using the relief roads changed?** – (This question is part of the standard monitoring and supports the fuller evaluation of impacts). The variable demand modelling work associated with the BAFB suggested that no significant additional traffic would be induced by the scheme. A comparison of before and after traffic counts, a review of the actual development context in comparison to that used in the BAFB modelling work and a post scheme completion origin destination survey and other traffic count surveys, carried for the other research questions, will help to ascertain if overall traffic levels have changed due to the scheme. It is intended to carry out this review within one year after completion of the scheme. This assessment will also be supported by the work described in paragraph 5.8.1 of this report, which describes the derivation of new OD matrices and new SATURN assignment runs. The results of the comparison and review will be provided in the Interim Monitoring and Evaluation Plan report to be

produced within one year after scheme completion. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge. In addition

- 5.6.3 **Has the scheme had an impact on pedestrian and cycle demand?** - (This question is part of the standard monitoring and supports the fuller evaluation of impacts). It is proposed to carry out before and after pedestrian and cycle surveys at two key locations where the scheme is likely to have a significant impact on pedestrian and cycle numbers, namely at the Grovehill junction and in the vicinity of the Flemingate level crossing which is to be closed to vehicular traffic. Details of the proposed survey work are contained in Appendix 5g of this report. The results of the initial before survey work will be included in the Baseline Data Report to be completed within 3 month of the scheme completion. The results of this assessment work will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after scheme completion. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.7 Travel Times and Reliability

- 5.7.1 How has the scheme impacted on travel times and travel time variability? –**  
(This question is part of the standard monitoring and supports the fuller evaluation of impacts). A comparison of the pre-construction 2011 travel time surveys against similar surveys carried out within one year after the completion of the scheme will be done to assess the impact on travel times through the town centre. Appendix 5d provides details of the pre-construction travel time surveys through the town centre to be repeated post construction. Additional travel time surveys will be required following the completion of the scheme to establish actual post construction travel times around the town centre using the BSSR and Swinemoor Lane. These are to be compared against the travel times predicted by the Do Something SATURN model. Appendix 5h contains examples of the modelled Opening Year Do Something travel times for the same journeys as the existing journey time surveys through the town centre. The results of the existing surveys and predictions will be presented in the Baseline Data Report to be completed within 3 months after the completion of the scheme. The analysis of this data will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year following completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.8 Impacts on the Economy

- 5.8.1 **Does the scheme provide the same economic benefits and BCR as predicted by the BAFB modelling work?** – (This question is part of the standard monitoring and supports the fuller evaluation of economics).
- 5.8.2 One of 2 assessment methodologies will be used, along with a contextual report will be used to answer this question. The two assessment methodologies are outlined below:-
- **Method 1** simply re run the economic analysis of the schemes with the actual outturn scheme cost. In this analysis all the scheme benefits due to flow changes etc, are assumed to be as stated in the BAFB submission.
  - **Method 2** re run all the TUBA and COBA models with new do something flows provided by new SATURN assignment runs using new OD matrices. The new matrices are to be developed using matrix estimation techniques and all the new traffic data to be collected following the construction of the scheme. The new traffic data to be collected is outlined in Appendix 5b and includes new turning count data, travel time surveys, ANPR OD surveys and automatic counts. In addition the actual outturn costs will be used. The TUBA and COBA modelling will utilise all the same assumptions and parameters used in the BAFB analysis work. This methodology will not include the benefits associated with noise as presented in the final BAFB work although a comment on its validity will be made given the results of the traffic data and the comparison with the BAFB modelling work and the actual before and after noise surveys.
- 5.8.3 The choice of which methodology to use will depend on a comparison of the post construction traffic survey data against the conditions predicted by the BAFB, “Do Something” opening year modelling results. This comparison, which will also be done to answer some of the other research questions outlined in this report, will provide a context by which the new calculated BCR values (using either method) correctly/reasonably represent the effects of the scheme and its overall value for money. If the actual recorded traffic data reasonably corresponds to the BAFB modelled “Do Something” traffic conditions then the revised BCR calculated in Method 1 will be considered appropriate. If the recorded data does not correspond to the modelling work then the second calculation methodology will used in an attempt to provide a revised BCR calculation.

- 5.8.4 In comparing the “Do Something” Opening year modelling work with post completion traffic data, reference will be made to the BAFB’s Economic Assessment Report. This report provides more detailed information on the distribution of the schemes benefits as suggested by the modelling work. Given this information it will be possible to compare actual traffic data with modelled data at key locations or on key routes which generated the schemes benefits.
- 5.8.5 An example of the need for reference to the Economic Assessment Report is that it shows that the “Pessimistic” traffic flows assessed actually resulted in some benefits being greater than the “Core” results”. Therefore should actual flows turn out to be lower in certain locations it might be reasonable to suggest that the scheme actually has a better BCR than reported in the BAFB.
- 5.8.6 This work will be provided in the form of a “Value for Money Overview Report” to be contained within the Interim Monitoring and Evaluation Plan report to be produced within one year following completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.9 Carbon

- 5.9.1 **How do the forecast and actual carbon emissions compare in key areas? –**  
(This question is part of enhanced monitoring and supports the fuller evaluation of the impacts). Total carbon emissions are directly related to the traffic conditions so for this reason two possible assessment methodologies are proposed. If the actual measured traffic conditions across the network following the scheme completion are comparable to the conditions predicted by the BAFB Opening Year modelling work then the Carbon benefits can be assumed to be similar to those predicted in the BAFB submission. If the traffic conditions are considered to be significantly different then the Carbon emissions will be recalculated in TUBA using the revised SATURN modelling described in 5.8.1 above. The work will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.10 Noise

### 5.10.1 How do the pre and post scheme noise levels at key receptors compare? –

(This question is part of enhanced monitoring and supporting the fuller evaluation of the impacts). Before and after” noise surveys are proposed to provide an accurate comparison of noise levels at key receptors now and at the same key receptors following the opening of the scheme. The key receptors will need to be located in the both the town centre and in the vicinity of the BSSR and Swinenmoor Lane. Appendix 5d provides details of the noise survey locations. The results of the survey will be presented in the Baseline Data Report to be completed within three months of the scheme completion. The analysis of this data will be provided in the Interim Monitoring and Evaluation Plan report to be produced within one year after completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.11 Air Quality

### 5.11.1 How does forecast and actual air quality levels at key receptors compare? –

(This question is part of enhanced monitoring and supports the fuller evaluation of the impacts). ERYC currently carry out annual Air Quality Updating and Screening Assessments. As part of these assessments diffusion tube monitoring of NO<sub>x</sub> has been carried out at some 25 locations within Beverley. The figure at Appendix 5e provides details of the NO<sub>x</sub> diffusion tube survey locations. ERYC has indicated that these surveys will be continued for at least two years after the completion of the scheme and possibly after this as well. The initial pre scheme construction data will be reported in the Baseline Data Report to be completed within three months of the completion of the scheme. The analysis of these results of this work could be provided as an addendum to the Interim Monitoring and Evaluation Plan Report to be produced within two years after completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 5.12 Accidents

5.12.1 **How do forecast and actual accidents compare?** – (This question is part of enhanced monitoring and supports the fuller evaluation of the impacts and economics). The forecast accident analysis was carried out using the computer program COBA. Actual accident data will be collected for five years after the opening of the scheme and the data compared with the number and severity of accidents forecasted by the scheme appraisal. The Baseline Data Report, to be provided within three months of the completion of the scheme, will contain details of the predicted accident data contained in the BAFB submission. The analysis of this work will be provided in the Final Monitoring and Evaluation Plan Report to be produced some 5 years after completion of the scheme. This information will be made available for review by the DfT and the Local Authority Project Board. Rationale for the question is enhancement of scheme promoter knowledge.

## 6. DATA REQUIREMENTS AND DATA COLLECTION METHODS

- 6.1 The BITP Monitoring and Evaluation Framework at Appendix 4a provides details of the data requirements and the methods for collecting data for each measure.
- 6.2 The data collection falls into two categories; that which can be obtained from ERYC following completion of the scheme, for example outturn costs, cost overruns, changes in mitigation and accident data, and external data that will need to be collected prior to, and following opening of the scheme, for example updated traffic flow data and collected noise and air quality data.
- 6.3 The following list provides a summary of the extra data to be collected for the standard and enhanced monitoring requirements of the MEP and the fuller evaluation of the BITP, the list also outlines when the data is to be collected.:-
- Origin destination survey using cameras and automatic number plate recognition software (ANPR), and number plate matching techniques at some 19 sites in and around Beverley. These 12 hour counts are to be matched with manual classified counts to be carried out at the same time and location. To be carried out following completion of the scheme.
  - Automatic traffic counts at some 8 key locations forming a cordon line in and around Beverley.
  - 12 hour neutral month weekday manual classified turning counts at 15 junctions within Beverley.
  - Journey time surveys on the same routes as completed in 2011 in association with the BAFB submission, and new journey time surveys on the BSSR, Hull Road and Swinemoor Lane. Surveys to be completed within one year after the completion of the scheme.
  - Before and after noise surveys at key town centre location and in the vicinity of the BSSR, Hull Road and Swinemoor Lane.
  - Postal surveys of businesses within the town centre, to be carried out prior and post construction of the scheme.
  - Pedestrian and cycle surveys at two key locations within the town, namely Flemingate in the vicinity of the level crossing and at the Grovehill junction.

## 7. RESOURCING AND GOVERNANCE

### 7.1 Monitoring and evaluation budget

- 7.1.1 A full and detailed breakdown of the monitoring and evaluation estimate is included in Appendix 7a. An initial estimate of £123,120 has been included for within the overall scheme cost estimate of £21.561m identified in the Full Approval bid documentation. The latest cost estimate is now between £102K and £106k.

### 7.2 Governance structure for delivery of monitoring and evaluation plan

- 7.2.1 In order to ensure continuity of responsible persons, monitoring and evaluation has been included as a separate work package within the governance for the whole Beverley Integrated Transport Plan. This is shown in the BITP Project Management Structure plan, which identifies the MEP work as Work Package Project 7, the plan is included in Appendix 5a.

### 7.3 Responsible personnel

Role	Name	Responsibility
Corporate Management	Alan Menzies	Provide corporate support to the production of a monitoring and evaluation plan and ultimately be responsible for ensuring it is adhered to.
Executive	Mike Featherby	Be accountable for all aspects of monitoring and evaluation and ensure an approved project Monitoring and Evaluation Plan exists.
Senior User	Ian Burnett	Assist the Executive in ensuring the Monitoring and Evaluation Plan is adhered to and any effects relating to users are taken into account.
Senior Supplier	Tony Wilson and Mike Ball	Assist the Executive in ensuring the Monitoring and Evaluation Plan is adhered to and any effects relating to the supplier are taken into account.
Project Manager and Monitoring and Evaluation Work Package Manager	Richard Lewis	Ensure the Monitoring and Evaluation Plan is initiated and in place. Ensure all data collection procedures and processes are in place at the appropriate time and controlled throughout the project lifecycle.

Risk Manager	Paul Suret	Ensure risks associated with the Monitoring and Evaluation Plan Work Package are identified, recorded and mitigated as part of the overall Risk Management Strategy.
Project Assurance	Maria Brennan	Review the Monitoring and Evaluation Plan to ensure the data collection and analysis is carried out in accordance with the plan.
Project Support	Emma Phillips	Assist in the production of the Monitoring and Evaluation Plan and assist in managing the data collection, analysis and subsequent reports.

## 7.4 Procedures for risk management

- 7.4.1 Procedures for managing risks associated with Monitoring and Evaluation will be dealt with in the same manner as for the overall BITP project and in accordance with the BITP Risk Management Strategy submitted as part of the Full Approval bid to the DfT.
- 7.4.2 The main risk identified to date with the Monitoring and Evaluation work package is a failure to collect data at the appropriate time leading to inaccurate and poor quality data reducing the effectiveness of the final report. In order to mitigate this risk, a plan has been prepared, a dedicated work package has been added to the overall project governance and milestones have been added to the overall project programme indicating when individual data sets are required.

## 7.5 Quality assurance

- 7.5.1 Quality assurance for the Monitoring and Evaluation work package will be dealt with in the same manner as for the overall BITP project. As this element is included as part of the overall project governance, the Project Assurance/Steering Group and ultimately the Project Assurance officer, who is the Council's Infrastructure and Facilities Service Quality Assurance officer will ensure the overall quality.

## 8. DELIVERY PLAN

- 8.1 The BITP Monitoring and Evaluation Framework at Appendix 4a identifies the stages and dates for collection of data. These dates assume the following key scheme milestones:
- BAFB Final Approval – February 2013
  - Commence construction of main works – July 2013
  - Open scheme to traffic – early 2015
- 8.2 It is proposed to carry out the 'Year 1' data collection following 12 months of operation, in March 2016.
- 8.3 A Baseline Data Report is proposed to be completed approximately some 3 months after the completion of the scheme. The Baseline Data report will bring together in one place details of all the data collected by new surveys or collated from all the pre-construction data collected and utilised in the BAFB modelling and bid work.
- 8.3 An Interim Monitoring and Evaluation Report will be prepared following the collection and analysis of the Year 1 data
- 8.4 For some data, namely accident data, a longer collection period i.e. 5 years has been requested. For this reason it is proposed to produce a Final Report some 5 years after scheme completion.

## 9. DISSEMINATION PLAN

- 9.1 The Baseline Data Report will be forwarded to the Project Board, the Major Schemes Board and the Department for Transport and other key stakeholders if requested.
- 9.2 The Interim Report will be forwarded to the Project Board, the Major Schemes Board and the Department for Transport as well as other key stakeholders following the collection and analysis of the Year 1 data. Questions and queries will be requested and detailed responses provided.
- 9.3 The Final Report (Year 5) will be issued to the Project Board, Major Schemes Board and the Department for Transport as well as other key stakeholders, and again questions and feedback will be welcomed.
- 9.4 Both reports will include a specific section identifying key lessons learnt that will be disseminated both through the reports and separately through a lessons learnt bulletin to Council Officers, Council suppliers and key stakeholders including the Department for Transport. The reports and bulletin will include contact details of the ERYC Project Manager to enable any queries or further information to be disseminated to interested parties.

<b>Detailed MEP Cost Estimates</b>																
	ref	Total Cost														
Project management	1	£609														
	2	£5,572														
Meetings	3	£1,875														
manage sub consultants	4	£1,286														
Review of Scheme build tender program to actual	5	£1,148														
Scheme build analysis of significant delays	6	£765														
Scheme build review of context	7	£765														
Scheme build review of stakeholder management plan	8	£1,148														
Review of Delivered scheme original design	9	£1,148														
Review of change control log	10	£765														
Review of Outturn costs against Tender Price	11	£765														
Repeat Town centre journey time surveys	12	£709														
	13	£1,080														
	14	£1,913														
car hire	15	£180														
fuel	16	£120														
New journey time surveys on SSR	17	£709														
	18	£1,080														
	19	£0														
car hire	20	£180														
fuel	21	£120														
Collate journey times from Opening Year do something Saturn Models and journey time organisation	22	£591														
Comparative analysis of existing modelled and new journey	23	£1,148														
Town centre OD survey using 19 ANPR cameras	24	£9,500														
Detailed construction and analysis of ANPR OD survey	25	£3,825														
	26	£1,182														
Collation of Modelled Opening Year Do something town centre Weekday 12 hr junction turning movement counts	27	£1,913														
Pre and Post Construction town centre noise surveys		£14,296														
Ped and cycle counts		£5,000														
	28	£3,500														
Manual turning counts	29	£14,000														
7 day ATC counts	30	£2,250														
Collation of Noise survey work	31	£1,913														
Collation of NOx Diffusion tube survey work	32	£1,913														
Preparation of Baseline Data report	33	£1,913														
Preparation of Interim report	34	£1,913														
Overseeing Post construction Postal Business Survey	35	£765														
Collate results of Postal Business Survey	36	£179														
Vacancy Rate survey	37	£383														
<b>Re calculation of BCR Method 1</b>	<b>M1</b>	<b>38</b>														
	<b>OR</b>															
<b>Re calculation of BCR Method 2</b>	<b>M2</b>	<b>39</b>														
Assess impact on accident figures	40	£1,913														
	41	£591														
Assess Carbon impacts	42	£765														
Baseline Data Report	43	£2,550														
	44	£268														
Interim report	45	£2,550														
	46	£268														
Final Report	47	£2,550														
	48	£268														
	49	£457														
<table border="1"> <thead> <tr> <th>TOTAL WITHOUT DISBURSEMENTS</th> <th>TOTAL WITHOUT DISBURSEMENTS</th> </tr> </thead> <tbody> <tr> <td>£67,958</td> <td>£71,783</td> </tr> <tr> <td><b>TOTAL DISBURSEMENTS</b></td> <td><b>TOTAL DISBURSEMENTS</b></td> </tr> <tr> <td><b>£34,250</b></td> <td><b>£34,250</b></td> </tr> <tr> <td>TOTAL INCLUDING DISBURSEMENTS</td> <td>TOTAL INCLUDING DISBURSEMENTS</td> </tr> <tr> <td><b>£102,208</b></td> <td><b>£106,033</b></td> </tr> <tr> <td><b>M1</b></td> <td><b>M2</b></td> </tr> </tbody> </table>		TOTAL WITHOUT DISBURSEMENTS	TOTAL WITHOUT DISBURSEMENTS	£67,958	£71,783	<b>TOTAL DISBURSEMENTS</b>	<b>TOTAL DISBURSEMENTS</b>	<b>£34,250</b>	<b>£34,250</b>	TOTAL INCLUDING DISBURSEMENTS	TOTAL INCLUDING DISBURSEMENTS	<b>£102,208</b>	<b>£106,033</b>	<b>M1</b>	<b>M2</b>	
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