

Haven Gateway Ipswich A14 Corridor Study

Final Report

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Executive Summary

The Haven Gateway Ipswich A14 Corridor Study follows on from the 2005 Newmarket to Felixstowe Corridor Study and focuses upon the recommendation to further address the transport issues in this region. The current and future transport-related problems associated with this corridor have further served in highlighting the fundamental need for this study. This report identifies the options for sustainable transport measures to reduce congestion along the A14 corridor in the study area, and to improve access in, to and around Ipswich.

The A14 corridor is situated within the Haven Gateway sub-region of north-east Essex and south-east Suffolk, which is one of the fastest growing areas in the East of England. Ipswich is the largest conurbation within this sub-region. The A14 corridor is a key strategic route with a road and rail network which connects the UK's most significant international port cluster with the rest of the country's transport networks, as well as serving as a major local, regional, and (inter)national transport system.

The expected growth of the Haven sub-region has led to modelled estimates that the A14 corridor at Ipswich will reach maximum capacity by 2012 and that air quality and public transport journey times will suffer. The prioritisation of measures which seek to make better use of capacity in the corridor or through encouraging mode shift away from private car is focused upon, both within the appraisal process and ultimately the intervention recommendations.

The recommendations given are based upon the appraisal of existing information to assess potential development and transport options in the short, medium and longer term to agreed realistic time-scales. The foundations of this are established by measuring the performance of potential transport measures against the objectives, which were initially set by the client team and modified with regards to wider policy, whilst also taking into consideration additional deliverability factors. Recognition is given that any transport measures identified may have an impact on an area greater than that of the study area and the interventions recommended are by no means conclusive at this stage.

In summary the main objectives set out for the study area highlight the need:

- ◆ To allow the Newmarket to Felixstowe Corridor to continue to function effectively and efficiently as a (inter)national route;
- ◆ Support the expansion of the ports at Felixstowe and Harwich;
- ◆ Enhance access to the port at Ipswich;
- ◆ Support the objectives of the Regional Economic strategy and the emerging EEP;
- ◆ Support likely future development in the relevant Local Development Frameworks;
- ◆ Support the role of Ipswich as a 'Key Centre of Development and Change' and as a 'Regional Transport Node' in the emerging EEP; and
- ◆ Develop more sustainable forms of transport.

COAST (Core Objectives Appraisal Summary Table) methodology was used in appraising the main study objectives against the measures identified in the optioneering exercise. This highlighted the main interventions in which to potentially mitigate the problems between transport demand and supply and to best meet the set objectives.

The shortlist of measures in the study is provided within specific timescales of short term (pre-2011), medium term (to 2021) and long term (to 2031). For each shortlisted intervention an assessment of the deliverability of the measures was made. These included:

- ◆ The evaluation of costs and 'value for money' potential which were completed using standard rates and experience elsewhere, with a 'points per £' calculation.
- ◆ The identification of potential funding streams, of which many potential sources are given including; TIF, RFA, HA, CLG & DFT growth funds. It was concluded that very few of the short-listed options could lend themselves to a single funding source and that it is difficult to estimate levels of funding beyond short-term regional level estimates that might be attributed specifically to this study area.
- ◆ Time frame estimates for funding and implementation with a view on affordability.
- ◆ The practicality of the measures, in which it was construed that suitable engineering solutions would be probable for all measures, apart from the Orwell Bridge widening as the existing structure cannot be modified. The cost implications and environmental impacts of potential engineering solutions would need to be taken into further consideration. The study however cannot make judgements regarding the views of one group compared to another with regards to the acceptability of measures proposed.

The best performing short term measures which could be implemented were:

- ◆ a new station at Snoasis;
- ◆ a Smarter Choice Plan; business park management (travel planning);
- ◆ bus & rail station improvements; and
- ◆ general traffic management schemes.

In the medium term the measures scoring the highest against the set objectives were:

- ◆ road pricing in Ipswich;
- ◆ Wet Dock Crossing, demand management measures;
- ◆ variable speed limits on the A14; Cambridge to Ipswich capacity, speed and rolling stock improvements;
- ◆ East Bank Link Road;
- ◆ Copdock Interchange;
- ◆ additional P&R capacity; and
- ◆ A14 access control.

And in the long term the assessment concluded that A14 junction closures may be necessary, a new station at Martlesham could be provided and the potential for an Ipswich northern bypass of local or strategic nature could be beneficial.

The Haven Gateway Ipswich A14 Corridor study area includes elements of all three of the priorities identified by Eddington in his advice to Government on the long term links between transport and the UK's economic productivity, growth and stability:

1. The Haven Ports are an important international gateway.
2. Ipswich itself is a growing and increasingly congested urban area.
3. The links between the town and other urban centres in the East of England.

The shortlisted interventions provide good coverage across all of the priorities and demonstrate that investment in transport in the study area generally therefore appears to align with the priorities identified in the Eddington study.

The two key transport modelling tools of relevance to this study are the Highway Agency's East of England Model (EERM) and Suffolk County Council's Ipswich Traffic Model (ITM). The study highlights the appropriateness of these models to forecast and measure the shortlist of potential Haven-Gateway interventions. Following the full assessment of the use and suitability of the models for the study it is recommended that either the EERM is used alone but with considerable spatial refinement to the study area or to use the EERM strategically with an improved ITM locally with the use of an interface for traffic demand and costs.

Park & Ride, interchange and smart choice measures would need to be appraised outside of any modelling system. Fundamentally, prior to any modelling undertaken, the proposed coverage, spatial detail of network and zoning and the quality of validation in the vicinity of the scheme and its impacts would undoubtedly need to be verified and improved.

In summary this report has highlighted a number of suitable measures and interventions to address the transport related problems in the study area. The report makes the final recommendations that:

- ◆ the steering group set up to guide this study continues to meet but with a revised remit as an Ipswich Policy Area Transport Delivery Group;
- ◆ the Group maintains close links and works with other Haven Gateway groupings including the Transport Group, and other regional bodies such as Regional Cities East on matters of common interest;
- ◆ the Group considers undertaking work to improve the models available in the study area as outlined above;
- ◆ models are used to test the impact of the interventions identified in this study to assess their impact in more detail and to consider developing a potential package of measures that could be subject to an innovative funding mechanism; and
- ◆ consideration is given to developing more rigorous appraisals of measures, using the enhanced models where appropriate, so that the Group can respond to funding opportunities as they arise.

1. Introduction

CONTEXT

- 1.1 In October 2006 Atkins was commissioned to undertake the Haven Gateway Ipswich A14 Corridor Study. The study is a follow-up to the Newmarket to Felixstowe Corridor Study (2005) which recommended that transport issues in this section of the corridor should be looked at in more detail. This report documents the work that has been undertaken, the methodology adopted and the findings from the study.
- 1.2 The corridor straddles two key pieces of transport infrastructure, these being the A14 and the broadly parallel railway network. The rail network in the study area serves several important functions. This includes the Great Eastern mainline that provides a key commuter link to London Liverpool Street, the East Suffolk Line which has an important local role serving settlements to Lowestoft, the Cambridge line which provides east-west connections parallel to the A14, and the Felixstowe branch line. Although the latter is important as a passenger route, it is of key importance for freight as it connects the Port of Felixstowe to the wider network including routes to the East Coast and West Coast mainlines.
- 1.3 The A14 is a key strategic route of national importance linking the Haven Gateway, including the expanding port of Felixstowe, with the (inter)national motorway network. It carries large traffic flows (around 400,000 vehicles per week) with a significant proportion (27%) of HGVs. The expansion and integration of the Haven Ports, and growth anticipated in the emerging East of England Plan (EEP), is expected to exacerbate transport problems in the corridor with the result that the A14 round Ipswich in the peak hour is expected to reach capacity after around 2010.
- 1.4 There is a two-way relationship in place here. Further growth in travel demand will undoubtedly impact upon the operation of the A14, and rail and other transport facilities in the corridor, as noted above. However, the performance of the A14, and its interaction with the A12, A140, and local travel demands, is likely to be critical to the future economic vitality of Ipswich and the wider Haven Gateway.
- 1.5 Ipswich itself is a major focus for growth in both the draft EEP, the subsequent Panel Report and Government's Proposed Changes. The latter two documents designate it a 'Key Centre for Development and Change' with around 20,000 additional dwellings identified over the plan period to 2021. This growth, together with proposed developments at Ipswich Waterfront, the new University Campus, Ipswich Village, Snoasis, and in Haven Gateway more widely given its Growth Point status, is likely to have significant implications for movement in, around, and through the town.
- 1.6 Modelling work has shown that, although great efforts are being made to encourage more sustainable patterns of travel through policies and programmes proposed in the Suffolk Local Transport Plan (LTP), this growth could lead to congestion in the town spreading more widely and over longer periods of the day. There are concerns that this could lead to a deterioration in air quality and also impact upon public transport journey times.
- 1.7 It is against this backdrop that this study has been commissioned.

STUDY AIMS

- 1.8 The project brief set out the purpose of the study (and the key outputs) as being to:
- ◆ Identify potential short, medium and longer term options for transport measures including road and rail interventions to:
 - (i) reduce congestion along the A14 corridor in the study area, and to
 - (ii) improve access in, to and around Ipswich.
 - ◆ And to advise on the adequacy of existing information and models to assess potential development and transport options in the medium and longer term (up to 2030).

Time Horizons

- 1.9 At the beginning of the process it was agreed with the Steering Group that the short, medium and long-term timescales be defined as follows:
- ◆ Short term – up to 2010/11 (this coincides with the LTP2 horizon as well as one of the intermediate time horizons set out in the most recent Regional Funding Allocation exercise)
 - ◆ Medium term – up to 2021 (this coincides with the end-date for the current iteration of the East of England Plan (EEP))
 - ◆ Long term – up to 2030 (this is specified in the brief and is also the likely time horizon for the next review of the EEP).

Objectives

- 1.10 The study brief also identified a series of seven objectives against which potential transport measures should be assessed. These are:
- ◆ To allow the Newmarket to Felixstowe Corridor to continue to function effectively and efficiently as a (inter)national route;
 - ◆ Support the expansion of the ports at Felixstowe and Harwich;
 - ◆ Enhance access to the port at Ipswich;
 - ◆ Support the objectives of the Regional Economic strategy and the emerging EEP;
 - ◆ Support likely future development in the relevant Local Development Frameworks;
 - ◆ Support the role of Ipswich as a 'Key Centre of Development and Change' and as a 'Regional Transport Node' in the emerging EEP; and
 - ◆ Develop more sustainable forms of transport.
- 1.11 These were reviewed as part of the methodology, discussed further in Chapter 2.

STUDY AREA

- 1.12 A plan of the proposed study area is illustrated in Figure 1.1, which includes the built-up area of Ipswich, together with the surrounding settlements. A key focus for the Study is the A14 between A140 (Needham Market) and the A12 (N) junctions.

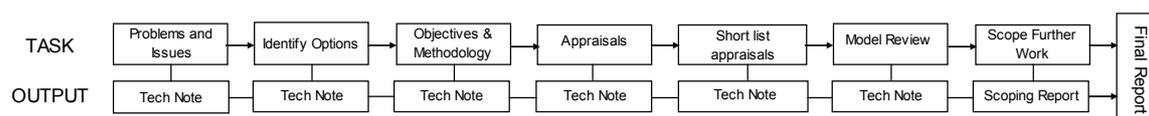
Figure 1.1 – Study Area

- 1.13 However, the exact definition of the study area is flexible as options that have been identified that meet the study aims may fall outside the study area formally defined in the brief.
- 1.14 In addition, the study also recognises that movement patterns within the main study area are influenced by demands and development pressures from outside that area. It has also been borne in mind that transport options put forward in the study may have implications for areas outside the main study area.

2. Methodology

2.1 In order to deliver the study outputs a methodology based on seven key tasks was devised. These are illustrated in Figure 2.1.

Figure 2.1 – Tasks and Outputs



2.2 Although each of the tasks is the subject of a separate chapter in this report, the following paragraphs provide a summary of the key components.

Task 1 – Review of Problems and Issues (see Chapter 3)

2.3 This task involved the identification of key transport problems and issues within the study area. The findings provide a summary of existing and likely future concerns, giving consideration to all modes and the balance between supply (i.e. available transport networks) and demand for travel.

2.4 Following, as it does, the preparation of the Draft EEP, the second LTP, and the Newmarket to Felixstowe corridor study, this review drew upon existing sources of information and was used to ratify our understanding of the key problems and issues which the study is seeking to address. This chapter is based on a review of:

- ◆ Local level planning documents;
- ◆ Intermediate level studies; and,
- ◆ Regional level documents.

2.5 It was also supported by discussions with local authorities.

Task 2 – Identify Options (the long-list) (see Chapter 4)

2.6 This task involved a wide ranging optioneering exercise seeking to identify all transport measures which could potentially meet the study aims and perform strongly against the study objectives. As with the review of problems and issues, this task drew heavily on valuable work already undertaken. The problems and issues document review served as an initial source of information on potential measures which were supplemented by discussions with transport/planning authorities (those on the Steering Group and wider Partnership Group). Further measures were added by the consultant's team where appropriate.

2.7 The long-list covers all modes and includes both passenger and freight measures.

Task 3 – Review Objectives and Specify Appraisal Methodology (see Chapter 5)

- 2.8 This task involved a review of the seven study objectives (as specified in the brief, see paragraph 1.10 above in order that they could be used as the basis of an appropriate appraisal framework which reflects the overall study aims. Additional objectives have been specified where appropriate.

Task 4 – Undertake appraisal of options and map to funding sources (see Chapter 6)

- 2.9 The brief required an evaluation of potential measures against the study objectives. Thus, each of the measures on the long-list has been assessed using the appraisal framework. The assessment has also included the consideration of a number of other factors:

- ◆ Potential funding sources;
- ◆ Timing; and
- ◆ Deliverability.

- 2.10 The initial assessment using the appraisal framework was undertaken by the consultant's team. The output from this task was a series of Appraisal Summary Tables which were moderated and validated through consultation with the Steering Group and Partnership group. Following this, a series of short-listed options were identified which:

- ◆ Address the overall study objectives;
- ◆ Are generally beneficial in terms of impact; and
- ◆ Appear to be deliverable both physically and in terms of potential funding sources.

- 2.11 Engagement with interested parties is an important part of the process and the brief required that a stakeholder event be held. A stakeholder briefing was arranged with a view to satisfying two key aims:

- ◆ Review and validate the long-list of measures, allowing stakeholders the opportunity to identify any missing options; and
- ◆ Present the appraisal methodology and framework.

- 2.12 The results from the Stakeholder event are presented in Appendix A. The problems and issues that were identified at the event, and the additions to the long list, have been considered in the study.

Task 5 – Undertake further review/appraisal of short-list (see Chapters 6 and 9)

- 2.13 Having derived a short-list of options in task 4, we have sought to understand in more detail the extent to which these have been developed, assessed and appraised to date. This has allowed us to bring in further quantified information where it has been available. For each short-listed option a standard summary note has been prepared which also seeks to identify gaps in the appraisal information.

- 2.14 We have also noted where potential synergies with other measures may reinforce the case for short-listed interventions.

Task 6 – Model Review and recommendations (see chapter 7 & 8)

- 2.15 This task has been undertaken in two phases to provide advice on the suitability of existing available transport models for the future appraisal of short-listed measures. Phase 1 is a review of the models themselves in order to understand the baseline structure, coverage and strengths and weaknesses.

- 2.16 Phase 2 has been undertaken following the identification of the short-listed options. This second stage review provides guidance on whether or not the existing models are 'fit-for-purpose' bearing in mind the likely funding sources and thus different methods of appraisal that may be required. In all cases recommendations are mindful of the need to be realistic and cost-effective. Where short-falls are identified, guidance has been provided on additional model requirements.

Task 7 – Scope further work needed for appraisal (see Chapter 9)

- 2.17 This task has built upon the output from Task 5 and the identification of any gaps in the available appraisal information. The output from this task is a potential outline programme for delivery of short-listed options over the next 20 years. For each short-listed measure we have identified in broad terms the further work which may be required to develop a full business case or robust appraisal depending on the most likely source of funding. We have also given consideration to the wider requirements beyond appraisal, such as engineering and process matters, which may influence delivery and implementation of schemes over the medium to long term.

3. Problems and Issues

- 3.1 This task involved the identification of key transport problems and issues within the study area through a review of existing sources of information, supported by discussions with local authorities. The findings provide a summary of existing and likely future concerns, giving consideration to all modes and the balance between supply (i.e. available transport networks) and demand for travel.

GROWTH AND DEVELOPMENT PRESSURES

Haven Gateway Existing Context

- 3.2 The study area sits within the Haven Gateway. The Haven Gateway sub-region covers approximately 1,200 sq.km of north-east Essex and south-east Suffolk, has a population of over 500,000 and is one of the fastest growing areas in the East of England. It draws its name from the 'Haven Ports' of Felixstowe, Harwich, Ipswich and Mistley, which together form one of the UK's most important port clusters (New Growth Point Submission, Haven Gateway Partnership, 2006).
- 3.3 Haven Gateway is composed of the following local authority areas:
- ◆ the eastern half of Babergh District;
 - ◆ the whole of Ipswich and Colchester Boroughs;
 - ◆ five wards within Mid Suffolk District;
 - ◆ the southern part of Suffolk Coastal District; and
 - ◆ the whole of Tendring District.
- 3.4 Ipswich, the county town for Suffolk, is the largest urban area in the sub-region with a population of more than 125,000 within the Borough boundaries and almost 161,000 in the wider urban area. Colchester, in Essex, has around 100,000 residents within its urban area, with around 160,000 living in the wider Borough.
- 3.5 Outside the urban areas, the sub-region is predominantly rural in nature and includes a lengthy coastline, several traditional seaside towns, and two Areas of Outstanding Natural Beauty (AONB).
- 3.6 Traditionally the sub-region has relied heavily upon agriculture and related-industries, and port-related activities for its economic base. However, within our study area, the Ipswich economy has diversified significantly since the early 1970s with various insurance companies locating in the town and BT establishing its research headquarters at Adastral Park on the eastern fringe.
- 3.7 In addition to Ipswich itself, the other key drivers in the study area economy are the Haven Ports from which the sub-region gets its name. The growth in traffic through the ports has been significant in recent years with (almost) a trebling of volumes between 1980 and 2000 (source: DfT Port Statistics). Container traffic accounts for approximately two thirds of the total, with roll-on/roll-off (ro-ro) traffic accounting for around one quarter.

- 3.8 Felixstowe dominates with a throughput of 23m tonnes in 2004 (approximately 75% of the Haven Ports total). Around 84% of this was containerised. It is the largest container port in the UK currently handling more than a third of the UK total.
- 3.9 Within the study area, the Port of Ipswich has a smaller, but still very significant, role. The port lies on the River Orwell around 15km upstream from Felixstowe and in 2004 handled around 3.6m tonnes of which ro-ro cargo and miscellaneous dry-bulk make up around 25% each.

Haven Gateway – Future Context

- 3.10 The sub-region generally, and the study area in particular, are likely to continue to experience further growth in both population and economic activity moving forward into the future. As a result, transport demand pressures are also likely to increase.

The regional economic strategy

- 3.11 The Regional Economic Strategy (RES) for the East of England (2004), “A Shared Vision”, provides the overall framework for improving the Region’s economic performance and the quality of life of those who live and work in the Region.
- 3.12 The overall vision of the RES is for the Region to provide ‘a leading economy, founded on our world-class knowledge base and the creativity and enterprise of our people, in order to improve the quality of life for all who live and work here’. It seeks to do this via a series of eight headline goals, with associated priorities and actions.
- 3.13 The RES also looks at these on a sub-regional basis, including for the Haven Gateway which it notes is of national and regional importance, providing a strategic transport gateway for trade and tourism between the UK, the rest of Europe and elsewhere in the world. The RES identifies the following as areas for development in the Gateway:
- ◆ support the development of higher education provision to serve the Suffolk area and a new further education college in Ipswich;
 - ◆ facilitate the expansion of the ICT cluster at Adastral Park;
 - ◆ deliver sustainable mixed use communities, for example through the Ipswich Area Action Plan and regeneration schemes such as the development of Ipswich Waterfront;
 - ◆ develop the economic potential of major settlements and their rural hinterlands through workspace creation and re-use;
 - ◆ enable the sub-region to capture the economic development opportunities arising from current and future port activity at Felixstowe, Harwich and Ipswich; and
 - ◆ promote stronger intra-regional links to Stansted Airport and along the Cambridge-Ipswich corridor.
- 3.14 The East of England Development Agency (EEDA) are currently undertaking a review of the RES.

The East of England Plan

- 3.15 The Draft East of England Plan (EERA, 2004) promotes opportunities in the Haven Gateway sub-region that include:
- ◆ Recognising the sub-region as a major economic growth point through the concentration of the ports, maritime and related activities;
 - ◆ Building on the diverse economies of Ipswich [and Colchester] in order to reduce economic vulnerability;
 - ◆ Delivering adequate opportunities to develop employment linked to information communications technology, research and training; and
 - ◆ Providing for at least 49,700 net additional jobs in the sub-region in the period 2001 to 2021 including [within our study area] in:
 - Babergh 3,400 jobs;
 - Ipswich 18,000 jobs; and
 - Suffolk Coastal 6,100 jobs.
- 3.16 Significant housing growth for the sub-region of 50,840 net additional dwellings to 2021 is also proposed, including, within our study area:
- ◆ Babergh 2,000 dwellings (including 600 on the edge of Ipswich);
 - ◆ Ipswich 15,400 dwellings;
 - ◆ Mid Suffolk 790 dwellings (on the edge of Ipswich); and
 - ◆ Suffolk Coastal 7,050 dwellings (including 3,320 on the edge of Ipswich).
- 3.17 The Panel Report following the Examination in Public into the Draft Plan broadly endorsed the Plan's proposals and agreed that the sub-region was a coherent one. Within our study area, the Panel proposed that both Ipswich and Felixstowe be designated Strategic Employment Centres and noted the importance of a diverse employment base. Ipswich was also designated as a 'Key Centre for Development and Change' and as a 'Regional Transport Node'.
- 3.18 In terms of housing, the Panel retained an urban focus to the proposals but amended the draft Plan's proposals for the study area as follows¹:
- ◆ Ipswich 20,000 dwellings;
 - ◆ Babergh 5,000 dwellings;
 - ◆ Suffolk Coastal 7,000 dwellings; and
 - ◆ Mid-Suffolk 7,500 dwellings.
- 3.19 Turning to employment, the Panel proposed that the Suffolk part of the Haven Gateway should accommodate net job growth of around 30,000 jobs to 2021 across Ipswich, Suffolk Coastal and Babergh.

¹ Figures for Babergh, Mid Suffolk and Suffolk Coastal exclude provision within the Ipswich Policy Area (IPA) on the edge of Ipswich. Figure for Ipswich includes provision in the IPA on the fringes of Ipswich in Babergh, Suffolk Coastal and Mid Suffolk.

- 3.20 Government published Proposed Changes to the Plan in December 2006. The Proposed Changes continue to endorse Haven Gateway as a coherent sub-area with Ipswich identified as a Regional Centre of strategic importance for retail and other town centre purposes, as well as continued designation as a 'Key Centre for Development and Change' and as a 'Regional Transport Node'.
- 3.21 More widely, Haven Gateway is identified as a 'Regionally Strategic Employment Location' with support given to supporting growth and regeneration at Ipswich (particularly in the ICT sector) and development associated with expansion of the ports.
- 3.22 In terms of housing for the period 2001-2021, the Proposed Changes propose the following numbers of net additional dwellings²:
- ◆ Ipswich Policy Area 20,000 dwellings (with at least 15,400 within Ipswich, and around 4,600 on the fringes of Ipswich in Babergh, Mid Suffolk and Suffolk Coastal Districts);
 - ◆ Babergh 5,000 dwellings;
 - ◆ Suffolk Coastal 7,000 dwellings; and
 - ◆ Mid Suffolk 7,500 dwellings.
- 3.23 It will fall to Local Planning Authorities, through the development of their Local Development Documents (LDDs), to give these proposals greater locational specificity.
- 3.24 Turning to employment, the Proposed Changes continue to support net job growth of around 30,000 jobs to 2021 across Ipswich, Suffolk Coastal and Babergh and look to Local Authorities to consider these targets in reviewing employment land provision through the LDD process.
- 3.25 A common theme running through all iterations of the Plan is support for provision of at least one strategic rail freight interchange within the East of England to serve London and the region, at a location with good access to the strategic rail routes and the strategic highway network. Given the importance of freight movement, and freight-related activity, in the Haven Gateway this is clearly of great relevance to this study.

Growth Point Status

- 3.26 The future growth of the sub-region received a further boost in October 2006 when the Government announced that the Haven Gateway had been successful in its bid to receive Growth Point status. In support of the Haven Gateway's growth ambitions to accommodate 22,850 additional homes between 2006 and 2016, the Government allocated around £5.52m in 2007-08 from the first year's funding pot, subject to detailed negotiation and appraisal, with further potential funding available subject to the outcome of the Comprehensive Spending Review in 2007.

² Figures for Babergh, Mid Suffolk and Suffolk Coastal exclude provision within the Ipswich Policy Area (IPA) on the edge of Ipswich. Figure for Ipswich includes provision in the IPA on the fringes of Ipswich in Babergh, Suffolk Coastal and Mid Suffolk. The Plan proposes that the 4,600 dwellings for the Ipswich fringe be distributed 600 to Babergh, 3,200 to Suffolk Coastal, and 800 to Mid Suffolk.

- 3.27 Future work to be undertaken as a result will include using the findings of a Water Cycle Study to inform decisions on levels and locations of growth; close working with Anglian Water to ensure sufficient investment in water resources to support growth; completing a Green Infrastructure strategy to integrate green infrastructure into new development and mitigate any adverse impacts; assessing and mitigating the impacts of growth on local habitats and enhancing them where possible; and working with the Department for Transport to assess the impacts of growth proposals on the transport network and to develop sustainable transport solutions.

Freight-related growth

- 3.28 During 2005, EEDA commissioned a freight scoping study. The final report was published in 2006. The study provides a good understanding of freight patterns and issues in the Region, and includes forecasts of growth levels over the next 20 years.
- 3.29 Four alternative scenarios were assessed based on different assumptions on port development. Significant growth in the amount of freight (tonnes) lifted in the East of England by 2021 is predicted, ranging from around 9% to more than 12% (source: Table 19, East of England Freight Scoping Study Stage 2 EEDA). The Haven Ports will clearly have an important gateway role for many of these freight movements.

Specific development proposals

- 3.30 In addition to the general growth proposals emerging from the regional planning system, there are numerous specific proposals which could also have significant transport implications for the study area. These include:

Development of Felixstowe South

- 3.31 In February 2006 Hutchison Ports (UK) Limited (HPUK), owner of the Port of Felixstowe, was granted planning permission for the reconfiguration of the southern part of the port. This development will see the conversion of the Port's original Dock Basin, an area previously used by P&O North Sea Ferries, and the existing Landguard area into a new deep-sea container terminal.
- 3.32 The development will include 1,350 metres of quay dredged to 16m alongside, and an approach channel dredged to 14.5m. An additional 13 ship-to-shore gantry cranes will bring the total number in operation at the Port to 38. An all-new North Rail is included in the plans.
- 3.33 It is expected that the first phase of the new terminal will commence operation in 2010 and when fully operational, the Felixstowe South development will create 621 direct jobs, with an additional 860 in associated industries.
- 3.34 As part of the development, there will be improved road and rail connections to the Port. These include a target rail freight mode share of 26% to be achieved through various rail improvements secured through the Section 106 agreement including:

- ◆ Installation of additional sidings in Ipswich Yard to accommodate longer freight trains;
 - ◆ Converting an 8km section of the Felixstowe branch line into a two track railway with alterations to level crossings and underbridges, and provision of new crossovers;
 - ◆ Installation of new signalling to permit reduced headways between trains;
 - ◆ Enhancement to W10 loading gauge of the Ipswich to Peterborough via Ely route;
 - ◆ The enhancement to W10 loading gauge of the East Coast Mainline (ECML) from Peterborough to Doncaster, and onward rail routes from Doncaster to Newark, Leeds, Wakefield, Selby and Doncaster intermodal terminal; and
 - ◆ The provision of an additional signal block on the Bury St Edmunds-Kennett section of the route from Ipswich to Peterborough.
- 3.35 These works will allow high-cube containers to be carried on standard wagons on the cross-country rail route to Peterborough and beyond, and the improvements will allow the total number of trains serving the Port to rise from around 25 per day to fifty. The works are required to be completed by 31 December 2009.
- 3.36 There are also various highway-related improvements and obligations attached to the planning permission. These include:
- ◆ improvements to the A14 on the approaches to Felixstowe at the Dock Spur roundabout;
 - ◆ capacity and safety enhancements to the A14/A12 Copdock interchange, to include full signalisation of the junction, widening of entry slip roads and segregated turning lanes from A12 south to A14 west and from A1214 to A14 east;
 - ◆ development of a Freight Quality Partnership, an overseeing body for implementing sustainable freight measures; and
 - ◆ development of a Freight Traffic Management Plan, to manage down peak demand by use of a freight booking system and more efficient loading processes.

Other development proposals

- 3.37 There are a range of other development proposals currently under preparation, consideration, or development, within the study area that could impact on transport demands. These include:
- ◆ Ipswich Waterfront: encompasses the development of housing, retail, restaurants, offices and community areas in the centre of Ipswich. The development began in 1999. With over £500 million already spent or earmarked for development Ipswich Waterfront is one of the biggest regeneration projects in the East of England.
 - ◆ Ipswich Village: lies adjacent to the town centre and football ground, within easy walking distance of the railway station. It is an urban renaissance project bringing together employment, sport and leisure facilities, people and housing. The development is underway.

- ◆ Snoasis: proposed development at a former quarry and cements works in Great Blakenham. The development is to provide an all year round winter sports complex for up to 700,000 visitors annually, a new railway station and 430 dwellings. Mid Suffolk District Council agreed to the proposal in April 2006 but this is currently subject to a Planning Inquiry. The proposals will impact upon the A14 trunk road, but these will be mitigated by improvements to the Copdock Interchange. These improvements are as identified for the port expansion and will be sufficient to mitigate both proposals. Mitigation measures at Copdock will be provided by whichever development is delivered first.
- ◆ Sugar beet factory site, Sproughton: proposed development is for 1,100 homes and 3.4 hectares of employment land, with ancillary uses (including a site for a primary school) and public open space/wildlife reserve. The site is effectively part of the Ipswich urban area, but falls within the District of Babergh. The proposals are to be considered at a public inquiry during June 2007.
- ◆ Adastral Park: proposed redevelopment of 42 hectare site, including 'Suffolk Innovation Park', to attract a substantial number of new ICT businesses to complement and enable consolidation of BT's own presence on the site.

TRANSPORT PROVISION AND OPERATION – AN OVERVIEW

The A14

Network Description

- 3.38 The A14 is the main east-west route through the study area. It is dual 2-lane standard and is a trunk road of (inter)national importance and forms part of the Trans European Network (TEN). It links Felixstowe in the east to the M1/M6 intersection near Rugby in the west. It has multiple roles including:
- ◆ An international role, connecting the international gateway of Felixstowe to the rest of the UK's strategic road network;
 - ◆ A regional role, linking Ipswich and Suffolk to Cambridge; and
 - ◆ A local role as both an Ipswich southern/western bypass, and as a local distributor road for movements in, to, and around Ipswich.
- 3.39 These multiple roles are very clearly illustrated when output from the Highways Agency's East of England Model is considered. This shows that on the Orwell Bridge, for example, 41% of traffic is 'local' (i.e.: trips within a single district, or between adjacent districts), 48% is 'regional' (i.e.: trips made wholly within the East of England) and 11% is national (all other trips).

Current demand and operation

- 3.40 The A14 carries large traffic flows (around 400,000 vehicles per week on some sections) and has a significant proportion of HGVs (up to 27%). In the study area, single direction peak hour flows vary from around 1,400 vehicles per hour around Trimley (west of Felixstowe) to around 2,500 vehicles per hour on the Orwell Bridge (source: East of England Model, HA, 2005).

3.41 Figure 3.1 shows observed network stress levels for the East of England motorway and trunk road network in 2005 (source: Highways Agency). Although this may underestimate local traffic levels, this shows that the A14 is generally operating within its link capacity in the study area. There are, however, particular problems at certain A14 junctions which can impact upon the operation of the main carriageway. These usually occur where there is queuing on off-slips, or where traffic diverges off the mainline into a single lane on the approach to a diverge which results in the approach lane reaching capacity. Particular locations susceptible to queuing include:

- ◆ the A14/A12 Copdock Interchange; and
- ◆ the White House Interchange (A14/A1156).

Source: HA A14 Congestion Study

Figure 3.1 – Highways Agency’s Network Stress Levels (2005)³



3.42 The Orwell Bridge itself is also susceptible to congestion. Analysis of current ‘stress’ levels on the Bridge suggest that the ratio of the annual average daily traffic flow (AADT) to the congestion reference flow (CRF) is around 0.8. Although high, this is less than 1.0 (the theoretical capacity).

3.43 However, observations suggest that congestion frequently occurs, even though the link does not appear to be (theoretically) stressed. It is likely that this is a consequence of the perception of ‘enclosure’ created by the crash barriers and parapets on the Bridge, causing drivers to slow down.

3.44 When the road is close to capacity, conditions can become turbulent, especially when there is a mix of fast and slow moving vehicles. This is exacerbated by slow moving HGV’s climbing the gradient to crest the bridge and ‘shock wave’ braking by faster vehicles when attempting to overtake in what feels like an enclosed highway environment. There are also small, sub-standard, lay-bys located shortly after the bridge on both sides and use of these can add further turbulence to the traffic flow when the bridge is close to capacity.

³ Source: Highways Agency, East of England Regional Network Report, November 2006

- 3.45 In addition to operational congestion-related issues, incidents on the A14 can also lead to significant disruption, particularly when these occur on the Orwell Bridge section. Accident records show that there are typically 12-14 accidents per year on this section of the road. When accidents result in the closure of the A14, emergency diversion routes are initiated which result in traffic being diverted through the urban area of Ipswich as there are no other satisfactory diversion routes. Closure to high-sided vehicles can also occur during periods of high winds.

Rail provision in the study area

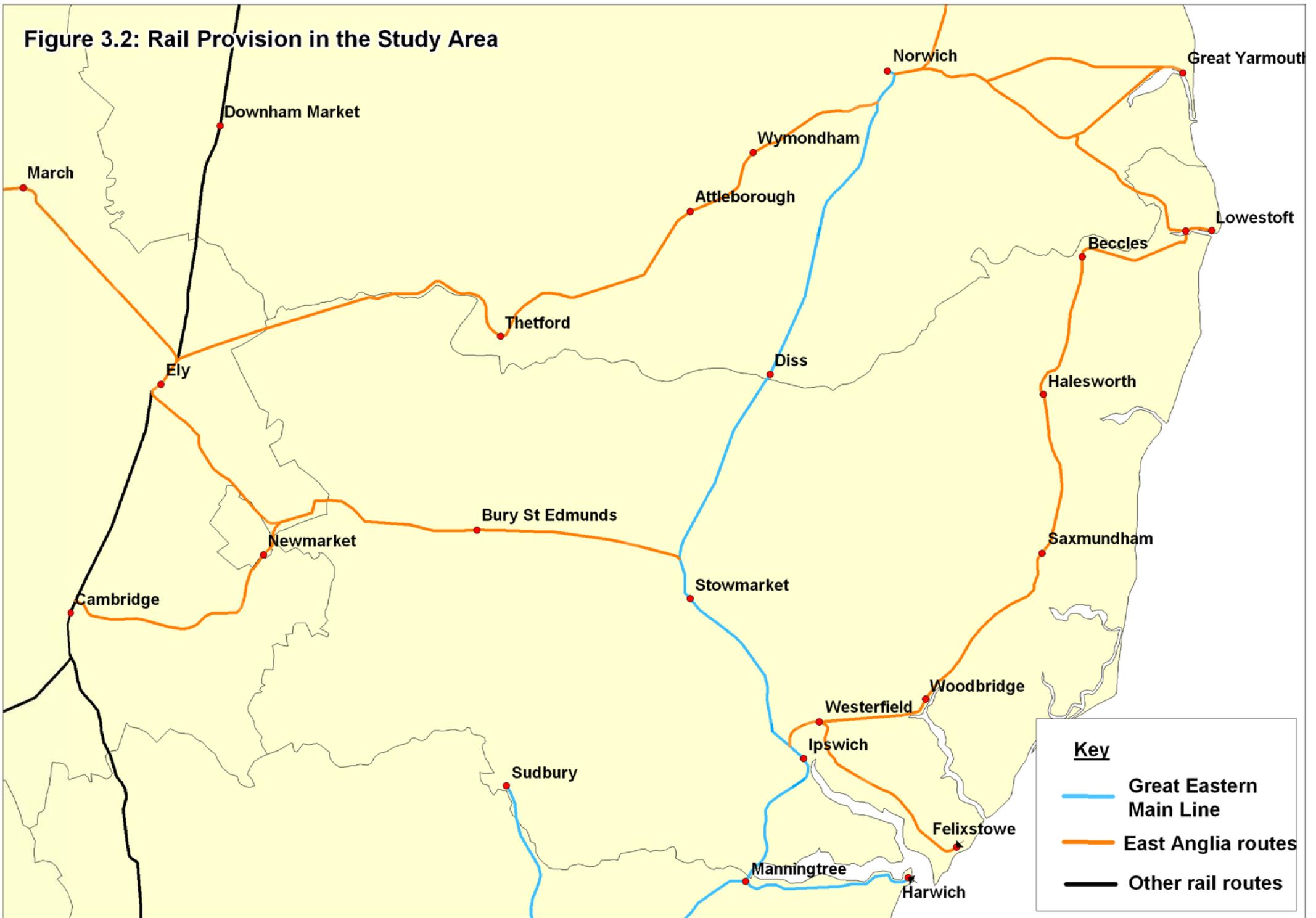
Existing rail infrastructure provision in the study area

- 3.46 The main railway line in the study area runs broadly parallel to the A14. To the north/west of Ipswich as far as Haughley Junction (near Stowmarket) the line forms part of the Great Eastern Main Line (GEML) and has double-track provision, is electrified using overhead power supply, and has modern signalling.
- 3.47 Further afield, the route provides connections to the west to Cambridge via Newmarket. A significant length of this section is single-track only.
- 3.48 The East Suffolk Line diverges from the main line at East Suffolk junction in Ipswich and provides connections to Lowestoft. There is a further diverge at Westerfield Junction from where there is a single-track non-electrified line to Felixstowe. A passing loop is provided on the branch line at Derby Road (around two miles south of the junction).
- 3.49 The Felixstowe branch line is around 12 miles in length. At Trimley a freight-only branch diverges to the sidings at Felixstowe North Terminal. Beyond Trimley the line continues to Felixstowe Town station but with a further branch at Felixstowe Beach junction where there is a further freight-only route into Felixstowe South Terminal.
- 3.50 Although outside our core study area, the Great Eastern Main Line (GEML) is of key importance to its operation providing a key commuter link to London Liverpool Street. GEML is 4-tracked between London and Shenfield, and a twin-track railway beyond Shenfield. Figure 3.2 illustrates the rail provision in the study area.

Rail Freight Issues

- 3.51 Freight access west of Ipswich to the rest of the country is provided either via London or via Peterborough. The 'via London' route involves use of the GEML through Essex to Stratford, and then connects onto the North London Line from where access to other key radials (such as the West Coast Mainline) can be achieved. Work has recently been completed [2004] to gauge clear this route from Felixstowe through to the West Coast Mainline to W10 (high cube 9'6" containers) standard. This included work to Ipswich Tunnel.
- 3.52 The 'via Peterborough' route runs west via Ely and connects with the East Coast Main Line from where movements to Yorkshire, the north-east, and Scotland can be made. West of Peterborough, connections can be made with the Midland Main Line at Leicester and the West Coast Main Line at Nuneaton. The 'via Peterborough' route is not yet gauge-cleared for W10 containers.

Figure 3.2: Rail Provision in the Study Area



- 3.53 However, the planning permission recently granted for development of Felixstowe South requires that the developers gauge-clear this route for W10 containers from Felixstowe as far as Peterborough. The works are required to be completed by the end of December 2009. The western section, from Peterborough to Nuneaton, was the subject of a Transport Innovation Fund (Productivity element) bid to the Department for Transport and in December 2006 received a 'minded to' approve decision. The whole cross-country route from Felixstowe to the West Coast Main Line at Nuneaton could therefore be suitable for W10 containers within the next 5 years.
- 3.54 This would have important implications for passenger services in the study area as freight trains that currently use the 'via London' route would be able to use the gauge cleared cross-country route, thereby releasing paths for passenger trains on the busy Norwich to Liverpool Street (via Ipswich) GEMML line.
- 3.55 The December 2006 TIF announcement also included support for gauge clearance of the Barking to Gospel Oak line in London which, as well as benefiting London Gateway related freight movements, would reduce conflict with freight trains to/from Haven Gateway on the via London route.

Passenger Services

- 3.56 The majority of passenger services in the study are operated by 'one', part of the National Express Group who were awarded the franchise for the period 2004-2011.
- 3.57 There are seven passenger stations in the study area. These are (moving broadly east to west):
- ◆ Felixstowe;
 - ◆ Trimley;
 - ◆ Derby Road;
 - ◆ Westerfield;
 - ◆ Ipswich;
 - ◆ Needham Market;
 - ◆ And, on the East Suffolk Line, at Woodbridge
- 3.58 There are five broad services operating to/from these stations. These services, and their relationship to the stations is summarised in Table 3.1 below.

Table 3.1 – Relationship between rail stations and services in the Study Area

Service	Felixstowe	Trimley	Derby Road	Westfield	Ipswich	N'ham M'ket	Woodbridge
Great Eastern Main Line (Norwich to London via Ipswich)					√		
Cambridge to Ipswich via Newmarket					√	√	
Ipswich to Felixstowe (branch line)	√	√	√	√	√		
Peterborough to London via Bury St Edmunds					√		
Lowestoft to Ipswich on East Suffolk Line				√	√		√

- 3.59 This table clearly demonstrates that Ipswich station acts as the hub of the railway network in the study area with interchange between all services possible.
- 3.60 Table 3.2 summarises the frequencies operated by the various services in the study area.

Table 3.2 – Rail Service Frequencies in the Study Area

Service	Frequency
Great Eastern Main Line (Norwich to London via Ipswich)	2 tph (each direction)
Cambridge to Ipswich via Newmarket	1 tph (each direction)
Ipswich to Felixstowe (branch line)	1 tph (each direction)
Peterborough to London via Bury St Edmunds	1 train every two hours
Lowestoft to Ipswich on East Suffolk Line	1 train every two hours

Ipswich transport provision

Network description

- 3.61 Ipswich is the County Town of Suffolk and with a population of more than 125,000 is a key focus for many transport movements in this part of the East of England. It lies at the intersection of the A14 and A12 which, as well as having important strategic roles, also provide the town with western, southern and eastern bypasses.
- 3.62 Within the bypasses, the former trunk road network (now A1214 and A1156) provides the principal radial routes into the town centre. The A1214 also forms a semi-circular ring road to the north of the town centre. This passes through a largely suburban area and provides important east-west capacity in the town. The town also has an inner ring road which encircles the historic town centre. Figure 3.3 illustrates the main road network in Ipswich.

Figure 3.3: Ipswich Road Network



Based upon the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office. Crown Copyright and may be used in proceedings. © Crown copyright. Unauthorised reproduction prohibited. WS Atkins Licence Number: 1000193312

- 3.63 As well as being at the hub of the road network in this part of the region, the preceding section has also shown that Ipswich is at the hub of the rail network too with both inter-city and local services converging at Ipswich station.
- 3.64 Bus-based public transport in the area is also focussed upon Ipswich. Ipswich Buses and First Group provide the majority of services and these, together with various smaller operators, provide a network of bus routes serving both the town and its hinterland.
- 3.65 Following the establishment of Ipswich's first park and ride at London Road (Copdock Interchange) in 1997, two further sites have since been established at Bury Road on the west side of the town, and at Martlesham on the east side. The sites have been successful with a reported 23% increase in usage over the 12 months to June 2005 (source: Suffolk County Council). The town has extensive complementary bus priority systems to allow improved journey times for both park and ride and conventional bus services. These include a short length of guided busway between Kesgrave and Grange Farm on the Ipswich-Martlesham Route 66 service.
- 3.66 In addition to local bus services, a range of inter-urban bus and coach services are also provided including to Felixstowe, and to more distant destinations such as Stowmarket, Bury St Edmunds and Diss.
- 3.67 The town also has a pedestrian and cycle strategy although there are proposals to review this further as part of the development of the wider Ipswich Transport Strategy. Journeys to work by bike in the town have increased slightly over the past few years, and Kesgrave High School has the highest proportion of children cycling to school in the country (source: Suffolk County Council).

Current demand and operation of the networks

- 3.68 National Census (2001) journey to work data show that around 66,000 people travel to work in Ipswich Borough. Around 39,000 of these also live in the Borough. Around 56% of these journeys are made by car, even though 55% of work journeys are less than 5km in length (source: National Census, 2001).
- 3.69 Although journeys to work in Ipswich are focussed on the town centre (almost half of the total work trips above are made to workplaces in the two central wards) there are a number of employment centres located more peripherally such as the BT research headquarters on the east side of the town at Martlesham.
- 3.70 Traffic flows entering Ipswich have increased by around 10% over the past 5 years although the east-west screenline of counts for movements across the town centre suggests a 7% decline in these traffic movements over the same period. Congestion is, however, a problems on the key radial routes into the town centre and in the town centre itself (source: draft Ipswich Transport Strategy).
- 3.71 Norwich Road, London Road, Wherstead Road, Felixstowe Road and Woodbridge Road all experience morning peak hour travel times which are more than 50% greater than occur during off-peak, uncongested, conditions (source: Suffolk County Council Local Transport Plan 2006-2011).

- 3.72 Bus services in the town tend to follow these radial routes and hence suffer from peak period congestion. However, the significant bus priority measures that have been introduced partially mitigate this. For example, on Norwich Road bus priority measures have led to a reduction in bus journey times of more than one quarter.
- 3.73 In addition to radial route congestion, problems also occur at other locations within the town centre. Of particular note is the Star Lane gyratory system (and connecting links) on the south side of the town centre which, as well as being congested, creates a severance effect between the waterfront and town centre and has poor levels of air quality. As a result, this has now been declared an Air Quality Management Area (AQMA) due particularly to poor levels of nitrous oxides.
- 3.74 Other AQMAs have also now been designated due to poor levels of nitrous oxides at:
- ◆ the junction of Crown Street with Fonnereau Road and St. Margarets Street and St. Margarets Plain (on the northern section of the inner ring road); and
 - ◆ around the junction of Norwich Road, Chevallier Street and Valley Road (on the north western approach to the town centre).

Future Schemes

- 3.75 There are various key proposed transport measures for which there are now varying degrees of commitment to deliver. These cover both the strategic highway network, the rail network, and the Ipswich urban area. Several of these have been discussed in the preceding paragraphs but are repeated here for completeness:
- ◆ capacity and safety enhancements to the A14/A12 Copdock interchange, to include full signalisation of the junction, widening of entry slip roads and segregated turning lanes from A12 south to A14 west and from A1214 to A14 east – these improvements are as identified for the port expansion and for the Snoasis development proposals and will be sufficient to mitigate the impact of both. The measures at Copdock will be provided by whichever development is delivered first.
 - ◆ technology-based proposals for the A14 from its junction with the M1/M6 to the port of Felixstowe including proposals for queue protection, variable message signs, CCTV, and Orwell Bridge diversion planning within the study area – these proposals are now being worked up by the HA following the successful Transport Innovation Fund bid
 - ◆ Gauge-clearance of the Felixstowe to Nuneaton rail route for W10 containers – the section from Felixstowe to Peterborough is to accompany development of the Port of Felixstowe and is scheduled for completion by the end of December 2009. The western section, from Peterborough to Nuneaton, was subject of a successful Innovation Fund bid to DfT and in December 2006 received a ‘minded to’ approve decision.

- ◆ Ipswich Fit for the 21st Century major scheme – this scheme comprising new bus stations, a computerised traffic management system, real time bus information and improvements to make it easier to walk and cycle around Ipswich town centre was submitted with Suffolk County Council’s Local Transport Plan. The scheme has been put forward as a priority for delivery by the Region through the Regional Funding Allocations process and has been included on DfT’s indicative list of schemes for delivery during the period 2009/10 to 2015/16.

PROBLEMS AND ISSUES

Introduction

- 3.76 Through our literature review and discussions with key stakeholders we have identified a range of key transport-related problems and issues. We have sought to disaggregate these into problems and issues related to:
- (i) A14
 - (ii) The rail network
 - (iii) Within, into and around Ipswich
- 3.77 Many of the problems and issues identified are already occurring. However, the significant levels of growth described at the beginning of this chapter and the resulting demand-side pressures will exacerbate these further.
- 3.78 Key problems and issues associated with the three areas identified above are now set out in the following sub-sections. We have also identified source documents or organisations from which these observations have been drawn.

Problems and issues on the A14

- 3.79 Table 3.3 below summarises the key problems and issues associated with the A14 in the study area, together with their source.

Table 3.3 – A14-related Problems and Issues

No.	Problem/Issue	Source
HA1	Capacity limitations on Orwell Bridge	Newmarket to Felixstowe Corridor Study / HA Congestion Study
HA2	Junction capacity limitations at White House interchange (J53)	Newmarket to Felixstowe Corridor Study / HA Congestion Study
HA3	Junction capacity limitations at Sproughton Interchange (J54)	Newmarket to Felixstowe Corridor Study / HA Congestion Study
HA4	Junction capacity limitations at Copdock Interchange (J55)	Newmarket to Felixstowe Corridor Study / HA Congestion Study
HA5	Junction capacity limitations at Seven Hills Interchange (J56)	Newmarket to Felixstowe Corridor Study / HA Congestion Study
HA6	Incidents (accidents, high winds) on Orwell Bridge	Newmarket to Felixstowe Corridor Study / HA Congestion Study
HA7	Impact of A14 diversions through Ipswich	Newmarket to Felixstowe Corridor Study / HA Congestion Study
HA8	Mix of traffic (local/regional/national) and 'junction hopping'	Stakeholder interviews
HA9	Mix of traffic types and speeds (goods and other vehicles) [can cause traffic flow turbulence]	Stakeholder interviews
HA10	Peak demand from ports [results in short-term peaks in traffic flow on the A14]	Stakeholder interviews

3.80 Most of the A14-related problems are related to capacity constraints, either at a link level (e.g.: Orwell Bridge) or at junctions. These constraints can also result in further 'second order' impacts, including the diversion of traffic through Ipswich and the use of inappropriate roads to avoid pinch-points. One example of this includes use of the B1113 through Sproughton on the west side of Ipswich by traffic heading from A14 (W) to A12 (S) to avoid the Copdock Interchange.

Rail-related problems and issues

3.81 Table 3.4 below summarises the key problems and issues associated with rail provision in the study area, together with their source.

Table 3.4 – Key Rail-related Problems and Issues

No.	Problem/Issue	Source
RA1	Lack of gauge clearance on cross-country route to ECML and WCML (note: route to ECML secured via Felixstowe South planning permission, route to WCML subject to P-TIF bid)	Newmarket to Felixstowe Corridor Study / HGP / RPA etc
RA2	Single track sections (on Cambridge route, on East Suffolk Line, and Felixstowe Branch (note: latter to be improved following planning permission for Felixstowe South))	Newmarket to Felixstowe Corridor Study / HGP / RPA etc
RA3	Various signalling and speed constraints (on Cambridge route)	Newmarket to Felixstowe Corridor Study / HGP / RPA etc
RA4	Low frequency and (relatively) slow journey times on non-GEML routes	Regional Planning Assessment for the Railway (RPA)
RA5	Unattractive rolling stock on some services	RPA/stakeholder interview
RA6	Long distance car journeys to more remote stations to avoid congestion or access better parking provision (e.g.: anecdotal use of Manningtree as rail head)	Stakeholder interview
RA7	Constraints to west of Ipswich station for turning freight trains (goods yard versus potential for new chord?)	Stakeholder interview
RA8	Limited peak capacity on GEML towards London could restrict future commuter passenger growth ⁴	RPA/stakeholder interview

- 3.82 The current lack of a W10 gauge-cleared cross-country route is a key issue for the study area. In addition to the direct implications this has for freight movements, this also has knock-on impacts on the operation of the Great Eastern Main Line for passenger services to and from London as freight trains currently using the 'via London' route to access the UK's main north-south radial rail routes.
- 3.83 However, there are also limitations on both the Cambridge and East Suffolk lines that impact upon train frequencies and travel times. These restrict the ability of rail to compete with the A14, and hence to support the aspirations of the Regional Economic Strategy and emerging East of England Plan to promote the linkages between Cambridge and this study area.
- 3.84 In addition to the 'direct' rail issues identified above, there are several level crossings in the study area. Barrier down times can result in severance effects and delays to highway users. With increased use of the rail network, these problems are likely to be exacerbated.

⁴ Numerous problems, issues and options for further development of the Great Eastern Mainline have been identified in DfT's Eastern Regional Planning Assessment for the Railway (2006). It is considered beyond the scope of this study to consider these further as they are unlikely to have a significant impact on 'movements to, in and around Ipswich' as required in the study brief. However, the GEML is, nonetheless, a vitally important transport link for the study area more generally.

Ipswich-related problems and issues

- 3.85 Table 3.5 below summarises the key problems and issues associated with the Ipswich networks, together with their source.

Table 3.5 – Ipswich-related Problems and Issues

No.	Problem/Issue	Source
IP1	Traffic congestion on key radial routes	SCC LTP2
IP2	Town centre traffic congestion	SCC LTP2
IP3	Limited east-west transport capacity in Ipswich	SCC LTP2 and stakeholder interview
IP4	Bus movements hindered by general traffic congestion	SCC LTP2
IP5	Poor air quality and existence of AQMAs	SCC LTP2
IP6	Severance effects of highways (including Star Lane gyratory)	SCC LTP2
IP7	Incomplete cycle network provision	SCC draft transport strategy and stakeholder interview
IP8	High levels of car use for journey to work despite short average trip lengths	SCC draft transport strategy
IP9	High levels of long stay car parking capacity in town centre	SCC draft transport strategy

- 3.86 Many of the transport problems in Ipswich are related simply to the relative imbalance between the demand and supply for roadspace with east-west movements through the town being particularly constrained due to the limited number of river crossings. The issue of east-west demand and capacity results in some complex interactions between the A14 Orwell Bridge and the town's road network which means that, although they have been discussed separately here for ease of presentation, the A14 and Ipswich are inextricably linked and the two cannot really be considered in isolation.

SUMMARY

- 3.87 Economic growth and regeneration aspirations in the Regional Economic Strategy, the emerging East of England Plan, and the Haven Gateway's Growth Point Status, are likely to lead to further development of the study area's already buoyant local economy.
- 3.88 Various transport-related problems and issues associated with both the strategic road and rail networks, and local transport provision, have been identified. These are likely to be exacerbated through time as a result of this further growth and the associated increased demand for movement.

- 3.89 This will undoubtedly require interventions to address both transport demand and supply so that the two can be brought into equilibrium to provide a balanced level of service in the study area in the future. Identifying what these measures might be, and the additional work required to develop these further, is the subject of the next chapter.

4. Identifying Options

- 4.1 The problems and issues document review served as an initial source of information for identifying options to be included in the study, which were then supplemented by discussions with transport/planning authorities (those on the Steering Group and wider Partnership Group). Further measures were added by the consultant's team where appropriate.
- 4.2 The aim of the optioneering exercise was to develop a 'long-list' of potential measures which would be assessed both in terms of their performance against the study objectives and their ability to ameliorate the base line problems which the study is seeking to address. As part of the appraisal process, measures on the long-list were scored using the COAST (Core Objective Appraisal Summary Table) framework (see Chapter 5).
- 4.3 Wherever possible, the optioneering exercise has sought to draw upon work already undertaken and thus reference has been made to a range of sources. The majority of measures have been identified through a combination of desk-based research, i.e. a review of published planning and development documents, to identify those measures that have already been proposed. Table 4.1 outlines all of the documents that were reviewed in this process.

Table 4.1 – Reviewed Documents

Document Title	Date	Details
A Shared Vision: The Regional Economic Strategy for the East of England	November 2004	EEDA
A1/M1/M11 Resilience Productivity TIF Scheme, Business Case, Volume 1	September 2006	Prepared by Atkins for the HA
A14 Newmarket to Orwell Bridge Congestion Study (draft)	February 2007	Produced by Atkins for HA
Babergh District Council Local Plan	May 2003	Draft
East of England Plan Consultation: Operational Assessment of Strategic Highway Network	May 2005	Produced by the HA
Felixstowe South Terminal Inspector's Report	April 2005	Produced by The Planning Inspectorate
Haven Gateway New Growth Point Submission		Haven Gateway Partnership
Ipswich Local Plan	1997	Ipswich Borough Council
Ipswich Transport Strategy	May 2006	Draft for discussion
Ipswich Transport Strategy Monitoring of Traffic 2003/2004; Report on Traffic Volume and Behaviour	30 September 2004	Ipswich Borough Council
Local Development Scheme for Babergh	February 2005	Produced by Babergh District Council, South Suffolk
Mid Suffolk District Council Local Development Scheme	May 2005	Mid Suffolk District Council (DC)
Mid Suffolk District Council Local Plan	1998	Mid Suffolk DC
Newmarket to Felixstowe Corridor Study	August 2005	Produced by EEDA and EERA
Regional Planning Assessment for the Railway (EASTERN)	February 2006	Department for Transport
Regional Cities East (factsheets)	Various	EEDA, GO-East and member authorities
Strategic Residential & Infrastructure Study: Final Report	November 2005	Roger Tym & Partners
Suffolk Coastal District Council Local Plan	Up to 2006	Suffolk Coastal District Council
Suffolk Coastal District Council Local Scoping	June 2006	Suffolk Coastal District Council
Suffolk County Council Local Transport Plan 2006-2011	2006-2011	Suffolk County Council
Suffolk Structure Plan 2001	2001	Suffolk County Council
Suffolk Monitoring Report for 2004	October 2005	Suffolk County Council
Supplementary Information for A14 Technology Proposals Volume 1	September 2006	Technology Schemes Review

- 4.4 Many of the potential measures were referenced in multiple planning and development documents. The desk-based review allowed us to develop a breadth of information about the measures in order to understand the different ways in which they have previously been presented. Supporting this, discussions with each of the local authorities within the study area, as well as the Highways Agency, proved invaluable in providing local context and a better understanding of the background to the measures.
- 4.5 Whilst the optioneering exercise focussed on measures within the geographic boundaries of the study area, consideration was also given to measures which, though physically outside the area, could potentially have a large impact within it.

LONG-LIST

- 4.6 In order to be able to carry out the appraisal using the COAST framework it was important to ensure that each measure was assessed only once. Therefore care was taken to ensure that each entry on the long-list was discrete and that, where possible, an accurate description of the measure was reflected. However, it is important to note that many of the measures have yet to be developed beyond notional proposals or outline design, and that this is consistent with their status within the planning and development documents.
- 4.7 One of the fundamental aims of the study is to identify measures which, at this preliminary appraisal stage, perform strongly against the study objectives and which therefore merit further investigation and could be taken forward as the subject of more detailed appraisal. In order to assess measures which currently exist as outline proposals, and thus to define them sufficiently for the purposes of the COAST appraisal, it was sometimes necessary to make assumptions about the form of the measure, the way in which it might function, or the outcome it would be designed to achieve. Where assumptions have been made, such that they may influence the outcome of the appraisal process, these are clearly stated.
- 4.8 The measures identified cover the full range of modes and address both passenger and freight issues. Each measure has been defined according to primary mode.
- 4.9 Table 4.2 sets out all of the measures identified for consideration under the COAST process.

Table 4.2 – Measures Identified

Ref	Intervention	Description	Assumptions	Source
HGV Interventions				
IH1	HGV Management plan and parking strategy	Including port booking, FOPs		SCC LTP 2006-11; Newmarket to Felixstowe Corridor Study
IH3	Additional lorry parks - west of the Orwell Bridge			Newmarket to Felixstowe Corridor Study
IH4	Additional lorry parks - Clickett Hill (Felixstowe)			Suffolk Coastal District Council Local Plan
Pedestrian / Cycle Interventions				
IPC1	LTP Pedestrian improvement schemes			SCC LTP 2006-11
IPC1b	LTP Cycle improvement schemes			SCC LTP 2006-11
IPC2	Improve public rights of way - surrounding catchments to town centres			Ipswich Transport Strategy; SCC LTP 2006-11
IPC3	Ipswich cycling strategy	Comprehensive cycle network within and around the town centre		Ipswich Transport Strategy
IPC4	Development of strategic cycle route network			Suffolk Coastal District Council Local Plan
Bus / Park & Ride Interventions				
IPT1	Ipswich - Transport fit for the 21st Century	Package of measures submitted as LTP major scheme bid	Assumed outcome - increased attractiveness of pt, walk and cycle based on combined impacts	SCC LTP 2006-11; Ipswich Transport Strategy
IPT3	Quality Bus Partnerships	Route based improvements for services into Ipswich	Assumed outcome - overall improvement in quality and reliability of bus services	SCC LTP 2006-11
IPT4	Bus and rail station improvements	Various improvements for bus and rail passengers including information, facilities, and		SCC LTP 2006-11; Suffolk Coastal District Council Local Plan; Newmarket to Felixstowe Corridor Study

Ref	Intervention	Description	Assumptions	Source
		integration		
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor		Primary market - Felixstowe peninsular. Ability to serve development in Nacton area. Land allocated at Airport Farm, Nacton Road. Site could accommodate up to 900 spaces	Ipswich Transport Strategy; Suffolk Structure Plan 2001; Newmarket to Felixstowe Corridor Study; Ipswich Local Plan; Suffolk Structure Plan 2001
IPT6	Park & Ride - improved site - Copdock	Expansion of existing site	Potential to attract greater patronage given location at A12/A14. Scores less against development criteria. No sites immediately adjacent.	Ipswich Transport Strategy; /Babergh Local Plan; Newmarket to Felixstowe Corridor Study
IPT7	Regional coach services	Improved inter-urban coach network		Ipswich Transport Strategy; Newmarket to Felixstowe Corridor Study; RPA
IPT8	Bus/cycle lane across Rushmere Common			Strategic Residential & Infrastructure Study
IPT11	Improved public transport around village hubs		Assumed outcome - improved public transport connections to Ipswich	Newmarket to Felixstowe Corridor Study
IPT17	Bus priority measures	Route based improvements for services into Ipswich	Assumed outcome - overall improvement in reliability of bus services	Ipswich Transport Strategy
IPT18	Integrated, flexible ticketing system for bus services		Assumed outcome - ability to interchange freely between operators/networks	Ipswich Transport Strategy
IPT19	High quality public transport links to Stansted and London	Coach based connections		Haven Gateway New Growth Point Submission; RPA
IPT21	Park & Ride - new site - Wherstead Corridor		Mixed market - potential to serve many markets - but must negotiate Copdock/Orwell Bridge problems. Ability to serve employment development at Wherstead	Babergh Local Plan; Ipswich Transport Strategy; Suffolk Structure Plan 2001; Newmarket to Felixstowe Corridor Study

Ref	Intervention	Description	Assumptions	Source
IPT100	Additional shuttle buses between key attractors in Ipswich town centre	Provision of further free services		Stakeholder consultation
IPT101	Ipswich - Felixstowe bus service	Enhanced service in this corridor	Assumed outcome - increased PT mode share	Stakeholder consultation
Highway Interventions				
IR4	A14 diversion planning		Assumed outcome - reliable alternative for A14 without detrimental impact on Ipswich town centre	SCC LTP 2006-11
IR5	General traffic management schemes to improve traffic flow		Assumed outcome - congestion relief in Ipswich town centre	SCC LTP 2006-11; Newmarket to Felixstowe Corridor Study
IR10	A14 ITS Scheme	A14 Jn 52-58 (Ipswich) - Combination of queue protection, VMS and CCTV technology improvements	Assumed outcome - Reduction in personal injury accidents and delay associated with incidents	Supplementary Information for A14 Technology Proposals Vol.1
IR11	Reduction in long-stay parking provision in Ipswich/better enforcement			Ipswich Transport Strategy
IR12	Demand management measures	Measures to manage demand on key radials. Capacity reduction for private car movements coupled with bus priority enhancements.		Ipswich Transport Strategy
IR14	New Cut Bridge	A bridge to the island across New Cut (Ipswich Central)	Would only be delivered in conjunction with development	Strategic Residential & Infrastructure Study
IR15	Wet Dock Crossing	A new road bridge crossing over the Wet Dock and the New Cut of the River Orwell, linking the east and west banks of the river		Strategic Residential & Infrastructure Study; Ipswich Local Plan
IR19	Copdock interchange - traffic management	Traffic management	Assumed outcome - deliver capacity	Strategic Residential &

Ref	Intervention	Description	Assumptions	Source
	measures	scheme - without major physical improvements	improvements/reliability benefits	Infrastructure Study; Newmarket to Felixstowe Corridor Study; Haven Gateway New Growth Point Submission
IR23	Additional car park provision Ipswich Town Centre			Ipswich Local Plan
IR25	West Bank Link Road (WBLR)	A combination of new and existing lengths of road to serve the port facilities on the west bank from the A14 via the A137 Wherstead Road	Replacement of existing alignment. freight based scheme, not providing additional capacity for car trips.	Ipswich Local Plan
IR26	East Bank Link Road (EBLR)	A new link road running from a new grade-separated junction at the A14 just to the east of the Orwell Bridge, to the east bank port facilities, providing a direct link from the port to the A14 and avoiding residential areas	Would only be delivered in conjunction with freight based development	Ipswich Local Plan; Strategic Residential & Infrastructure Study; Suffolk Structure Plan 2001
IR28	Road pricing in Ipswich	Charge covering whole of Ipswich urban area inside A14/A12. Cordon/Area based charge		Newmarket to Felixstowe Corridor Study
IR29	Orwell Bridge tolling			Newmarket to Felixstowe Corridor Study
IR30	High Occupancy vehicle lanes into Ipswich			Newmarket to Felixstowe Corridor Study
IR31	Improve public rights of way - where network meets A14			Ipswich Transport Strategy; SCC LTP 2006-11; Newmarket to Felixstowe
IR32	Lorry Lanes on A14	Additional lane	Capacity provided between	Newmarket to

Ref	Intervention	Description	Assumptions	Source
		capacity for HGVs	A12 (N) and Claydon (B1113)	Felixstowe Corridor Study
IR33	Variable Speed Limits on A14	Variable speed limits	Assumed outcome - improved traffic flow and journey reliability	Newmarket to Felixstowe Corridor Study
IR34	Access control	Ramp-metering on all entry slips in study area	Assumed outcome - improved traffic flow and journey reliability	Newmarket to Felixstowe Corridor Study
IR35	Incident management	Incident management plans/traffic officers	Assumed outcome - improved traffic flow and journey reliability	Newmarket to Felixstowe Corridor Study
IR37	Lorry overtaking bans	Lorries restricted to lane 1 between Claydon and A12 (N)	Assumed outcome - improved traffic flow and journey reliability	Newmarket to Felixstowe Corridor Study
IR39	Orwell Bridge Management Measures		Assumed outcome - increased capacity and improved reliability	Newmarket to Felixstowe Corridor Study; Strategic Residential & Infrastructure Study
IR41	Widen Orwell Bridge			Newmarket to Felixstowe Corridor Study
IR42	Ipswich Northern Bypass - local	connection from A14 west to A12 east	Functioning as local distributor with multiple access points	Suffolk Development Agency
IR100	Copdock interchange - longer term improvements	Major physical infrastructure improvements		Stakeholder Consultation
IR101	Signalisation of A14 junctions	Junctions linked to SCOOT or similar technology		Stakeholder Consultation
IR103	Driver Information System	Technology based driver information system (driving/road conditions, car park availability etc)		Stakeholder Consultation
IR104	A14 Junction Closures	Controlled junction closures at peak times	Assumed outcome - regulated and improved traffic flow and journey reliability	Stakeholder Consultation
IR105	Vehicular Ferry - Harwich/Shotley/Felixstowe	Ability to carry both freight and passenger traffic		Stakeholder consultation

Ref	Intervention	Description	Assumptions	Source
IR106	New Orwell Bridge	Second Orwell crossing - providing additional capacity		Stakeholder consultation
IR107	Orwell Tunnel	providing additional capacity		Stakeholder consultation
IR108	Provide additional lane capacity on A14	Widen to dual-3 standard		Stakeholder consultation
IR109	Noise reduction measures on A14	Measures to reduce noise impact e.g. low noise surfacing, bunds and barriers		Stakeholder consultation
IR110	Sproughton Traffic Management measures	Measures to reduce the impact of rat-running traffic in Sproughton		Stakeholder consultation
IR113	Improve A12 (N) to dual-2 Ipswich-Lowestoft			Stakeholder consultation
IR114	Localised capacity improvements to A14 junctions	Physical capacity enhancements		Stakeholder consultation
IR115	New dual-carriageway Stowmarket to Felixstowe	off-line capacity provision		Stakeholder consultation
IR116	Ipswich Northern Bypass - strategic	connection from A14 west to A12 east	Functioning as strategic routes with no access points. Would need to include enhancement of A12	Suffolk Development Agency
Rail Interventions				
IRa1	East Suffolk Line improvements - capacity, frequency and speed			SCC LTP 2006-11; Suffolk Structure Plan 2001; Suffolk Coastal District Council Local Plan; RPA
IRa3	Peterborough - Nuneaton upgrade		Would only benefit study area if Felixstowe - Peterborough scheme in place	SCC LTP 2006-11; Strategic Residential & Infrastructure Study; Suffolk Coastal District Council Local Plan; Suffolk Structure Plan 2001; Haven Gateway New

Ref	Intervention	Description	Assumptions	Source
				Growth Point Submission; Newmarket to Felixstowe Corridor Study
IRa8	New station/Improvements to Westerfield - Ipswich Northern Fringe		Only in conjunction with development in Ipswich Northern Fringe. Unable to distinguish between improved Westerfield station and new station (both with development) at this level of appraisal	Ipswich Local Plan
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements		Additional capacity provided either through extra services or longer trains, speed improvements, and higher quality rolling stock	Newmarket to Felixstowe Corridor Study; Suffolk Coastal District Council Local Plan
IRa12	New station - Snoasis			Newmarket to Felixstowe Corridor Study
IRa14	Ipswich north freight chord			Suffolk Structure Plan 2001; Strategic Residential & Infrastructure Study
IRa18	New stations - Ipswich-Cambridge route	New station at Moreton Hall	Stopping existing services	Ipswich Transport Strategy
IRa23	Rolling stock quality improvements by deploying cascaded rolling stock		General improvements across the East of England Regional Routes	RPA
IRa100	Westerfield - Claydon Rail link	New rail chord between Westerfield and Claydon to provide direct link between East Suffolk branch and Cambridge/Norwich line		Stakeholder consultation
IRa101	New station at Claydon	Park and ride station, also serving Claydon. Would provide access to Ipswich and London		Stakeholder consultation

Ref	Intervention	Description	Assumptions	Source
IRa102	New station at Wherstead	Park and ride station, also serving Wherstead. Would provide access to Ipswich and London	Stopping existing services	Stakeholder consultation
IRa103	New bus/rail interchange at Nacton	Provision for bus and rail facilities (new station)	Stopping existing services	Stakeholder consultation
IRa104	Freight trains to carry lorries	Drive on - drive off lorries on trains		Stakeholder consultation
IRa105	Passenger carriage on freight trains	Additional passenger carriage on freight services between Ipswich and Cambridge		Stakeholder consultation
IRa106	New station at Martlesham	Park and ride station, also serving Martlesham. Would provide access to Ipswich and London	Stopping existing services	Stakeholder consultation
IRa107	Removal of level crossings	Throughout the study area. Provide grade separated alternatives.	Remove barrier downtime and disruption to highway users	Stakeholder consultation
Smarter Choices Interventions / Demand Management Measures				
IS2/IS1/IR17	"Smarter Choices" Plan			SCC LTP 2006-11; Newmarket to Felixstowe Corridor Study; Ipswich Transport Strategy; Strategic Residential & Infrastructure Study
IS3/IS1/IR17	Personalised travel planning			SCC LTP 2006-11; Newmarket to Felixstowe Corridor Study; Ipswich Transport Strategy; Strategic Residential & Infrastructure

Ref	Intervention	Description	Assumptions	Source
				Study
IS4	Measures to support non-car modes (Ipswich North development area)		Assumed outcome - improved access by sustainable modes to growth option area. Would only be delivered in conjunction with development.	Strategic Residential & Infrastructure Study
IS6/IS1/IR17	School Travel Plans			SCC LTP 2006-11; Newmarket to Felixstowe Corridor Study; Ipswich Transport Strategy; Strategic Residential & Infrastructure Study
IS7	A foot ferry between Harwich, Shotley and Felixstowe to improve synergy between the ports; Retention of local foot ferry services			Strategic Residential & Infrastructure Study; Suffolk Coastal District Council Local Plan
IS100	Information points at service areas	Real time driver information on conditions on trunk road network and access to adjacent urban areas		Stakeholder Consultation
IS101	Superstore parking policies	Initiatives to encourage sustainable travel or access by car at non-peak times	Assumed outcome - reduced car trips to large trip attractors.	Stakeholder Consultation
IS102	Business Park management			Stakeholder Consultation

5. Objectives and Appraisal Methodology

REVIEW OF OBJECTIVES

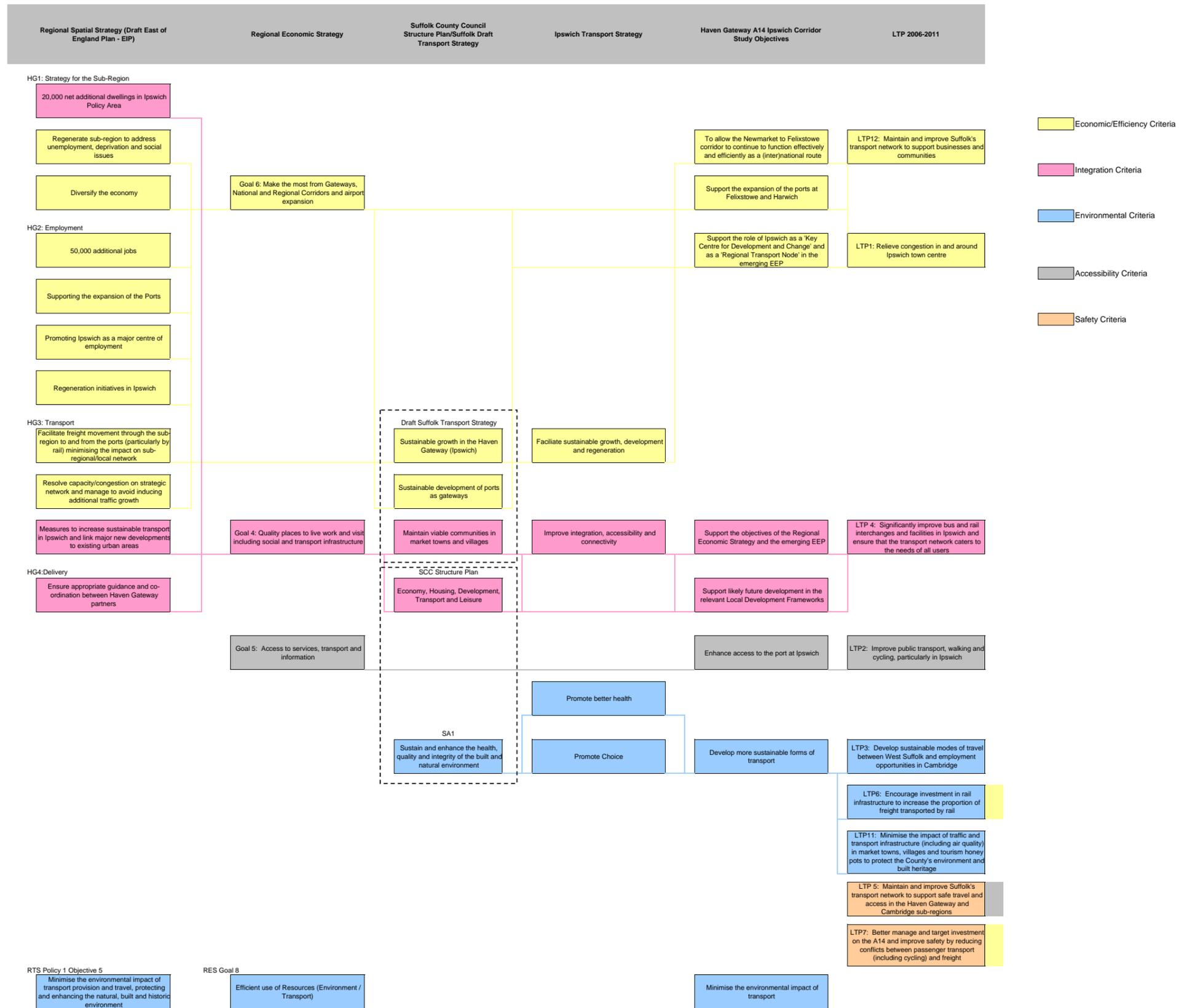
- 5.1 The seven study objectives specified in the brief were reviewed in order to assess the suitability of each objective as a measure of the performance of the different options, and their ability to contribute to the delivery of the overall study aims.
- 5.2 In reviewing the study objectives it was also important to establish how they might 'nest' within and demonstrate a contribution to the delivery of wider objectives influencing transport policy and provision across the study area. In this way, consideration was given to those regional policy documents which have a direct influence on the structure of local transport policy: the Regional Spatial Strategy (Draft East of England Plan, DEEP) and the Regional Economic Strategy (A Shared Vision: The Regional Economic Strategy for the East of England).
- 5.3 Similarly, consideration was given to the local policy framework for transport in the study area. Although it is acknowledged that local authorities are in the process of developing their local development documents, and have produced their Local Development Schemes, the Suffolk Structure Plan (2001) continues to set the context as the relevant county-wide statutory planning document. At a county level, the Structure Plan is supported by the second Local Transport Plan (LTP), which contains a draft Transport Strategy for Suffolk. Therefore reference was also made to Structure Plan and LTP objectives.
- 5.4 Although it is not a statutory document, Suffolk County Council and Ipswich Borough Council are currently developing a draft transport strategy for Ipswich. The strategy is being developed within the framework provided by the DEEP, the Suffolk Transport Strategy and the Ipswich Local plan. It is intended to provide a long-term transport planning framework for Ipswich and to provide a focus for investment in both the short and medium term.
- 5.5 The draft Ipswich Transport Strategy contains four key aims and a series of thirteen objectives. These are being developed within the context of the draft Suffolk transport strategy objectives relating directly to Ipswich. In order to reflect the importance of such a strategy and its role in the future development of transport within Ipswich, the current study objectives were also reviewed in the context of the four draft strategy aims.
- 5.6 Figure 5.1 illustrates the way in which the study objectives nest within the transport related aims and objectives of each of the wider local and regional planning documents. The same process can also be used to 'map' the study objectives back to the central government objectives used in the appraisal of transport proposals, namely those relating to environment, safety, accessibility, economy and integration. Relationships with the central government objectives are illustrated through the use of colour coding, tracing each of the themes through the objective hierarchy.

- 5.7 The review of the study objectives revealed both an emphasis on economic criteria and, in the context of the wider government objectives, a perceived gap in terms of criteria relating to safety and the environment. Following discussion with the Steering Group, it was agreed that for the purposes of the current appraisal an additional safety objective would not be added. Instead it was assumed that consideration of safety issues would be fully addressed at a later stage in the scheme design process and that none of the measures would be progressed without due regard for relevant guidance.
- 5.8 However, because some of the proposed measures could have significant environmental impacts which may rule out the need for further appraisal, it was agreed that a specific environment related objective should be included within the study objectives. Thus Figure 5.1 shows an eighth study objective, in addition to those described in paragraph 1.10 of this report, to 'minimise the environmental impacts of transport'. A change was also made to Objective 3 which was revised to reflect potential expansion at Ipswich Port.
- 5.9 Figure 5.1 also shows key relationships between the original study objectives and relevant LTP objectives. However, as the short-term delivery framework, and the means of monitoring performance against mandatory indicators, the LTP objectives cut across all elements of transport delivery. Table 5.1 shows how all of the study objectives are supported by multiple LTP objectives.

Table 5.1 – Initial Study Objectives and their relevant LTP Objectives

Haven Gateway Study Objective	Relevant LTP Objectives
To allow the Newmarket to Felixstowe Corridor to continue to function effectively and efficiently as a (inter)national route	3, 5, 7, 12
Support the expansion of the ports at Felixstowe and Harwich	12
Enhance access to the port at Ipswich	1, 6, 7
Support the objectives of the Regional Economic Strategy and Emerging EEP	-
Support likely future development in the relevant Local Development Frameworks	1, 2, 4, 12
Support the role of Ipswich as a 'key centre for development and change' as a 'regional transport node' in the emerging EEP	1, 2, 4, 5, 6, 7, 12
Develop more sustainable forms of transport	2, 3, 4, 6

Figure 5.1: Relationship between Study Objectives and Wider Policy Framework for Transport in the Study Area



APPRAISAL METHODOLOGY AND FRAMEWORK

- 5.10 In order to be able to assess the performance of a diverse range of potential measures, e.g. infrastructure schemes, pricing mechanisms and regulatory controls, it was necessary to develop an appraisal framework that would enable this in a consistent and transparent manner. Thus a process has been devised which allows each measure to be scored against the study objectives using a series of indicators to reflect their performance. This is referred to as the COAST (Core Objective Appraisal Summary Table) process.
- 5.11 In order to test the objectives and indicators, and to validate the COAST process, a workshop session was held with the Steering Group. This was used to demonstrate the way in which the scoring process works, and to build an understanding about some of the assumptions that would need to be made for the purposes of the appraisal.
- 5.12 The identification of assumptions relating to the fundamental performance of different types of measures was necessary to ensure consistency and transparency in the scoring process. Following on from discussions at the workshop and a subsequent session with the wider Partnership group, a series of assumptions (set out below) were established to guide the scoring process:

General

- ◆ All interventions considered in isolation unless defined as a package;
- ◆ Links to complementary measures noted;
- ◆ Mutually exclusive interventions noted; and
- ◆ All measures scored against current base position unless directly linked to provision of specific development site.

Highway – new infrastructure

- ◆ Will give rise to increased car trips and associated environmental disbenefits;
- ◆ Not assumed to relieve adjacent routes or deliver ‘secondary impacts’ unless this is a specific aim of the scheme; and
- ◆ Will give rise to reduction in walk, cycle and public transport trips.

Bus service enhancements

- ◆ Will give rise to minor increases in public transport trips; and
- ◆ Will give rise to minor reductions in car and associated environmental benefits.

Bus priority measures

- ◆ Will give rise to minor increases in public transport trips; and
- ◆ Will give rise to minor reductions in car and associated environmental benefits.

Bus packages (Priority/service enhancements)

- ◆ Will increase public transport trips; and
- ◆ Will give rise to reductions in car trips.

Rail service enhancements

- ◆ Will increase public transport patronage; and
- ◆ Will give rise to reductions in car trips and associated environmental benefits.

Park and Ride

- ◆ Will give rise to minor reductions in car trips in city centre/radials and associated environmental benefits;
- ◆ Will give rise to increases in public transport trips; and
- ◆ Will give rise to minor increases in walk and cycle trips at origin end (e.g. walk and ride/cycle and ride).

Measures to manage demand

- ◆ Will reduce car trips;
- ◆ Will increase public transport patronage;
- ◆ Will increase non-motorised mode share; and
- ◆ May result in trip redistribution.

Indicators

- 5.13 Table 5.2 illustrates the indicators which have been identified for use in the appraisal process. Reflecting the nature of the high-level scoping study being undertaken, the chosen indicators can primarily be assessed on a qualitative basis, supplemented with quantitative information where this is available and would inform the process.

Table 5.2 – Indicators used in the Appraisal Process

Haven Gateway Study Objective	Indicator
1. To allow the Newmarket to Felixstowe Corridor to continue to function effectively and efficiently as a (inter)national route	Increased capacity in the A14 Corridor
	Improved reliability in the A14 Corridor
	Reduction in traffic congestion on the A14 Corridor
	Reduction in non-strategic trips on the A14
2. Support the expansion of the ports at Felixstowe and Harwich	Increased capacity for freight to/from ports
	Improved reliability (journey time) for freight to / from ports
3. Support the role of Ipswich as a 'key centre for development and change' as a 'regional transport node' in the emerging EEP	Reduction in peak period traffic flows to Ipswich Town Centre
	Improved connections to the strategic network
	Improvement to interchange facilities (quality and quantity)
	Reduction in traffic congestion
	Improved public transport punctuality
	Increased public transport patronage
4. Support the objectives of the Regional Economic Strategy and emerging EEP	Assist with economic regeneration
	Assist with economic growth
5. Support likely future development in the relevant Local Development Frameworks	Houses enabled by completion of transport improvements
	Increased no. of jobs enabled by completion of transport improvements
	Improved access to development areas by sustainable modes
6. Support the expansion of the port at Ipswich	Increased capacity for freight to/from ports
	Improved reliability (journey time) for freight to/from ports
	Improved links from ports to strategic networks
7. Develop more sustainable forms of transport	Increased number of walking trips
	Increased number of cycling trips
	Increased number of public transport trips
	Reduction in area wide road traffic mileage
	Increased percentage of people travelling to work by sustainable means
	Reduction in the proportion of freight carried by lorry
8. Reduce the impact of transport on the environment	Impact on local air quality
	Impact on traffic noise
	Impact on greenhouse gases
	Impact on the built environment

- 5.14 With the exception of the objectives relating to access to the ports, different indicators have been used for each objective. Care has been taken to remove the possibility for 'double-counting' which would result in impacts being measured more than once against different objectives. Where there are common indicators shown against objectives 2 and 6, these reflect the spatial nature of the objectives themselves, and scoring is carried out only in the context of the ports in question.

Scoring

- 5.15 For the purposes of scoring each measure against the indicators, a seven point scale was identified. This scale reflects that used in Department for Transport appraisals of transport schemes and ranges from -3 (representing a large adverse impact) through zero (a neutral impact) to +3 (a large beneficial impact).
- 5.16 As the number of indicators against each objective varies, the scores have been 'normalised' so that the maximum score achievable against each objective is only one eighth of the overall total.
- 5.17 For example, for an objective with 3 indicators the maximum score would be 9 (3 x +3 large beneficial). The total 'raw' score for that objective is then divided by 9 to give a score out of 100. Similarly, for an objective with 6 indicators, the total raw score would be divided by 18 (6 x +3 large beneficial) to give a score out of 100. Therefore, for each objective there are a maximum of 100 points available.

Weighting

- 5.18 As with any appraisal there is scope to give greater weight to performance against one objective over another. However, in the first instance it was deemed appropriate to assume an equal weighting across all of the objectives.
- 5.19 Following the stakeholder event and discussions with the Steering Group a number of sensitivity tests were undertaken in order to examine how the results changed under different assumptions. This is discussed further in Chapter 6.

Deliverability

- 5.20 As well as identifying measures which perform well against the study objectives, the need to develop an initial programme of schemes for the next 20 years means that consideration must be given to issues of deliverability. An assessment of funding streams, estimated cost, and the reality of implementing each measure was given consideration. This is explained further in the following chapter.

Synergies

- 5.21 A wide range of measures have been appraised through the COAST process. Each measure was assessed as a discrete entity as, in order to secure funding, most schemes are required to demonstrate strong performance in their own right. It is clear that in practice some measures would not be implemented in isolation (for example, road pricing) and that others would perform differently as part of wider package of measures. For those measures that have been shortlisted we have therefore identified which other measures from the long list could potentially be introduced alongside them and could therefore add value if implemented together.

Short-listing of measures

- 5.22 The use of the COAST process enables different dimensions of the appraisal to be drawn out. For instance, in order to progress to the short-list, measures might need to demonstrate performance in different ways, e.g.:
- ◆ **overall** positive score;
 - ◆ positive score against selected objectives (depending on weighting);
 - ◆ score highly against deliverability criteria.
- 5.23 Short-listing criteria is discussed further in Chapter 6.

6. Appraisals

COAST APPRAISAL

Context

- 6.1 The primary function of the COAST appraisal is to assess performance of the long-list of potential measures against the study objectives and, having demonstrated the way in which the study objectives have relevance in the wider context, against the regional and national objective framework steering the delivery of transport solutions.
- 6.2 The long-list comprises a range of widely varying measures, some of which have a long and well known history, others of which were new suggestions generated through the stakeholder engagement process. The strategic nature of the study coupled with the need to appraise approximately 80 potential measures of varying levels of definition, means that the assessment is largely qualitative in nature based on professional judgment of the likely impacts a measure may have. Thus the COAST process is designed to enable the comparison of these differing measures in a consistent and transparent manner.
- 6.3 In order to demonstrate the COAST process to the Steering Group and the Wider Partnership, a limited range of measures were scored. This was a valuable part of the process, enabling discussion of the importance of each of objective and the way in which the various indicators should be used to capture the potential impact of a measure.
- 6.4 The scores derived during this process were then revisited and moderated as part of the consultants' overall scoring process. This was necessary to ensure that the measures were appraised in a comparable way in the context of the full range of schemes. This moderation technique was used throughout the scoring process, such that the scores for each potential measure were revisited and considered in the light of the full list.
- 6.5 The results of the initial appraisal produced a score against the study objectives for each measure on the long-list. This first round of scoring gave equal weight to each of the objectives and produced a fairly well distributed range of scores. In the absence of any natural break points in the resulting scores, all of those measures obtaining a score greater than 100, approximately the top third performing measures, were considered further as they perform best against the objectives set for this study. Although some schemes fail to make this cut, this does not necessarily mean that they are not worthwhile schemes. They may well contribute to other objectives set by the various delivery and policy bodies and be worthwhile taking forward for other reasons.
- 6.6 Table 6.1 shows the ranking of the measures which perform strongly against the study objectives. Scores and ranking for the full list of measures is presented in Appendix B.

Table 6.1 – Interventions ranked against objectives (un-weighted)

Ref	Description	Overall Rank
IR28	Road pricing in Ipswich	1
IPT1	Ipswich - Transport fit for the 21st Century	2
IRa3	Peterborough - Nuneaton upgrade	3
IR41	Widen Orwell Bridge	4
IR15	Wet Dock Crossing	5
IR107	Orwell Tunnel	6
IR42	Ipswich Northern Bypass - local	7
IR106	New Orwell Bridge	8
IR108	Provide additional lane capacity on A14	9
IRa12	New station - Snoasis	10
IR12	Demand management measures	11
IR32	Lorry Lanes on A14	12
IRa8	New station/Improvements to Westerfield - Ipswich Northern Fringe	13
IR33	Variable Speed Limits on A14	14
IR116	Ipswich Northern Bypass - strategic	15
IR115	New dual-carriageway Stowmarket to Felixstowe	16
IS2	"Smarter Choices" Plan	17
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements	18
IR10	A14 ITS Scheme	19
IR26	East Bank Link Road (EBLR)	20
IR29	Orwell Bridge tolling	21
IR100	Copdock interchange - longer term improvements	22
IRa18	New stations - Ipswich-Cambridge route	23
IS102	Business Park management	24
IPT4	Bus and rail station improvements	25
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	26
IRa103	New bus/rail interchange at Nacton	27
IPT21	Park & Ride - new site - Wherstead Corridor	28
IR104	A14 Junction Closures	29
IR34	Access control	30
IPT6	Park & Ride - improved site - Copdock	31
IS4	Measures to support non-car modes (Ipswich North development area)	32
IRa106	New station at Martlesham	33
IR5	General traffic management schemes to improve traffic flow	34

Weighting

- 6.7 One way to test the robustness of the scoring process, and to see how individual measures perform if there is a different emphasis, is to add a weighting to one or more of the objectives. We have therefore undertaken sensitivity tests to understand the impact of certain objectives being given greater importance than others.
- 6.8 To help define the sensitivity tests, stakeholders at the consultation event were asked to identify any objectives which they felt should be given prominence, or greater weight, over the others. Of the responses received there was a clear identification that Objective 1 – ‘To allow the Newmarket to Felixstowe corridor to continue to function effectively and efficiently as a (inter)national route’ was the objective which the majority of people felt was most significant and should be tested with a greater weight. Thus the scores were recalculated with a double weighting applied to this objective to see what impact this would have on the results and the ranking.
- 6.9 The other objectives which were given prominence by the stakeholders were Objectives 7 – ‘Develop more sustainable forms of transport’ and 8 – ‘Reduce impact of transport on environment’. Again, a double weighting was applied to these objectives and the scores were recalculated to see what impact this would have on the results and the ranking.
- 6.10 One of the overarching purposes of the study is to identify measures that will improve access, in, to and around Ipswich. Ipswich is also identified as having an important role in emerging regional planning documents. The scores were therefore recalculated with a double weighting applied to Objective 3 – ‘Support the role of Ipswich as a ‘Key Centre for Development and Change’ and as a ‘Regional Transport Node’ in the emerging EEP’ to reflect this.
- 6.11 Appendix C includes the results of the weighting sensitivity tests by showing how the rankings change when different objectives are given greater weight. These tests continue to assess interventions against all objectives; however they assume that the selected objective has its weight doubled. Generally speaking, although the sensitivity tests result in some movement up and down the rankings, the top third of interventions is relatively unchanged when different weights are applied. This suggests that the approach is generally robust.
- 6.12 Table 6.2 provides a summary of performance of each of the measures against individual objectives. Where the table shows a ‘+’ it indicates that the overall performance of the measure against this objective has been assessed as positive. Where the table is blank this indicates that the measure has been assessed as having an overall neutral impact against this objective. A ‘-’ indicates that the overall performance of the measures against this objective has been assessed as negative.
- 6.13 Table 6.2 shows that it is the measures designed to increase highway capacity, and which are likely to result in increased traffic generation, which show overall negative performance against the environmental objectives 7 and 8. Whilst this applies to both infrastructure measures and technology based measures, it should be noted that the infrastructure measures are also likely to have significant physical environmental impacts. This differing scale of impact is partly demonstrated in Appendix C where it is the larger infrastructure measures which fall out of the ranking

when a sensitivity test applying greater weight to environmental objectives 7 and 8 is undertaken.

Table 6.2 – Performance against Individual Objectives

Ref	Description	Objective ⁵												
		1	2	3	4	5	6	7	8					
IR28	Road pricing in Ipswich	+			+			+		+		+		+
IPT1	Ipswich - Transport fit for the 21st Century	+			+		+		+			+		+
IRa3	Peterborough - Nuneaton upgrade	+		+		+		+				+		+
IR41	Widen Orwell Bridge	+		+		+				+		-		-
IR15	Wet Dock Crossing	+				+		+		+		-		-
IR107	Orwell Tunnel	+		+		+		+			+	-		-
IR42	Ipswich Northern Bypass - local	+		+		+		+		+		-		-
IR106	New Orwell Bridge	+		+		+				+		-		-
IR108	Provide additional lane capacity on A14	+		+		+		+			+	-		-
IRa12	New station - Snoasis	+		+		+		+				+		+
IR12	Demand management measures	+				+				+		+		+
IR32	Lorry Lanes on A14	+		+				+			+	-		-
IRa8	New station/Improvements to Westerfield - Ipswich Northern Fringe					+		+		+		+		+
IR33	Variable Speed Limits on A14	+		+		+		+			+	-		-

⁵ Objectives are: 1. To allow the Newmarket to Felixstowe Corridor to continue to function effectively and efficiently as a (inter)national route 2. Support the expansion of the ports at Felixstowe and Harwich 3. Support the role of Ipswich as a 'key centre for development and change' as a 'regional transport node' in the emerging EEP 4. Support the objectives of the Regional Economic Strategy and emerging EEP 5. Support likely future development in the relevant Local Development Frameworks 6. Support the expansion of the port at Ipswich 7. Develop more sustainable forms of transport 8. Reduce the impact of transport on the environment

Ref	Description	Objective ⁵								
		1	2	3	4	5	6	7	8	
IR116	Ipswich Northern Bypass - strategic	+	+	+	+				-	-
IR115	New dual-carriageway Stowmarket to Felixstowe	+	+	+	+				-	-
IS2	"Smarter Choices" Plan	+		+		+			+	+
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements	+	+	+	+	+			+	+
IR10	A14 ITS Scheme	+	+		+		+		-	-
IR26	East Bank Link Road (EBLR)	-		+	+	+	+		-	-
IR29	Orwell Bridge tolling	+	+	+			+		+	+
IR100	Copdock interchange - longer term improvements	+	+	+	+		+		-	-
IRa18	New stations - Ipswich-Cambridge route	+	+	+	+	+			+	+
IS102	Business Park management	+		+	+	+			+	+
IPT4	Bus and rail station improvements			+	+	+			+	+
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	+		+	+	+			+	+
IRa103	New bus/rail interchange at Nacton	+		+	+	+			+	+
IPT21	Park & Ride - new site - Wherstead Corridor	+		+	+	+			+	+
IR104	A14 Junction Closures	+	+	-					+	+
IR34	Access control	+	+	-						+
IPT6	Park & Ride - improved site - Copdock	+		+	+	+			+	+
IS4	Measures to support non-car modes (Ipswich North development area)			+	+	+			+	+

Ref	Description	Objective ⁵								
		1	2	3	4	5	6	7	8	
IRa106	New station at Martlesham	+			+	+	+		+	+
IR5	General traffic management schemes to improve traffic flow			+	+			+		+

DELIVERABILITY

6.14 As well as identifying measures which perform well against the study objectives, the need to work towards developing a prioritised programme of schemes for the next 20 years means that consideration must be given to issues of deliverability. Thus, for each of the measures which performed strongly against the study objectives (set out in Table 6.1), further consideration was given to:

- ◆ estimated cost (where possible) and value for money;
- ◆ likely funding streams available for each measure;
- ◆ whether that cost could be borne within the available funding streams over the time horizon; and
- ◆ whether the measure could be implemented in reality (i.e. are there any engineering or policy constraints that might prevent this).

VALUE FOR MONEY

6.15 Value for money is a key element in central government appraisal where schemes must traditionally demonstrate a significant return on investment to secure funding. However, the scope and nature of the study, considering as it does well established schemes against newly identified measures, means that a traditional value for money appraisal could not be carried out. Instead, as a proxy for value for money, and as a further aide in identifying a potential short list of measures, a 'points per £' indicator was calculated for the measures which perform strongly against the study objectives, identified in Table 6.1.

6.16 This indicator shows how well a measure performs against the study objectives in relation to the level of expenditure which might be required to deliver it. In order to calculate the indicator, known scheme costs were used where these were available. For those measures with no published scheme costs, a simple cost estimate was derived based on the assumptions described in Appendix D. These are broad-brush indicative estimates only and will clearly require further work should the identified schemes be taken forward.

6.17 Table 6.3 shows the revised ranking for the objectives which perform strongly against the study objectives, using the 'points per £' indicator.

Table 6.3 – Ranking against ‘points per £’ indicator

Ref	Description	‘points per £’ ⁶	Rank
IR28	Road pricing in Ipswich	-	1
IR29	Orwell Bridge tolling	-	2
IS102	Business Park management	400.0	3
IPT4	Bus and rail station improvements	118.9	4
IR5	General traffic management schemes to improve traffic flow	103.3	5
IR12	Demand management measures	72.0	6
IR104	A14 Junction Closures	54.7	7
IPT6	Park & Ride - improved site - Copdock	54.4	8
IS4	Measures to support non-car modes (Ipswich North development area)	54.4	9
IR33	Variable Speed Limits on A14	37.4	10
IR34	Access control	36.5	11
IS2/IS1/IR17	"Smarter Choices" Plan	31.2	12
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	29.4	13
IPT21	Park & Ride - new site - Wherstead Corridor	27.9	14
IPT1	Ipswich - Transport fit for the 21st Century	15.8	15
IRa12	New station - Snoasis	12.1	16
IRa8	New station/Improvements to Westerfield - Ipswich Northern Fringe	11.4	17
IRa18	New stations - Ipswich-Cambridge route	8.4	18
IRa106	New station at Martlesham	7.1	19
IR100	Copdock interchange - longer term improvements	6.6	20
IRa103	New bus/rail interchange at Nacton	6.2	21
IR10	A14 ITS Scheme	4.5	22
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements	3.3	23
IR15	Wet Dock Crossing	2.9	24
IRa3	Peterborough - Nuneaton upgrade	2.9	25
IR42	Ipswich Northern Bypass - local	2.2	26
IR32	Lorry Lanes on A14	2.1	27
IR26	East Bank Link Road (EBLR)	1.7	28
IR116	Ipswich Northern Bypass - strategic	1.2	29
IR108	Provide additional lane capacity on A14	1.0	30
IR41	Widen Orwell Bridge	0.6	31
IR106	New Orwell Bridge	0.5	32
IR107	Orwell Tunnel	0.4	33
IR115	New dual-carriageway Stowmarket to Felixstowe	0.4	34

⁶ Where no value given revenue assumed to cover implementation costs

FUNDING STREAMS

Overview

- 6.18 The study brief requires that transport interventions be identified for the short, medium and longer term defined as follows:
- ◆ Short term – to 2010/2011;
 - ◆ Medium term - to 2020/2021; and
 - ◆ Long term – to 2030/2031.
- 6.19 A range of potential funding sources for transport interventions have also been identified. These include:
- ◆ Transport innovation fund (productivity element) – ‘TIF-P’;
 - ◆ Transport innovation fund (congestion element) – ‘TIF-C’;
 - ◆ Regional funding allocation (RFA) covering Local Transport Plan (LTP) major schemes and Highways Agency (HA) interventions on routes of regional importance;
 - ◆ LTP funds via the integrated transport block allocation;
 - ◆ Highways Agency (HA) national schemes progressed through their programme of major schemes;
 - ◆ HA local schemes of less than £5m in value progressed through route management strategies and as/or local network management schemes;
 - ◆ Potential funds from Communities and Local Government (CLG) and/or the Department for Transport (DfT) related to growth areas/growth points;
 - ◆ Rail industry funding from DfT Rail/Network Rail;
 - ◆ Funds for transport interventions available from European sources; and
 - ◆ Other, innovative, funding sources and contributions from developers.
- 6.20 In order to test the ‘realism’ of funding the transport interventions identified in the study, it has been necessary to identify the extent of funds that might be potentially available from each of the above sources for each of the three time periods identified.
- 6.21 Each of these are discussed in turn below. Clearly, for many of the funding sources, it is not possible to be definitive about the level of funds available in the medium to longer term as these have not yet been defined, and even in the short term it is difficult to be definitive about the level of funds available due to the Comprehensive Spending Review. In fact, many of the funding sources may not be available in their current form in the longer term which adds further significant uncertainty. It has therefore generally been assumed that current levels of funding will persist into the future unless there is clear evidence to the contrary. Although indicative only, this does provide a ‘ball-park’ estimate of the level of funding that might potentially be available from each source. It should be noted that these estimates have been made for the purposes of this study alone and should not be used elsewhere.

- 6.22 Given the uncertainties over the long term future of some of the funding sources and their size, it is clearly difficult to estimate levels of funding that might be attributed specifically to this study area. This is particularly the case when funds are administered or operate at the national level. In the discussion below on funding sources, potential regional level estimates have been made but further disaggregation beyond this has not been attempted.

Productivity TIF Funds

- 6.23 In July 2004 the Secretary of State for Transport announced the creation of the TIF. This was followed in January 2006 with the publication of guidance on the TIF. The guidance set out that the TIF would grow from £290m in 2008/2009 to £2,550m in 2014/2015 (see Table 6.4). Up to £200m per annum from these allocations is being made available for congestion-related TIF initiatives.

Table 6.4 – TIF Funds (National Level)

08/09	09/10	10/11	11/12	12/13	13/14	14/15
£290m	£600m	£930m	£1,300m	£1,680	£2,100	£2,550

- 6.24 The early year allocations (i.e. for the period to 2010/2011) have largely been taken up by those schemes announced in December 2006 including the proposed rail gauge enhancement works between Peterborough and Nuneaton, the gauge enhancements to the Barking to Gospel Oak rail line, and the traffic management measures for the A14. All of these provide benefits to the study area.
- 6.25 However for the medium term (2011/12 to 2020/2021) and long term (2021/2022 to 2030/3031) the following assumptions have been made to derive potential TIF-P funding envelopes against which interventions identified in this study might be considered:
- ◆ that £200m nationally is top-sliced for congestion-related TIF;
 - ◆ that the balance, nationally, is split between the nine English regions; and
 - ◆ that post 2014/15 funding continues at that rate through to 2030/2031.
- 6.26 The assumptions give rise to potential TIF-P funds of £2,300m for the medium term (2011/2012 to 2020/2021) and £2,600m for the longer term (2021/22 to 2030/31). These estimates are for the East of England Region as a whole and assume that larger schemes outside the region (such as Crossrail) do not take up a significant proportion of the TIF budget. The estimates also assume an equal split in funds across the English Regions; in practice allocations are likely to be more lumpy and based on the merits of individual schemes put forward by promoters.

Congestion TIF Funds

- 6.27 TIF guidance (see paragraph 6.23 above) suggests that up to £200m will be available nationally for congestion-related TIF. To estimate the proportion that the East of England might secure, the potential national allocation for the medium and long term time horizons has simply been divided by the nine English regions.
- 6.28 This gives rise to potential TIF-C funds for the East of England Region as a whole of £220m for the medium term (2011/12 to 2020/21) and £220m for the longer term (2021/22 to 2030/31).

Regional Funding Allocation

- 6.29 The Region submitted advice to Government on Regional Funding Allocations (RFA) in January 2006, setting out transport priorities for three time periods. In July 2006, the Secretary of State responded on the transport allocations.⁷
- 6.30 The announcement provided confirmation of schemes that would be taken forward over the period 2006/07 to 2008/09 and from 2009/10 to 2015/2016. Although the Region's original regional advice fitted well against the short, medium and longer term time horizons in this study, the DfT response straddles these dates.
- 6.31 The level of RFA funding that might be available to the Region has therefore been estimated by assuming that:
- ◆ the priorities accepted by the Secretary of State up to 2015/2016 are fixed. Importantly for this study, this includes the Ipswich Fit for the 21st Century major scheme; and
 - ◆ beyond 2015/2016 funds are available at the same rate as implied by the RFA for the preceding periods.
- 6.32 This gives rise to indicative RFA regional funding envelopes of £550m for the medium term (2011/12 to 2020/21) and £1,100m for the longer term (2021/22 to 2030/31) for the East of England Region as a whole. Importantly, the 'Ipswich fit for the 21st Century' scheme has already been prioritised for the medium term. The remaining £550m identified for the Region is on top of schemes already 'committed' as far as 2015/1016.

Local Transport Plan Funding

- 6.33 Suffolk County Council's (SCC) Local Transport Plan settlement letter was published in December 2006. This sets out SCC's integrated transport block settlement for the period to 2010/2011. This is summarised in Table 6.5 below.

⁷ The 2006 Regional Funding Allocation for transport (for the East of England as a whole) was £1.132bn. Committed schemes accounted for £0.354bn of this leaving a remainder of £0.778bn. The Region received 135 scheme 'bids' for these remaining funds with a total value of around £6.300bn.

Table 6.5 – SCC LTP Integrated Block Settlement (Dec 2006)

Suffolk	2007/08	2008/09	2009/10	2010/11
Allocation	£6.82m	£6.74m	£6.68m	£6.59m

6.34 To estimate potential funding envelopes for this study, it has been assumed that:

- ◆ the figures shown in Table 6.5 can be used for our short term time horizon (to 2010/2011)
- ◆ the 2010/2011 allocation can be rolled forward to estimate potential funding for the medium and long term time periods

6.35 This gives rise to potential levels of (Suffolk-wide) funding of £66m for the medium term (2011/12 to 2020/21) and £66m for the longer term (2021/22 to 2030/31).

Highways Agency (HA) funds for major projects

6.36 Data contained in the HA's Business Plan (2006/2007) has been used to estimate potential levels of funding for major Trunk Road schemes (>£5m). This provides indicative national budgets for expenditure on 'major improvements to the network' and 'smaller local schemes'.

6.37 For the English Trunk Road network, major improvement budgets have been set for £1,045m and £905m for the periods 2006/07 and 2007/08 respectively. For the purposes of estimating potential longer term funding available to the East of England (and hence this study area) it has been assumed that:

- ◆ based on the 2006/2007 business plan around £1,000m is available per year nationally for major improvements;
- ◆ although crude, this can be divided by the number of English Regions to derive a broad indication of the potential regional cut;
- ◆ this can be rolled forward over the study time horizon to estimate potential longer term funds;
- ◆ but that this should then be scaled down by one third based on HA advice that recent (and in the short term, future) HA expenditure in the Region has been significant, and with increased moves to lock-in the benefits of highway improvement schemes, historic levels of spend are unlikely to be maintained.

6.38 It is noted that there is potentially an element of overlap with the RFA and TIF but at this stage it is obviously difficult to determine the extent of this.

6.39 This gives rise to potential levels of Region-wide funding for HA major improvements of £740m for the medium term (2011/12 to 2020/21) and £740m for the longer term (2021/22 to 2030/2031). No estimates have been prepared for the short term as funds are largely committed to existing projects.

Highways Agency funds for smaller local schemes

- 6.40 The HA business plan also provides an indication of spend on smaller local schemes, again at the national level.
- 6.41 For the English Trunk Road network, budgets for these schemes have been set at £157m and £170m for the periods 2006/07 and 2007/08 respectively. To estimate the potential longer term funding available to the East of England (and hence this study area), the same process identified above for major improvements has been used. It has been assumed that in the short term around £160m is available nationally per annum for local schemes but in the medium and longer term this is scaled back by one third as discussed in paragraph 6.37 above. This gives rise to potential Region-wide medium term funds for smaller schemes of £120m (2011/12 to 2020/21) and longer terms funds of £120m (2021/22 to 2030/31).

Potential growth-related funding

- 6.42 Funding for transport measures in the Growth Areas has previously been made available through the CLG's Growth Areas Fund (GAF) and the joint CLG/DfT Community Infrastructure Fund (CIF). Although outside the designated Growth Areas and hence not eligible to date for these funds, Haven Gateway has more recently received Growth Point status. This has resulted in the area receiving funding of £5.52m for 2007/08 for spending on various initiatives, including "the transport network and to develop sustainable transport solutions".
- 6.43 On the assumption that in the longer term there will be continued Government financial support for the growth agenda, it has been assumed that around £1.5m per annum could potentially be available to the study areas for expenditure on transport measures from some future form of growth-related funds. This gives rise to the potential levels of funding of £6m in the short term (to 2010/11), £15m in the medium term (2011/12 to 2020/21) and £15m in the longer term (2021/22 to 2030/31) for the Haven Gateway Growth Point as a whole.

Rail-related funding

- 6.44 In many respects, estimating a potential level of the future availability of rail funding is even more difficult than for other funding sources due to the complexities of delivery in the rail industry. One potential source for deriving such estimates is Network Rail's Business Plan (2006) which includes budgets for the financial years 2006/07 through to 2008/09 in terms of operating expenditure, maintenance and renewals for England and Wales. Spend on renewals spread across a range of areas such as track, signalling, telecoms, civils and stations, amounts to more than £2,000m per annum. It is likely that any rail expenditure identified in this study would need to be drawn from this budget but, given the 'lumpy' and route-specific nature of rail investment, it is difficult to provide any meaningful sub-division of this at this stage.

- 6.45 The High Level Output Statement (HLOS) will give greater clarity on potential levels of rail spend in the region to 2014, with the Secretary of State expected to publish the HLOS and Statement of Funds Available (SoFA) by July 2007 following the Comprehensive Spending Review. The SoFA will include the public financial resources available to contribute towards the achievement of the HLOS and will set out the Government funds available to support the franchised railway over the five year period to 2014.

Funding sources from Europe

- 6.46 There are two key potential European funding sources relevant to the study area. These are Trans-European Network – Transport (TEN-T) funds, and CIVITAS funding.
- 6.47 A 2004 study for the European Commission indicated that significant time savings could be gained from the completion of 30 priority axes/projects which form the ‘backbone’ of the TEN-T. One of these priority axes, number 13, links the UK-Ireland-Benelux countries and includes the A14 and A120 corridors. In total, €8.013bn will be allocated to transport infrastructure projects that contribute to the implementation of TEN-T corridors between 2007 and 2013.
- 6.48 There are two elements to the funding programme, the Multi-Annual Indicative Programme (MIP) for long term schemes (multiple years, and covering around 85% of the TEN –T funding budget) and the Non-MIP for short term schemes (one year only, and covering around 15% of the budget) or schemes at the lower end of the cost scale.
- 6.49 A call of interest has recently been released for the MIP, with applicants given two months to respond. There is only one MIP call within the seven year period (2007-13). The non-MIP programme has an annual bidding round with calls of interest expected in March each year, followed by a two month response time. Funds are typically available for up to 20% of the cost of works, and for up to 50% of the costs of studies.
- 6.50 Longer term, should calls for funding for the period post-2013 be made, then MIP could potentially contribute towards the costs of other measures identified in this study. Similarly non-MIP funds could also have a role to play for some of the smaller-scale measures.

Developer funding and innovative funding sources

- 6.51 In many respects these two potential sources are very closely linked and to a large degree are also linked to the ongoing discussions on the future of Section 106 agreements and Planning Gain Supplement.
- 6.52 The Region is already exploring a range of potential innovative funding sources including use of prudential borrowing and various forward-funding mechanisms. Several of the latter include using a public agency to deliver a transport intervention, and then to claw-back the funds from developers. The Milton Keynes (MK) ‘roof tax’ provides an example of the levels of funding that might

be secured from developers for transport measures, via either a more conventional S106 route or through some form of forward-funding agreement.

- 6.53 In order to estimate the potential level of funds that could be available to this study area, MK has been used as a case study. In MK, the total level of 'roof tax' per dwelling is £18,500 of which around 35%, or £6,500, is for transport interventions.
- 6.54 Although broad-brush, it has been assumed that a similar level of funds per dwelling could potentially be secured in this study area for transport measures as follows:
- ◆ assume that £6,500 per dwelling can be secured from development in the Ipswich Policy Area;
 - ◆ the Proposed Changes to the East of England Plan indicate that the Ipswich Policy Area should have an annual dwelling build rate of 1,140 units per annum to 2021;
 - ◆ assume that any form of 'tariff' scheme would not be in place until 2011 and that this mechanism is therefore only available for the medium and long term time horizons (i.e. two ten year periods); and
 - ◆ assume that build rates continue beyond 2021 at the pre-2021 rate set out in the Proposed Changes document.
- 6.55 This approach produces potential levels of transport funding of £75m in the medium term (2011/12 to 2020/21) and £75m for the longer term (2021/22 to 2030/31) for the Ipswich Policy Area. In setting any roof tax, consideration clearly needs to be given to the whole range of infrastructure requirements, including local and strategic requirements, and trade-offs may need to be made with other requirements from developers including the provision of affordable housing.

In Summary

- 6.56 There are a range of potential funding sources available for transport improvements in the study area but there is clearly a large element of speculation when considering the longer term future of these funding sources. However, estimates of potential future funding envelopes have been made by examining existing levels of funding and generally rolling these forward. Although these are by necessity broad-brush due to the long term forward-look that this study is taking, they do provide a useful indication of potential budgets that can be used to undertake a funding reality-check on emerging proposals.
- 6.57 Having regard to the potentially available funding sources, Table 6.6 provides an assessment of the likelihood of securing resources within the short, medium and longer term. Some measures only lend themselves to a single funding stream, whereas others could potentially secure funds from various sources; Table 6.7 identifies where this is the case, together with a most likely, or potential primary funding stream, if there are multiple sources.

Table 6.6 – Availability of Funding

Ref	Description	Overall Rank	Potential Funding Sources	Most Likely Funding Source	Est cost £s (m)	Affordable			Comment
						Short term	Med term	Long term	
IR28	Road pricing in Ipswich	1	TIF	TIF	0.0	N	Y	?	Potential competition with Cambridge and Norwich in medium term. Partnership working with other cities in the region (eg: through Regional Cities East) might improve access to TIF-C funds
IPT1	Ipswich - Transport fit for the 21 st Century	2	LTP RFA	RFA	17.0	N	Y	-	Prioritised for medium term through RFA process
IRa3	Peterborough - Nuneaton upgrade	3	PTIF	PTIF	80.0	-	-	-	Confirmation of PTIF funding subject to further work
IR41	Widen Orwell Bridge	4	PTIF HA(Ma)	HA(Ma)	350.0	-	N	N	Would take approx 1/3 available regional funding pot
IR15	Wet Dock Crossing	5	D GF	D	67.0	-	Y	Y	Possible funding trade-off with Ipswich NB – Local
IR107	Orwell Tunnel	6	PTIF HA(Ma)	HA(Ma)	440.0	-	N	N	Would take in excess 1/3 available regional funding pot
IR42	Ipswich Northern Bypass - local	7	D LTP RFA	D	60.0	-	Y	Y	Likely funding trade-off with Wet Dock Crossing
IR106	New Orwell Bridge	8	PTIF HA(Ma)	HA(Ma)	350.0	-	N	N	Would take approx 1/3 available regional funding pot

Ref	Description	Overall Rank	Potential Funding Sources	Most Likely Funding Source	Est cost £s (m)	Affordable			Comment
						Short term	Med term	Long term	
IR108	Provide additional lane capacity on A14	9	PTIF HA(Ma)	HA(Ma)	83.0	-	-	?	Could potentially secure share of longer term funding pot
IRa12	New station - Snoasis	10	D DR LTP	D	15.0	-	Y	-	Tied to specific development. Dependent on overall development package
IR12	Demand management measures	11	LTP RFA	LTP	2.5	Y	Y	-	Could secure funds from LTP allocation
IR32	Lorry Lanes on A14	12	PTIF HA(Ma)	HA(Ma)	83.0	-	-	?	Could secure share of longer term funding pot
IRa8	New station/Improvements to Westerfield - Ipswich Northern Fringe	13	D DR LTP	D	15.0	-	Y		Tied to specific development but unlikely to support this level of investment
IR33	Variable Speed Limits on A14	14	HA(Mi)	HA(Mi)	4.5	-	Y	Y	Could secure share of medium to longer term funding pot
IR116	Ipswich Northern Bypass - strategic	15	PTIF HA(Ma)	HA(Ma)	75.0	-	-	?	Could secure share of longer term funding pot
IR115	New dual-carriageway Stowmarket to Felixstowe	16	PTIF HA(Ma)	HA(Ma)	210.0	-	N	N	Would take approx 1/4 available regional funding pot
IS2	"Smarter Choices" Plan	17	D LTP	LTP	5.0	Y	Y	-	Could secure funds from LTP allocation
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements	18	DR LTP	DR	45.0	-	Y	Y	Not prioritised in RPA but some measures could be delivered with

Ref	Description	Overall Rank	Potential Funding Sources	Most Likely Funding Source	Est cost £s (m)	Affordable			Comment
						Short term	Med term	Long term	
									TOC / DR funding
IR10	A14 ITS Scheme	19	PTIF HA(Ma)	PTIF	33.0	-	-	-	Secured PTIF funding
IR26	East Bank Link Road (EBLR)	20	D LTP RFA	RFA	85.0	-	Y	Y	Could secure share of medium to longer term funding
IR29	Orwell Bridge tolling	21	PFI TIF HA(Ma)	PFI	0.0	-	Y	Y	Dependent on private investment
IR100	Copdock interchange - longer term improvements	22	D PTIF HA(Ma)	HA(Ma)	20.0	-	Y	Y	Could secure share of medium to longer term funding
IRa18	New stations - Ipswich-Cambridge route	23	D DR LTP	DR	15.0	-	-	?	Not prioritised in RPA
IS102	Business Park management	24	D LTP	LTP	0.3	Y	Y	Y	Could secure funds from LTP allocation
IPT4	Bus and rail station improvements	25	LTP	LTP	1.0	Y	Y	Y	Could secure funds from LTP allocation
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	26	D GF LTP	LTP	4.0	-	Y	Y	Could secure funds from LTP allocation
IRa103	New bus/rail interchange at Nacton	27	DR RFA	RFA	19.0	-	N	?	Could secure share of longer term funding
IPT21	Park & Ride - new site - Wherstead Corridor	28	D GF LTP	LTP	4.0	-	Y	Y	Could secure funds from LTP allocation

Ref	Description	Overall Rank	Potential Funding Sources	Most Likely Funding Source	Est cost £s (m)	Affordable			Comment
						Short term	Med term	Long term	
IR104	A14 Junction Closures	29	HA(Mi)	HA(Mi)	2.0	-	Y	Y	Could secure share of medium to longer term funding
IR34	Access control	30	HA(Mi)	HA(Mi)	3.0	-	Y	Y	Could secure share of medium to longer term funding
IPT6	Park & Ride - improved site - Copdock	31	D GF LTP	LTP	2.0	Y	Y	Y	Could secure funds from LTP allocation
IS4	Measures to support non-car modes (Ipswich North development area)	32	D	D	2.0	-	Y	Y	Tied to specific development. Dependent on overall development package
IRa106	New station at Martlesham	33	D DR LTP	DR	15.0	-	-	?	Not prioritised in RPA
IR5	General traffic management schemes to improve traffic flow	34	LTP	LTP	1.0	Y	Y	Y	Could secure funds from LTP allocation

- D Developer Funding
- DBFO Design Build Finance Operate
- DR DfT Rail
- GF Growth Funds (including Community Infrastructure Fund, Growth Area Fund, Growth Point Status)
- HA(Mi) Highways Agency programme of smaller/minor schemes (<£5m in value)
- LTP Local Transport Plan
- PPP Public Private Partnership
- PTIF Productivity TIF
- RFA Regional Funding Allocation
- TIF Congestion TIF
- HA(Ma) Highways Agency programme of major schemes (>£5m in value)

Practicality and Acceptability

- 6.58 In assessing the performance of each measure, consideration was given to issues of practicality, including the 'buildability' of a measure i.e. are there any engineering constraints that would prohibit construction of a scheme. In principle, it is assumed that an engineering solution could be identified for almost any scheme, however it is recognised that this approach does not take account of potential cost implications, environmental impacts, or issues regarding public and political acceptability. Equally it does not give due consideration to the constraints of the wider policy and appraisal framework in which transport interventions are delivered.
- 6.59 At the strategic level at which this review has been undertaken, only one measure appears to fail the 'buildability' test: IR41 (Widen Orwell Bridge), where early advice would indicate that the existing structure could not be modified.
- 6.60 Potential issues of wider concern have also been identified under an acceptability review and are summarised in Table 6.7. These have not been used in this study as a basis for determining whether an intervention should be taken forward or not; they are simply noted here as issues which would need to be considered by the relevant delivery bodies in working up the proposals further if they are minded to do so.

Table 6.7 – Potential Acceptability Issues

Ref	Description	Overall Rank	Potential Acceptability Issues
IR28	Road pricing in Ipswich	1	Potential political and public concerns regarding economic and socio-economic impacts.
IPT1	Ipswich - Transport fit for the 21st Century	2	N/A – already prioritised by Region in RFA.
IRa3	Peterborough - Nuneaton upgrade	3	N/A – already secured 'minded to' decision on PTIF funding.
IR41	Widen Orwell Bridge	4	Unlikely to be able to widen existing structure. Potential environmental concerns – land take, visual intrusion, impact on environmental designations.
IR15	Wet Dock Crossing	5	Potential environmental concerns – impact on heritage and biodiversity.
IR107	Orwell Tunnel	6	Potential environmental concerns – land take, impact on environmental designations.
IR42	Ipswich Northern Bypass - local	7	Potential environmental concerns – significant land take.
IR106	New Orwell Bridge	8	Potential environmental concerns – significant land take, visual intrusion, impact on environmental designations.
IR108	Provide additional lane capacity on A14	9	Potential environmental concerns – significant land take, impact on existing communities.
IRa12	New station - Snoasis	10	Potential environmental concerns – local. Potential impact on capacity of rail network.
IR12	Demand management measures	11	Potential reduction in highway capacity.
IR32	Lorry Lanes on A14	12	Potential environmental concerns – significant land take, impact on existing communities. Capacity restricted to HGVs.
IRa8	New station/Improvements to Westerfield - Ipswich Northern Fringe	13	Potential environmental concerns – local. Potential impact on capacity of rail network.
IR33	Variable Speed Limits on A14	14	-

Ref	Description	Overall Rank	Potential Acceptability Issues
IR116	Ipswich Northern Bypass - strategic	15	Potential environmental concerns – significant land take, impact on existing communities. May require new junctions on existing trunk road network. Likely to require significant improvements to A12.
IR115	New dual-carriageway Stowmarket to Felixstowe	16	Potential environmental concerns – significant land take, impact on existing communities. May require new junctions on existing trunk road network.
IS2	"Smarter Choices" Plan	17	May require on-going revenue support.
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements	18	Capacity improvements might give rise to potential environmental concerns, may significant land take, impact on existing communities.
IR10	A14 ITS Scheme	19	N/A – already secured ‘minded to’ decision on PTIF funding.
IR26	East Bank Link Road (EBLR)	20	Potential environmental concerns, significant land take, impact on biodiversity and landscape. Potential HA concerns re new junction on trunk road.
IR29	Orwell Bridge tolling	21	Potential political and public concerns regarding economic and socio economic impacts.
IR100	Copdock interchange - longer term improvements	22	Potential environmental concerns – land take, impact on existing communities.
IRa18	New stations - Ipswich-Cambridge route	23	Potential environmental concerns – local. Potential impact on capacity of rail network.
IS102	Business Park management	24	May require on-going revenue support.
IPT4	Bus and rail station improvements	25	-
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	26	Potential environmental concerns – land take, impact on existing communities..
IRa103	New bus/rail interchange at Nacton	27	Potential environmental concerns – land take, impact on existing communities. Potential impact on capacity of rail network.
IPT21	Park & Ride - new site - Wherstead Corridor	28	Potential environmental concerns – land take, impact on existing communities. Potential

Ref	Description	Overall Rank	Potential Acceptability Issues
			impact on adjacent environmental designations.
IR104	A14 Junction Closures	29	Potential political and public concerns re economic and socio economic impacts.
IR34	Access control	30	Potential political and public concerns re economic and socio economic impacts.
IPT6	Park & Ride - improved site - Copdock	31	Potential environmental concerns – impact on existing development.
IS4	Measures to support non-car modes (Ipswich North development area)	32	-
IRa106	New station at Martlesham	33	Potential environmental concerns – local. Potential impact on capacity of rail network.
IR5	General traffic management schemes to improve traffic flow	34	Potential political and public concerns re local operational issues.

PROPOSED SHORT-LIST

- 6.61 In order to identify a proposed short-list of schemes which perform strongly against the study objectives and which may have merit in being taken forward for further investigation, consideration has been given to a range of factors:
- ◆ Performance against study objectives;
 - ◆ Performance against weighted study objectives;
 - ◆ Potential 'value for money';
 - ◆ Likely available funding; and
 - ◆ Practicality.
- 6.62 A number of key principles, relating to the performance of the measure, were used to identify those schemes which would not be recommended for the short-list at this time. It was determined that a measure would not be taken forward if:
- ◆ it created severe dis-benefits to one or more of the core objectives that outweigh benefits elsewhere; and
 - ◆ it would be unlikely to draw down funding sources, or would individually exceed any estimated 'regional' allocation.
- 6.63 Table 6.8 draws together this information, indicating those measures not being recommended for the short-list and the reasons why. These are denoted by the 'L' label. If a scheme is marked 'L' this does not necessarily mean, however, that it is a 'bad' scheme. It may be that it addresses other objectives outside the scope of this study or is related to a potential future development proposal. These schemes have therefore been referred to the relevant delivery body for their consideration.

Table 6.8 – Measures Recommended for Short-List

Ref	Description	Short-list ⁸	Comment
IR28	Road pricing in Ipswich	H	Scores strongly against all objectives. Strong ‘points per £’ indicator based on revenue neutral assumption for road pricing element. Would need to give consideration to ability to draw upon funds given other potential schemes elsewhere in the region. Assumes investment in complimentary measures (e.g. improved public transport etc). Potential public and political acceptability issues would need to be worked through.
IPT1	Ipswich - Transport fit for the 21st Century	N/A	Scheme already prioritised by region for delivery in medium term.
IRa3	Peterborough - Nuneaton upgrade	N/A	Already secured “minded to” approve decision to award PTIF funding
IR41	Widen Orwell Bridge	L	Unlikely to be able to provide feasible engineering solution. Although scheme performs well against objectives, the scale of costs means that the scheme is unlikely to be affordable even in the longer term. Potentially significant environmental constraints.
IR15	Wet Dock Crossing	H	Scheme performs well against objectives though some environmental concerns. Though scheme cost is high, development links may lever developer funding. However, if funded through contributions to reduce general infrastructure deficit there is likely to be a funding trade-off with an Ipswich Northern Bypass – local.
IR107	Orwell Tunnel	L	Scale of costs means that the scheme is unlikely to be affordable even in the longer term. Although scheme performs well against objectives overall, performs poorly against environmental objectives.
IR42	Ipswich Northern Bypass – local	M	Although scheme performs well against objectives overall, performs poorly against environmental objectives.

⁸ H – Take forward for further consideration in this study. M – Potentially to be taken forward for further consideration (see ‘comments’ column, and supporting text under ‘Issues with specific shortlisted schemes’). L – Do not take forward for further consideration within this study but refer to delivery body for consideration. N/A – already being taken forward through RFA/LTP or PTIF routes; delivery bodies should continue to progress these schemes.

Ref	Description	Short-list ⁸	Comment
			High scheme costs. However, if funded through contributions to reduce general infrastructure deficit there is likely to be a funding trade-off with a Wet Dock Crossing.
IR106	New Orwell Bridge	L	Scale of costs means that the scheme is unlikely to be affordable even in the longer term. Although scheme performs well against objectives overall, performs poorly against environmental objectives.
IR108	Provide additional lane capacity on A14	L	Although scheme performs well against objectives overall, demonstrates poor performance against environmental objectives. High scheme costs though may be potential to secure funding in longer term. However, would not solve capacity constraint at Orwell Bridge.
IRa12	New station - Snoasis	M	Scheme linked to development and performs well against objectives in this context. Developer funded. Scheme currently subject of planning inquiry hence 'M' designation here.
IR12	Demand management measures	H	Performs well against objectives. Unlikely to implement in isolation. Public acceptability likely to be dependent on development of complementary measures such as park and ride or behavioural change initiatives.
IR32	Lorry Lanes on A14	L	Although scheme performs well against objectives overall, demonstrates poor performance against environmental objectives. High scheme costs though may be potential to secure funding in longer term. However, would not solve capacity constraint at Orwell Bridge.
IRa8	New station/Improvements to Westerfield - Ipswich Northern Fringe	L	Measures would be linked to development and should be progressed if and when specific proposals are identified. Developer funded. Likely that new station would need to demonstrate neutral or positive impact on wider network.
IR33	Variable Speed Limits on A14	H	Scheme performs well against objectives overall. Though some environmental concerns linked to potential additional traffic generation, scheme focussed on making better use of existing

⁸ H – Take forward for further consideration in this study. M – Potentially to be taken forward for further consideration (see 'comments' column, and supporting text under 'Issues with specific shortlisted schemes'). L – Do not take forward for further consideration within this study but refer to delivery body for consideration. N/A – already being taken forward through RFA/LTP or PTIF routes; delivery bodies should continue to progress these schemes.

Ref	Description	Short-list ⁸	Comment
			infrastructure. Could be funded in medium to longer term.
IR116	Ipswich Northern Bypass - strategic	M	Although scheme performs well against objectives overall, performs poorly against environmental objectives. High scheme costs though may be potential to secure funding in longer term.
IR115	New dual-carriageway Stowmarket to Felixstowe	L	Although scheme performs well against objectives overall, demonstrates poor performance against environmental objectives. High costs mean that the scheme is unlikely to be affordable even in the longer term.
IS2	"Smarter Choices" Plan	H	Performs strongly against objectives. Could secure LTP funding in short to medium term.
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements	M	Performs strongly against objectives, however not prioritised in RPA for medium term. Potential to secure infrastructure elements in longer term though rolling stock improvements could feasibly be delivered sooner.
IR10	A14 ITS Scheme	N/A	Already secured "minded to" approve decision to award PTIF funding
IR26	East Bank Link Road (EBLR)	M	Although scheme performs well against objectives overall, demonstrates poor performance against environmental objectives. Further consideration of mitigation measures likely to be required. Could potentially secure funding through RFA, but would need to compete with other regional schemes. Potential for developer contributions towards funding. Progress also subject to reaching acceptable position with regard to DfT policy on access to trunk roads.
IR29	Orwell Bridge tolling	L	Although scheme performs well against objectives, unlikely that scheme would be acceptable in isolation given lack of realistic alternative route options. Could be re-considered as part of wider area proposals should these come forward following ongoing national debate.

⁸ H – Take forward for further consideration in this study. M – Potentially to be taken forward for further consideration (see ‘comments’ column, and supporting text under ‘Issues with specific shortlisted schemes’). L – Do not take forward for further consideration within this study but refer to delivery body for consideration. N/A – already being taken forward through RFA/LTP or PTIF routes; delivery bodies should continue to progress these schemes.

Ref	Description	Short-list ⁸	Comment
IR100	Copdock interchange - longer term improvements	H	Scheme performs well against objectives overall. Whilst there are some environmental concerns linked to land take, impacts are likely to be localised. Could potentially secure funding in medium to longer term.
IRa18	New stations - Ipswich-Cambridge route	L	Performs strongly against objectives, however not prioritised in RPA medium term. Potential to secure funding in the longer term although unlikely to proceed unless linked to specific development proposals.
IS102	Business Park management (travel planning)	H	Performs strongly against objectives. Could secure LTP funding in short to medium term.
IPT4	Bus and rail station improvements	M	Performs strongly against objectives. However, implementation of small scale measures should be reviewed in the context of IPT1 – Ipswich Transport Fit for the 21 st Century.
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	H	Performs strongly against objectives. Could secure LTP funding in medium to longer term. Preliminary assessment would suggest Felixstowe Road/Nacton Road corridor is most suitable location for new P&R site, however should be assessed further in context of potential expansion at Copdock (IPT6) or alternative site in Wherstead Road corridor (IPT21). Assessment should also include scope for bus/rail interchange (IRa103) in this corridor, though funding mechanism would be different.
IRa103	New bus/rail interchange at Nacton	H	Performs strongly against objectives. Could potentially secure RFA funds in the longer term. Should be assessed in the context of overall P&R strategy (IPT5/IPT21/IPT6). Preliminary assessment suggests Felixstowe Road/Nacton Road corridor is most suitable location for new facility. Likely that scheme would need to demonstrate neutral or positive impact on wider rail network.
IPT21	Park & Ride - new site - Wherstead Corridor	H	Performs strongly against objectives. Could secure LTP funding in medium to longer term. Scheme should be assessed further in context of overall P&R strategy (IPT6/IPT5) and potential for new bus/rail interchange in Nacton Road corridor (IRa103).
IR104	A14 Junction Closures	H	Performs strongly against objectives, although some concern over potential impact on local highway network. Could secure share of medium to longer term funding. Scheme should be considered in

⁸ H – Take forward for further consideration in this study. M – Potentially to be taken forward for further consideration (see ‘comments’ column, and supporting text under ‘Issues with specific shortlisted schemes’). L – Do not take forward for further consideration within this study but refer to delivery body for consideration. N/A – already being taken forward through RFA/LTP or PTIF routes; delivery bodies should continue to progress these schemes.

Ref	Description	Short-list ⁸	Comment
			conjunction with IR34.
IR34	Access control	H	Performs strongly against objectives, although some concern over potential impact on local highway network. Could secure share of medium to longer term funding. Scheme should be considered in conjunction with IR104.
IPT6	Park & Ride - improved site - Copdock	H	Performs strongly against objectives. Could secure LTP funding in medium to longer term. Scheme should be assessed further in context of overall P&R strategy (IPT21/IPT5) and potential for new bus/rail interchange in Nacton Road corridor (IRa103).
IS4	Measures to support non-car modes (Ipswich North development area)	L	Measures would be linked to development and should be progressed if and when specific proposals are identified. Developer funded.
IRa106	New station at Martlesham	H	Performs well against objectives, by providing improved connection to strategic rail network. Could also support development proposals in Martlesham area. Not prioritised in RPA for medium term. Likely that scheme would need to demonstrate neutral or positive impact on wider network.
IR5	General traffic management schemes to improve traffic flow	H	Performs well against objectives. Could secure funds from LTP allocation.

Note: Political and public acceptability of all measures would need to be considered further if schemes are taken forward.

⁸ H – Take forward for further consideration in this study. M – Potentially to be taken forward for further consideration (see ‘comments’ column, and supporting text under ‘Issues with specific shortlisted schemes’). L – Do not take forward for further consideration within this study but refer to delivery body for consideration. N/A – already being taken forward through RFA/LTP or PTIF routes; delivery bodies should continue to progress these schemes.

Measures to be taken forward

- 6.64 Table 6.8 also identifies those measures which have performed strongly in the assessment against objectives and which could potentially be successful in securing funding during the timeframe being considered by the study. These are those denoted by either an 'H' (indicating good performance and potential for being taken forward) or 'M' (which also indicates generally good performance but for which there are some specific issues that need further consideration – see below).
- 6.65 The recommended short-list reflects the regional aspect of the study and the strategic nature of the objectives, i.e. the focus on the performance of the A14 corridor and access to the ports. This has resulted largely in the prioritisation of measures which seek to make better use of capacity in the corridor or through encouraging mode shift away from private car.

Measures not considered for short-listing

- 6.66 Individual measures were scored on their own merit for their overall contribution to the study objectives. However, it is important to note that although a measure may not be on the short-list, this does not necessarily mean that it does not have merit in a different context. It merely reflects its relative potential to contribute to the overall objectives set for the study.
- 6.67 Measures not included on the short-list include a range of localised initiatives within Ipswich as well as some measures focusing on operational management on the A14. Clearly these measures could still provide a valuable contribution to the management of the transport network within the study area and potentially meet other objectives set by the planning and transport authorities. They could also complement some of the interventions short-listed above and this has been recognised in Section 8 of this report.
- 6.68 It is also important to note that this study is not about decision making in its own right. It is seeking to identify a short list of transport measures that meet the study objectives, then to identify what more would need to be done by way of assessment and appraisal should the relevant delivery body wish to take these forward.

Summary of the Short-List

- 6.69 The short-list of measures to be considered further in this study are summarised in Table 6.9. In addition, the following schemes which have already been prioritised or have received 'minded to' decisions, should also be taken forward:
- ◆ IPT1 Ipswich – Transport fit for the 21st Century – this has been prioritised by the Region for delivery in the medium term and performs well against objectives set for this study;
 - ◆ IRa10 – Peterborough-Nuneron rail upgrade – has received a 'minded to' fund decision for productivity TIF and performs well against study objectives;
 - ◆ IR10 – A14 ITS scheme – has received a 'minded to' fund decision for productivity TIF and performs well against study objectives.

Table 6.9 – Short-listed Interventions⁸

Ref	Description
IR28	Road pricing in Ipswich
IR15	Wet Dock Crossing
IR42/IR116	Ipswich Northern Bypass – local (IR42) or strategic (IR116)
IRa12	New station – Snoasis
IR12	Demand management measures
IR33	Variable Speed Limits on A14
IS2	"Smarter Choices" Plan
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements
IR26	East Bank Link Road (EBLR)
IR100	Copdock interchange - longer term improvements
IS102	Business Park management (travel planning)
IPT4	Bus and rail station improvements
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor
IRa103	New bus/rail interchange at Nacton
IPT21	Park & Ride - new site - Wherstead Corridor
IR104	A14 Junction Closures
IR34	Access control
IPT6	Park & Ride - improved site – Copdock
IRa106	New station at Martlesham
IR5	General traffic management schemes to improve traffic flow

⁸ In addition to the shortlist, the following schemes which have already been prioritised by the Region or have received 'minded to' productivity TIF funding should also be taken forward:

- ◆ IPT1 Ipswich – Transport fit for the 21st Century – this has been prioritised by the Region for delivery in the medium term and performs well against objectives set for this study;
- ◆ IRa10 – Peterborough-Nuneration rail upgrade – has received a 'minded to' fund decision for productivity TIF and performs well against study objectives;
- ◆ IR10 – A14 ITS scheme – has received a 'minded to' fund decision for productivity TIF and performs well against study objectives.

7. Model Review

- 7.1 This chapter outlines the review of the available transport models relevant to the study in order to understand the baseline structure, coverage and strengths and weaknesses. This work constitutes the first of the two phases of “Task 6: Model Review and Recommendations” of the overall study.
- 7.2 The two key models of relevance to this study are the East of England Model and the Ipswich Traffic Model, owned by the Highways Agency (HA) and Suffolk County Council (SCC), respectively.
- 7.3 In each case the model has been reviewed with regard to:
- ◆ Study area, time periods and forecast years;
 - ◆ Model structure including demand segmentation and network representation;
 - ◆ Underpinning data;
 - ◆ Approach to calibration, and quality of validation;
 - ◆ Input assumptions;
 - ◆ Use to which the model has been put;
 - ◆ Views of model ‘custodians’/users on performance;
 - ◆ Model strengths and weaknesses.
- 7.4 The following sections of this chapter outline the review of the above characteristics for each of the models. First a comparison of basic features, structure and functionality is presented in tabular form. Subsequent sections discuss less readily quantified aspects of the review, for each model in turn. The final sections present comments from the consultation of users and a summary of the findings, focusing on the models’ strengths and weaknesses. These are considered in the context of the requirements of the Department for Transport’s (DfT) recently published Variable Demand Modelling Advice (VADMA)⁹.

MODEL CHARACTERISTICS

- 7.5 The following table presents basic information about the models, their size, level of detail, functionality, structure, segmentation, etc. Details for each model are presented alongside one another for ease of comparison.

⁹ WebTAG 3.10

Table 7.1 – Model Characteristics

Characteristic	East of England Model	Ipswich Traffic Model
<i>Study Area</i>	East Of England	Ipswich And Immediate Surrounds
<i>Network Detail</i>	All Motorways, Trunk Roads, And Main Local Highway Authority Roads. Simulated Over Full Extent Of East Of England Study Area ¹⁰ .	All Main Roads, Local Roads And Rat-Runs In Ipswich Town, Simulated Out To A12/A14
<i>Max. Zonal Detail</i>	1+ Wards Per Zone Within Study Area	C.500m ² In Town Centre
<i>Total No. Of Zones</i>	717	212
<i>Internal Zones</i>	404	
<i>Additional Special Zones</i>	Key Ports/Airports In Region (14)	
<i>Modes Included</i>	Highway Rail Inter-Urban Bus	Highway
<i>Time Periods</i>	Morning Peak Period 07:00-10:00 Inter Peak Period 10:00-16:00 Evening Peak Period 16:00-19:00	Morning Peak Hour 08:00-09:00 Inter Peak ¹¹ Period 10:00-15:00 (Not Formerly Validated) Evening Peak Hour
<i>Base Year</i>	2001	1999
<i>Forecast Years</i>	2016 2021	2006 2011 2021
<i>Software</i>	Saturn Traffic Model Emme2 Pt & Demand Model	Saturn Traffic Model
CAR AVAILABILITY SEGMENTATION	YES	NO
<i>Purpose Segmentation</i>	Home Based Work Home Based School Home Based Other Employers' Business Non-Home Based Other	None
<i>Vehicle Segmentation</i> Type	Car Lgv Hgv	None
<i>Treatment Of Demand</i>	Variable	Fixed
<i>Choices Modelled</i>	Trip Generation/Suppression Distribution Mode Choice Route Choice	Route Choice

¹⁰ i.e. all of East Anglia and as far west as Milton Keynes and as far north-west as Peterborough.

¹¹ Referred to as Off Peak in the January 2005 model documentation.

IPSWICH TRAFFIC MODEL (SCC)

Source Data

- 7.6 The origins of the model go back to the 1989 Halcrow Fox Associates model for Ipswich Borough Council. This covered the majority of the suburban area of Ipswich in detailed 'simulation' coding, and extended out to the A12/A14 bypass in less detailed 'buffer' coding. The model was updated in 1992 for Suffolk County Council by MVA.
- 7.7 Further development resulted in an updated model with a 1996 base network, though the 1992 traffic demand was retained. The current 1999 model was updated by Atkins on behalf of Ipswich Borough Council and at that time included only morning and evening peak hour models. The 1999 update included extension of the detailed 'simulation' area out to and including the A12/A14, but made no changes to the model zone system.
- 7.8 An inter-peak hour model was subsequently developed by Atkins specifically for the 2004 tests described below.
- 7.9 During the original 1989 study network inventory surveys were undertaken with the data being updated in the subsequent studies, as infrastructure has been added and altered. Likewise, the volume of traffic in terms of simple traffic counts has been updated for each version of the model using matrix estimation and validated to departmental guidelines (principally DMRB volume 12a). However, the pattern or 'distribution' of trips modelled is still based on observations made through the programme of roadside interview surveys for the 1989 model. These covered a cordon outside the Town Centre such that 'internal-to-internal' movements were synthesised rather than observed, even in the original model.
- 7.10 The distribution modelled in 1989 will have been adjusted in various ways during matrix estimation procedures undertaken for the subsequent model updates. During the same period the actual distribution will also have changed due to altered land uses, lifestyles and driver behaviour. There is no way of telling how far the modelled and true distributions now differ, but the suspicion must be that they may now be very different.

Calibration and Validation

- 7.11 The 1999 morning and evening peak models were calibrated and validated broadly in line with the standard criteria set out in the Design Manual for Roads and Bridges (DMRB).

- 7.12 As with previous model updates, matrix estimation techniques were used to update the previous version of the trip matrix to reflect the traffic counts observed at that time. The process is an entropy maximising process which selects the optimum revised trip matrix on the basis of that which gives rise to the greatest number of possible permutations of individual trip makers' movements. In practice, repeated use of matrix estimation tends to distort the trip matrix by ever reducing the average modelled trip length¹².
- 7.13 Although modelled trip length distributions were investigated as part of the 1999 model update, ideally these distributions would be validated against an observed distribution. However, in practice this would best be done by first collecting some current origin-destination data, such as roadside interview survey data, though analysis of 2001 census journey to work data would provide a useful indicator of the continuing validity of the model.
- 7.14 The model was thus calibrated with the help of matrix estimation techniques, using count data from various sources. Calibration against observed flows was undertaken at individual sites, across an inner and an outer cordon and across an East-West screenline.
- 7.15 The morning and evening peak hour models were validated in terms of modelled routing patterns, network coding checks and, importantly, journey time validation, using results from a total of nine journey time surveys, providing comprehensive coverage of most of the main routes.
- 7.16 Independent count data was not used in the model validation, as all count data had been used in the matrix estimation and calibration processes. Though not strictly compliant with DMRB, such an approach is commonplace where matrix estimation is used because, within limits, the accuracy of the output trip matrix rises with the number of observed counts contributing to the process¹³.
- 7.17 The peak hour models also meet convergence guidelines in terms of both 'proximity' and 'stability' as laid out in the DMRB criteria.
- 7.18 The off peak model has not formerly been validated. It was created by taking a weighted average of morning peak and evening peak distributions, weighted to off peak traffic volumes observed in 1999. Further development of the off peak model should revisit the validation.

Other Key Assumptions

- 7.19 The Ipswich Traffic Model is a functionally very simple model which models the route choices chosen by drivers and the network conditions resulting from those choices. The model does not reflect any other driver response to a modelled scheme – for instance an increase in trip frequency resulting from reduced network costs or a change in destination due to, for instance, improved accessibility to one supermarket compared to another. All such responses are ignored.

¹² There are more of the aforementioned 'possible permutations' when dealing with lots of short trips rather than fewer long trips.

¹³ Providing, of course, that the counts are not mutually inconsistent, in which case some should be omitted.

- 7.20 Within the modelled network, centroid connectors which 'load' traffic onto the network are unusually coded as links which intersect with the highway network at priority junctions. Within the urban area and at the high flow levels forecast in future years the incorporation of all these unreal priority junctions leads to considerable modelled delay on certain routes and consequent instability in the model. This in turn has been seen to lead to questionable results in economic evaluation.

Current Uses of Model

- 7.21 The model was developed in order to be able to assess the impact of:
- ◆ Proposed new housing developments;
 - ◆ Improved access to, within and around Ipswich Port;
 - ◆ Traffic management measures.
- 7.22 In 2000 various tests were undertaken for Ipswich Borough Council's Strategic Planning and Regeneration programme for the Ipswich Wet Dock Area. Forecast tests for 2006 assumed alternative combinations of Northern, Western and Waterfront developments, together with alternative combinations of the following infrastructure schemes:
- ◆ East Bank Link Road;
 - ◆ West Bank Link Road;
 - ◆ Wet Dock Bridge;
 - ◆ Star Lane Gyratory.
- 7.23 Further tests were undertaken in 2004, revisiting the above infrastructure schemes and variants of them and considering a new Eastern Access Road to the Suffolk College site. Forecasts were undertaken for 2011 and 2021 and reflected data on recent and proposed developments provided by Ipswich Borough Council, as at March 2004.
- 7.24 Economic appraisals based on journey time savings alone were undertaken by feeding aggregate outputs from the forecast SATURN assignments into a spreadsheet-based economic model.
- 7.25 In reviewing the use of the Ipswich traffic model, comments were gratefully received from the Highways Agency and Suffolk County Council, through conversations with Eric Cooper and Dave Watson, respectively.

EAST OF ENGLAND MODEL (HA)

Source Data

- 7.26 The East of England Model was developed by Faber Maunsell from the four-stage multi-modal model built for the London to South Midlands (LSM) Multi-Modal Study. The LSM model area was extended eastwards to include Norfolk, Suffolk and East Essex and thereby to cover the entire East of England Region.

Networks

- 7.27 The highway network was built using data from a large number of existing models:
- ◆ The London-focused NAOMI model;
 - ◆ The Eastern Region Traffic Model (ERTM);
 - ◆ Local models in the LSM area (CHUMMS, Bedford, Milton Keynes and Northampton);
 - ◆ The London to Ipswich Multi-Modal Study model (LOIS);
 - ◆ Local models in East Anglia (A47 MMS, Norwich, Ipswich, Lowestoft and Sadlers Farm).
- 7.28 Highway network data from existing models was supplemented by reference to traffic signals data, mapping and aerial photography, with some additional links being added at the request of Local Authorities. This infilling was focused on those areas covered less comprehensively by the existing models. Broadly, the East of England Region is coded in SATURN 'simulation' and the remaining modelled area in 'buffer'.
- 7.29 The public transport network model was also based on that in the LSM model, itself based on a combination of the South East Regional Rail Model (SERRM) and the National Rail Model, suitably updated, together with new coding of bus services throughout the LSM modelled area. To the LSM model, public transport service routes and frequencies were subsequently added for the remainder of East Anglia.
- 7.30 The SERRM was the major component of the LSM rail network. Being based on the Summer 1997 timetable many amendments were required for the purposes of the 2001-based LSM model, as well as the addition of stations outside the SERRM area. To develop the LSM rail network for use in the East of England model, further network detail was added in order to cover the remainder of East Anglia. Using the 2000 Winter timetable, services were added for the then relevant TOCs: First Great Eastern; c2c and; Anglia Railways. The resulting modelled rail network includes up to 1,366 transit lines in the morning peak period falling to as few as 917 in the interpeak period.
- 7.31 The modelled rail networks have some useful features such as the coding of different train operating company (TOC) franchises as different sub-modes, which facilitates forecasting, analysis and appraisal by TOC.
- 7.32 The LSM bus network was built using details for all bus services intersecting the model area, as determined using the Great Britain Bus Timetable for early 2001. Subsequently the LSM bus network was developed to cover the whole of the East of England area using the same timetable employed in the LSM. Across the area, all local services are attributed to modelled time periods according to their start time. However, long distance services (i.e. to/from outside the study area) were reviewed to ensure they are modelled in the correct time period for that part of their journey within the model area. The resulting modelled bus network includes approximately 900 – 1000 transit lines depending on time period.

Matrices

- 7.33 Demand for the highway model was based on a combination of sources of origin-destination data:
- ◆ Existing highway models (as above), but particularly NAOMI and ERTM, for 1997 and 2001, respectively
 - ◆ Roadside interview data from 36 surveys undertaken in 2001-2 as part of the London Area Transport Surveys and specially commissioned for the LSM study
 - ◆ Automatic Number Plate Recognition (ANPR) survey data for 5 additional sites.
- 7.34 To supplement these data sources, providing volumetric data for calibration/validation and to help infill those movements not observed in origin-destination surveys, traffic count data was collated for a range of sites across the region. The counts came from a variety of sources and were used in matrix estimation as summarised subsequently.
- 7.35 Rail demand data was based on the National Rail Passenger Matrix, provided by DfT for 1999/2000¹⁴ in 717 zone format for the East of England model, supplemented by data underlying the South East Regional Rail Model. A separate database of rail trip ends was also provided by DfT, providing detail on the time of travel, as the National Rail Passenger Matrix provided only all-day data. A systematic approach was used to process these data sets into the time periods and demand segments required by the East of England Model. Special adjustments were made on an ad hoc basis at each of the various airport zones to reflect the best information available in each case.
- 7.36 Information on bus demand was received in the form of ticket machine data from the following bus operators:
- ◆ National Express
 - ◆ First Essex
 - ◆ Stagecoach Cambus
 - ◆ Stagecoach United Counties
 - ◆ Arriva Colchester
 - ◆ Arriva Southern Counties
 - ◆ Arriva the Shires, and
 - ◆ Arriva East Herts & Essex
- 7.37 The data-sets varied between operators and consequently required processing in different ways for the purposes of the East of England Model. This data processing was aided by DfT's provision of a trip end database similar to that mentioned above in the context of rail trips, which provided detail on the breakdown of trips over the day. Estimations of bus patronage were required for those routes where no data was available.

¹⁴ Comprising the 12 months immediately prior to the Hatfield rail crash.

Calibration and Validation

- 7.38 The SATURN highway model was calibrated with the aid of matrix estimation, undertaken twice for the LSM study area and then twice for the remainder of the East of England. The counts used in these processes may be summarised as:
- ◆ A cordon around the LSM study area
 - ◆ Cordons around 14 key urban areas within the LSM area
 - ◆ Additional assorted counts on isolated links in the LSM area and across the remainder of the East of England.
- 7.39 Within the LSM area the matrix estimation changed the overall magnitude of trip making by up to 1%. However, a more significant impact of +4% to +6% resulted from the matrix estimation for the rest of the region, owing to the sparseness of the underlying demand matrices¹⁵.
- 7.40 The highway model was validated using independent count data and some journey time data collected in July 2002. The flow validation concentrated on link flows in key corridors and flows crossing cordons or screenlines, as is conventional.
- 7.41 The traffic flow validation does not fully meet DMRB validation criteria, but in practice large models such as the East of England Model rarely, if ever, do meet such stringent criteria. The validation was focused on the trunk road network and the developers acknowledge that in some cases the quality of validation has been compromised on local roads to ensure that the representation of the strategic road network is good. This is consistent with the development and use of the model as a strategic tool but does highlight the need to reconsider validation where considering local transport issues or any schemes with local impacts.
- 7.42 The journey time validation was also acceptable for such a large and complex model. In terms of percentage discrepancies, the biggest errors are on the M11 J6 to J7 (p.m. peak) and on the A5 through Dunstable where it has been suggested that short distance local trips may not be fully represented. Where considering issues within these areas, these model shortcomings should be borne in mind.
- 7.43 Flow calibration and validation of rail and bus passengers was also undertaken, though using the EMME/2 suite rather than SATURN. For calibration, the rail matrices were adjusted to reflect station counts provided by the Strategic Rail Authority (SRA).
- 7.44 For rail validation, modelled flows were compared with counts provided by the SRA. It is understood that these were largely independent of those used in model calibration. The overall number of modelled boarders is within 2% of the observed values in the peak periods and within 1% in the interpeak. Tabular results of validations on individual lines were not published owing to issues of confidentiality with the operators.

¹⁵ The underlying matrices were founded on the LSM model which did not include trips with both an origin and destination in the East of England but *not* in the LSM area.

- 7.45 For bus, most of the available data was used for model development and therefore flow validation against independent observations was not possible. Again, for reasons of commercial confidentiality detailed analysis of modelled and observed flows has not been undertaken for this review. However, aggregate statistics are reported in Faber Maunsell's "Modelling Annexe" of May 2005. These indicate that, where comparisons can be made between modelled and observed flows, about a third of peak period flows and a fifth of interpeak flows have GEH¹⁶ statistics in excess of 10. This suggests that the model is not a good representation of bus usage, particularly in the peak periods.
- 7.46 While it is acknowledged that the model was built for strategic purposes and that bus plays a relatively minor role in that context, it is important for users to be mindful of this shortcoming where interventions involving bus are to be tested.

Other Key Assumptions

- 7.47 The attribution of all-day travel demand (in production-attraction format) to different modelled time periods (in origin-destination format) is assumed not to change over time. Thus the impacts of altered shift patterns, staggered work times or indeed the impact of any initiative to modify travel behaviour within the day cannot be addressed by the model.
- 7.48 Similarly, without the means to model time-of-travel choice, the effects of schemes which affect travel conditions during only part of the day cannot be addressed fully. Consider for instance a road user charging scheme where tolls are levied in the morning peak only, or, to a lesser extent, a tidal-flow scheme where the impacts are not consistent over the day. In such cases the model cannot reflect travellers' preferences to travel when it is cheaper to do so.
- 7.49 As the demand model iterates with the supply (assignment) models only three times, convergence cannot be assumed. Consequently, the travel choices modelled at the final iteration may not give rise to congested assignment costs consistent with those choices. The error is likely to be small but in the context of scheme economic appraisal it may still be significant. The latest VADMA guidance stresses the increasing importance of convergence in such contexts.
- 7.50 Based on review of Faber Maunsell's "Modelling Annexe" of May 2005, the model does not allow for interchange between bus and rail. With bus playing such a minor role in the strategic context this is more of a simplification than a problem. However, it does mean that schemes which aim to improve options for interchange between modes cannot be modelled.

¹⁶ $GEH = \sqrt{\frac{2 * (Modelled - Observed)^2}{Modelled + Observed}}$

- 7.51 The model does not have a sophisticated treatment of park and ride facilities. The facilities in Cambridge are modelled in the highway network with a fixed link (centroid connector) to Cambridge City Centre as a proxy for the bus journey from the park and ride site. While this is adequate for a strategic model covering the whole region, users need to bear in mind that schemes involving park and ride will require manual intervention in the highway model, including the need for an explicit assumption of the generalised cost of travel between the park and ride site and the city.
- 7.52 As there are no direct links to a land-use/transport interaction model, it is assumed that land-uses and their consequent pattern of trip making are unaffected by any modelled interventions.

Current Uses of Model

- 7.53 The East of England Model was developed to help inform the HA's responses to the evolving Regional Spatial Strategy (RSS).
- 7.54 Local Authorities have approached the HA with regard to the impacts of specific proposals in the RSS (such as the Haven Gateway and at Norwich and Peterborough) and it is with regard to these specific approaches that the model is currently been used.
- 7.55 In reviewing the use of the East of England model, comments were gratefully received from the Highways Agency, through a conversation with Colin Bambury.
- 7.56 The HA's modelling report¹⁷ refers to the model's

"longer-term role with the Highways Agency as a strategic transport model for the East of England. In addition, the model could be used by Local Authorities, whether for examining the effects of the RSS proposals on the non-trunk road network or the evaluation of other major transport schemes".

COMMENTS FROM CONSULTATION

Ipswich Traffic Model

- 7.57 There is some concern about the validity of the existing Ipswich traffic model owing to the almost 20 years which have passed since the collection of the original roadside interview data on which the demand matrices are based. Although trip volumes have been updated on several occasions since, the underlying distribution remains based on 1989 observations.
- 7.58 SCC suggest that changes in the true origins and destinations of trips over this time will not be great and point out that, even were funding readily available, it would be difficult to undertake peak hour roadside interview surveys in the Town Centre and police permission for such surveys cannot be assumed.

¹⁷ East of England Plan Consultation: Operational Assessment of Strategic Highway Network: Annexe 1: Modelling Report, May 2005.

- 7.59 The HA's observations confirm the concerns raised in this note regarding the impact over the years of repeated runs of matrix estimation. The HA believes that while overall flow numbers are sensible the pattern of movements, as revealed for instance through a select link analysis, is not intuitive and there may be too many short distance trips and not enough through-trips using the bypass. Comments to this effect were reflected in the HA's last response to the Local Plan.
- 7.60 Notwithstanding these comments, SCC will continue to rely on the model as it is, though would like to consider the incorporation of census 'journey to work data' to improve the accuracy of the demand matrices. A full-scale data-collection exercise and model rebuild are unlikely to be practicable.

East of England Model

- 7.61 The HA's view is that the model is truly strategic and as such provides a picture of the future situation on the strategic routes of interest to the HA. In particular it allows broad assessment of the impact of growth and the impact of strategically significant schemes and interventions.
- 7.62 The model is not sufficiently detailed to be used to identify solutions to individual congestion problems on the network nor is it capable of robustly assessing the impacts of individual schemes which have already been identified through other means. In particular it would need to be used with caution to provide economic justification for a scheme.
- 7.63 In parallel with the current use of the East of England model, BAA has been developing and using its own multi-modal model to inform decisions at Stansted Airport. This used the East of England model as a basis.
- 7.64 A new "East of England *regional* model" is now being developed, capitalising on the best aspects of each of the existing East of England model and the Stansted model. The model will be strategic in nature, validated across the region, and is due to be completed in mid 2007.

SUMMARY

Ipswich Traffic Model

- 7.65 The Ipswich traffic model is a simple model of driver route choice on the road network in Ipswich. It has no demand segmentation to distinguish between the behaviour of different types of vehicle, different types of driver or the different reasons for which they might be travelling. The original origin-destination data-set on which it is based is now approaching 20 years old though the model has been updated several times in the intervening period.
- 7.66 There are some concerns over the accuracy of the modelled pattern of origins and destinations, given the age of the underlying data and the number of times it has been subjected to matrix estimation procedures.
- 7.67 There are also some concerns at the manner in which centroid connectors are coded. The current coding leads to excessive delays in high-flow forecasts and instability in the resulting model outputs.

- 7.68 Unsurprisingly, the model is not compliant with the latest Variable Demand Modelling Advice, though with appropriate segmentation of the traffic demand matrices it could form the detailed local traffic component of a more complex system of variable demand models.

East of England Model

- 7.69 The East of England model is a fully specified four stage model encompassing trip generation, mode choice, distribution and route choice (in ascending order of sensitivity). As such, and with a demand segmentation of commensurate complexity, the model meets most of the requirements of the latest VADMA guidance. However there are still areas where VADMA suggests even greater functionality and segmentation:

- ◆ Time period choice would ideally be introduced, should reliable local data be available to calibrate such a model
- ◆ The demand-supply loop is run only three times so convergence is unlikely to be up to the high standards ideally required for economic appraisal using the model's output
- ◆ Segmentation by income would be required should road user charging schemes be tested

- 7.70 Despite these issues, the East of England model is functionally sophisticated and certainly complies with the spirit of the VADMA guidance. It therefore represents a good basis for considering transport interventions, particularly strategic interventions, in the East of England.

- 7.71 However, there are a few caveats to this, arising from functional shortcomings as well as validation issues:

- ◆ The absence of time-of-day modelling means that there are practical implications for the modelling of schemes which differentially affect travel at different times of day – such as the impact of toll cordons in the morning peak only, or the impacts of altered working hours.
- ◆ Due to shortcomings in traffic flow and journey time validation, the highway validation should be reconsidered in the vicinity of any new interventions, particularly where there may be significant impacts on the local network, as this was not the focus of the original model validation.
- ◆ While it is acknowledged that the model was built for strategic purposes and that bus plays a relatively minor role in that context, it is important for users to be mindful of the relatively poor bus passenger flow validation where interventions involving bus are to be tested.
- ◆ The model cannot be used to assess impacts of schemes focused on improvements in facilities for interchanging between modes;
- ◆ The model accommodates park and ride in a simplistic way, not appropriate for the evaluation of park and ride schemes;
- ◆ The supply-demand convergence of forecasts should be monitored before basing protracted economic analyses on the model outputs.

8. Model Recommendations

8.1 This chapter considers the appropriateness of the available models to address the short list of potential transport measures, building on the model review work undertaken. Advice has also been given on the improvements required to the available models to make them fit for purpose for justifying individual schemes and securing funding for them according to the appropriate funding requirements.

The Measures

8.2 The measures recommended for the short-list and which therefore may subsequently require detailed modelling and appraisal are shown in Table 8.1, below. This also shows the likely primary funding source. The measures are shown, very approximately, in ascending order of requisite model complexity, culminating in a full road user charging scheme funded by the Transport Innovation Fund; this would require the greatest complexity.

Table 8.1 – Measures Recommended for Short-List

Ref	Description	Most likely funding source
IR34	Access control on A14	HA (smaller/'minor' scheme)
IR33	Variable Speed Limits on A14	HA (smaller/'minor' scheme)
IR5	General traffic management schemes to improve traffic flow	LTP
IR104	A14 Junction Closures	HA (smaller/'minor' scheme)
IR42	Ipswich Northern Bypass - local	Developer
IR15	Wet Dock Crossing	Developer / RFA
IPT6	Park & Ride - improved site - Copdock	LTP
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	LTP
IPT21	Park & Ride - new site - Wherstead Corridor	LTP
IR100	Copdock interchange - longer term improvements	HA (major scheme)
IS102	Business Park management	LTP
IS2	"Smarter Choices" Plan	LTP
IRa10	Cambridge - Ipswich: rolling stock improvements	DfT Rail/Operator
IPT4	Bus and rail station improvements	LTP

Ref	Description	Most likely funding source
IRa106	New station at Martlesham	DfT Rail/Developer HA (smaller/'minor' scheme)
IRa103	New bus/rail interchange at Nacton	RFA
IR116	Ipswich Northern Bypass - strategic	HA (major scheme)
IR12	Demand management measures	LTP
IR28	Road pricing in Ipswich	TIF
IR26	East Bank Link Road	LTP / Developer

The Models

- 8.3 There are two key models which are currently available as a basis for the forecasting and appraisal of the shortlisted measures, reviewed in Chapter 7 of this report, these being the East of England Model and the Ipswich Traffic Model, owned by the Highways Agency (HA) and Suffolk County Council (SCC), respectively.
- 8.4 The East of England Model (EEM) is a full multi-modal modelling system built in EMME/2 and SATURN, covering the entire region with detailed representation of the strategic road network, inclusion of the entire passenger rail network and representation of the bus and coach networks. It includes the usual sub-models of trip generation, distribution, mode-choice and assignment which comprise the traditional Four Stage model. It is broadly compliant with the latest Variable Demand Model Advice (VADMA). While the modelled highway network includes all trunk and major local authority roads, it does not include a detailed representation of the local road network.
- 8.5 By mid 2007 an improved East of England Regional Model (EERM) is expected to be available. This is currently under development, based on the EEM and BAA's Stansted model and is understood to be fully compliant with VADMA, even to the extent of including modelling of the time of travel choice. It should be noted that the earlier work reviewing available models focused on the existing EEM rather than the EERM which is still under development. However, looking to the future, it is the EERM which is likely to be used to test alternative measures, as this will effectively supersede the EEM.
- 8.6 The Ipswich Traffic Model is a SATURN traffic model with detailed representation of all roads in Ipswich and its immediate environs. It is comparatively very simple but nonetheless could be considered for the modelling of traffic schemes and impacts in Ipswich. Much of the base demand data is now many years old which may compromise the validity of model outputs and the confidence with which they are interpreted.

Requirements for Scheme Funding

- 8.7 The technical detail and rigour of forecasting and appraisal required for each of the measures listed in Table 8.1 will depend on a number of factors:
- ◆ Scale of potential scheme costs;
 - ◆ Geographical scope of scheme;
 - ◆ Availability of alternative routes, modes and destinations in the vicinity of the scheme, thereby affecting the;
 - ◆ Potential scheme impact in terms of changing travel behaviour;
 - ◆ Likelihood of the scheme affecting times of travel, and;
 - ◆ Scheme funding – who is likely to be funding it?
- 8.8 In summary, the model requirements are driven by the scale of the scheme, in terms of its geographical and behavioural scope to affect travel in and around Ipswich, and by the source of potential funding which has been identified.
- 8.9 For this reason, it is useful to group the measures into those with similar characteristics according to the factors listed above. Table 8.2 classifies the measures according to the likely impacts on travel behaviour. The final columns overlap and indicate where the classification of the measure may vary depending upon the precise scope of the potential measure.

Table 8.2 – Classification of Measures by Likely Impacts

Ref.	Name	Characteristics	Measures		
A	Highway (Simple)	Affect highway network only. Small impact on behaviour except for route choice.	IR33, IR34	IR5, IR104,	
B	Highway (Complex)	Affect highway network and potentially other networks. Significant impact on travellers choice of travel frequency, destination and/or mode.	IR116	IR42, IR15, IR100, IR26	IR12
C	Charge Schemes	As B but including user charges for roads and/or parking, with likely impacts on time-of-travel choice.	IR28		
D	Park and Ride	May affect both highway and public transport networks depending on scale.	IPT6, IPT5, IPT21		
E	Public Transport	Affect public transport networks and potentially the highway network. Potentially significant impact on travellers' choice of travel frequency, destination and/or mode.	IRa10, IPT4, IRa106 IRa103		
F	Smart Choices	Impacts on travel costs are not readily quantified but will affect travel behaviour.	IS2, IS102		

- 8.10 Simple highway measures (A) are simple in the sense they are not expected to have a significant impact on travel behaviour. Schemes in this category which are already being progressed may be granted public funding on the basis of modelling and appraisal undertaken under recently superseded guidance such as in the Design Manual for Roads and Bridges (DMRB) Volumes 12 and 13. This may involve use of a fixed trip matrix highway model such as the existing Ipswich Traffic Model, or a version of it with an elastic demand component. Such an elastic demand component could readily be introduced to the existing Ipswich model on an incremental basis, at relatively little cost.
- 8.11 For new highway schemes (A & B) the latest Variable Demand Modelling Advice will need to be followed. WebTAG 3.10.1 includes guidance on distinguishing between the simpler schemes (A) and the complex schemes (B). The simpler schemes may be modelled using a fixed trip matrix highway model. However, most schemes having a wide geographic impact or substantially changing travel costs are expected to fall into the more complex category (B). For these schemes full variable demand modelling will be required involving four stage models or equivalent.
- 8.12 The variable demand models required for schemes in category B may be implemented using a bespoke multi-stage modelling system such as the EEM or the EERM or alternatively using the DIADEM software coupled to a simpler model such as the Ipswich Traffic Model. The guidance governing both approaches is given in WebTAG 3.10. Note that while highway schemes in category B will require consideration of mode choice, they are not necessarily required to include detailed modelling of the public transport networks *per se*.
- 8.13 For road pricing or other measures potentially involving demand management through levying tolls or parking levies (C) the same requirements apply as for category B measures. However, in addition the guidance in WebTAG 3.12 (currently still a consultation draft) must be followed. In practical modelling terms the main impact is that the model used will require some form of demand segmentation by willingness to pay – usually household income is used as a proxy. We understand that the forthcoming EERM will include such segmentation.
- 8.14 Park and ride measures (D) are notoriously difficult to model, so much so that in practice many smaller or simpler park and ride schemes have been appraised ‘off-line’ – i.e. through the use of model output and the application of assumed elasticities, divergence proportions, etc. Such treatment may be appropriate here, particularly in the case of improvements to existing park and ride sites where it may be valid to apply elasticities observed for similar improvements at other sites or in other cities.
- 8.15 If the park and ride measures represent major investment it is likely that more formal modelling and appraisal will be required. This would ideally involve the modelling of park and ride as an explicit mode, with costs derived from a combination of skim costs from separate highway and public transport network models, and with demand assigned back to the highway network to ensure congested travel costs reflect the impact of highway traffic attracted to the park and ride sites. The precise technical requirements are somewhat open to debate however, as even the recent VADMA guidance says very little about modelling park and ride schemes.

- 8.16 The requirements for the modelling of major public transport schemes (E) are set out in WebTAG 3.11. With existing PT mode shares typically far lower than highway mode shares, a small change in modelled highway usage can be associated with a much larger relative change in modelled public transport usage. This means that full variable demand models of the type exemplified by the EERM are more likely to be required for schemes impacting on public transport than those deemed to affect highway alone.
- 8.17 The guidance¹⁸ suggests that an explicit sub-model of mode choice and/or destination choice will be required for virtually all major public transport schemes. While EEM and EERM include such sub-models, the Ipswich Traffic Model does not.
- 8.18 The more subtle 'Smart Choices' measures (F) aim to effect behavioural change without large investment in infrastructure. They do not involve significant changes in the measurable 'hard' costs on which conventional transport models are founded. For this reason they are also notoriously difficult to model. Sometimes the impacts of such measures may be estimated by assuming that changes in travellers' options may be represented by a proxy cost which *can* be modelled; for instance the restriction of parking spaces may be represented by including a perceived charge in the model.
- 8.19 Consequently, attempts to model smart choices are rarely wholly satisfactory and forecasts tend to be made on the basis of experience with similar schemes elsewhere, as set out in the current guidance¹⁹. It is unlikely that any of the models available will suffice for the appraisal of proposed smart choices measures, but the EEM/EERM provide much more flexibility in this context as they allow adjustments to all components of public transport users' generalised cost, as well as car users.

Suitability of Existing Models

- 8.20 The functional abilities of the models to test the categories of measure defined in Table 8.2 are summarised below in Table 8.3.

¹⁸ WebTAG 3.11.1.2.5.3

¹⁹ <http://www.dft.gov.uk/pgr/sustainable/smarterchoices/>

Table 8.3 – Functional Ability of Models to Feed Appraisal of Generic Measures

Type of Measure	Ipswich Traffic Model	East of England Regional Model
A Highway (Simple)	Ideal – model coverage will need checking in particular	Capable – model spatial detail will need checking in particular
B Highway (Complex)	Inadequate without significant segmentation and linkage to a formal demand model, such as using DIADEM software	Ideal
C Charge Schemes	Inadequate (as B) but requiring even more segmentation	Ideal – assuming EERM contains income segmentation compliant with WebTAG 3.12
D Park and Ride	Inadequate – but, with significant development could be linked to an appropriate demand model	Potentially adequate – but depends on structure of forthcoming EERM mode choice model and the network representation of park and ride.
E Public Transport	Inadequate – but, with significant development, could be used as part of a more complex modelling system	Ideal – model spatial detail will need checking and may need improving depending on the scope of the scheme. <i>Interchange schemes may be a problem.</i>
F Smart Choices	Inadequate if used in isolation, but be of some use in feeding off-line forecasting and appraisal.	Inadequate if used in isolation, but a potentially useful tool for feeding off-line forecasting and appraisal.

8.21 Whether or not each of the specific measures listed in Table 8.1 can reasonably be tested using the model concerned will depend upon a number of further factors, principally:

- ◆ Is the measure and its likely impacts within the geographical scope of the model? (principally an issue when using the Ipswich Traffic Model, for instance with regards to schemes on the A14);
- ◆ Is the network and zoning sufficiently detailed within the area of the measure and its impacts to provide sufficiently detailed model outputs for appraisal? (more likely to be an issue with the EEM/EERM, for instance with regard to the Wet Dock Crossing and other local road schemes);

8.22 The following table reflects these issues in its summary of the suitability of each of the models for appraising the interventions listed in Table 8.1.

Table 8.4 – Suitability of Existing Models to Assess Short-listed Measures

Ref	Type	Description	Suitability of Ipswich Traffic Model (ITM)	Suitability of EEM / EERM
IR34	A	Access control on A14	Useful for assessing rerouting impacts but a microsimulation model would be more useful for operational assessment and economic appraisal	Unsuitable – comment as for the ITM but also there is insufficient network detail
IR33	A	Variable Speed Limits on A14	Unsuitable – behavioural effects of variable messaging signage is not readily modelled in SATURN	
IR5	A/B	General traffic management schemes to improve traffic flow	Ideal ²⁰ providing behavioural impacts are limited. Otherwise unsuitable if used in isolation.	Ideal if behavioural impacts are significant, providing network and zoning detail is sufficient in the area affected. If detail is insufficient it could be improved within the EEM/EERM or using a model interface to utilise the ITM network.
IR104	A/B	A14 Junction Closures	Ideal ²⁰ providing behavioural impacts are limited <i>and</i> the geographic scope extends to the junctions concerned. Otherwise unsuitable if used in isolation.	
IR42	A/B	Ipswich Northern Bypass – local	Ideal ²⁰ providing behavioural impacts are limited. Otherwise unsuitable if used in isolation.	If behavioural impacts are significant, then this would be ideal if the network and zoning detail could be improved – either through improvements to the model or using a model interface to utilise the ITM network.
IR15	A/B	Wet Dock Crossing		
IR26	A/B	East Bank Link Road		
IR100	A/B	Copdock interchange - longer term improvements		If behavioural impacts are significant, then this would be ideal. Network and zoning detail should be sufficient given that the A12, A14 and their interchange is already modelled.

²⁰ It is worth noting that a reasonably simple adaptation of the Ipswich Traffic Model (namely the introduction of simple elastic assignment) would allow it to be used to distinguish between schemes falling in categories A and B, using the methodology prescribed in WebTAG 3.10.1. Schemes then falling in category A may then be assessed using this model, subject to the caveats discussed elsewhere in this document.

Ref	Type	Description	Suitability of Ipswich Traffic Model (ITM)	Suitability of EEM / EERM
IR116	B	Ipswich Northern Bypass - strategic	Unsuitable if used in isolation	Ideal, providing the network and zoning detail could be improved in the vicinity of the scheme – either through improvements to the model or using a model interface to utilise the ITM network
IR12	B/C	Demand management measures	Unsuitable if used in isolation	Ideal, providing the network and zoning detail could be improved in the vicinity of the scheme – either through improvements to the model or using a model interface to utilise the ITM network
IR28	C	Road pricing in Ipswich		
IPT6	D	Park & Ride - improved site - Copdock	Unsuitable if used in isolation – but model output could feed an off-line appraisal.	The model network & zoning would need improving in the vicinity of the Park & Ride service and if Park & Ride is not a formal component of the EERM then significant additional model development would be required to model this explicitly – otherwise model output could feed an off-line appraisal.
IPT5	D	Park & Ride - Felixstowe Rd/Nacton Rd new site		
IPT21	D	Park & Ride - new site - Wherstead Corridor		
IRa10	E	Cambridge - Ipswich: rolling stock improvements	Unsuitable	Ideal
IPT4	E	Bus and rail station improvements		Useful for assessing rail station improvements, providing the zone system in the vicinity of the stations concerned is sufficiently detailed – otherwise model output could be used to inform an off-line analysis (for instance using PDFH ²¹). Unsuitable for assessing bus station improvements, as local buses are not included in the model.
IRa106	E	New station at Martlesham		Ideal providing the zone system in the vicinity of Martlesham could be improved to provide a realistic catchment. If not, model output could provide a useful source of off-line appraisal data.

²¹ The Passenger Demand Forecasting Handbook, ATOC.

Ref	Type	Description	Suitability of Ipswich Traffic Model (ITM)	Suitability of EEM / EERM
IRa103	E	New bus/rail interchange at Nacton	Unsuitable	Unsuitable for assessing improvements to bus infrastructure and services, as local buses are not included in the model. Interchange between modes is not readily modelled without modelling one or other leg of the multi-modal trip as a fixed access/egress link. Given these points, it may be better to use model output to feed an off-line appraisal.
IS102	F	Business Park management	Unsuitable – though to a limited extent model output could feed an off-line appraisal	Unsuitable if used in isolation but could potentially provide a useful source of off-line appraisal data
IS2	F	"Smarter Choices" Plan		

- 8.23 There are two further key caveats to the summary presented in Table 8.4. First, the model concerned needs to be sufficiently well validated in the area of the measure and its impacts for users to have confidence in the appraisal results. A check should be undertaken by reviewing link flows, mode shares, service-loadings etc. as appropriate, prior to embarking on a major programme of model tests. It may then be prudent to 'tighten' the model validation in the vicinity by adjusting model parameters, though not at the expense of the overall model validation.
- 8.24 Second, irrespective of the measures to be modelled, the level of model coverage, spatial detail and quality of validation in the vicinity of the measures, *it is essential* that the model concerned is adequately converged. This is particularly true where any form of economic evaluation is to be undertaken, which will be a prerequisite for any scheme requiring public funding.
- 8.25 Convergence is unlikely to be an issue in the Ipswich Traffic Model – the SATURN assignment software has excellent tools for monitoring and achieving convergence, and the base models are converged to DMRB standards. Likewise convergence of the EERM traffic assignment is also not likely to be a problem, as it too is based on SATURN software. The EERM public transport networks will have relatively little route choice and crowding impacts, suggesting convergence is unlikely to be a problem here either. However, convergence between the supply and demand models is far harder to achieve. This has already been identified as a potential issue for the EEM, but we understand that the EERM will be fully converged when the model is released for use. The degree of supply-demand convergence should be confirmed before using the model in earnest to feed economic appraisals.

IMPROVEMENTS TO EXISTING MODELS

THE ITM

- 8.26 Interpreting the entries in Table 8.4 collectively, it is clear that the ITM cannot be used in isolation as it has insufficient functionality. There are potential exceptions to this:
- ◆ Schemes without need for public sector funding;
 - ◆ Highway schemes demonstrated to be 'simple' according to the test set out in WebTAG 3.10.1.
- 8.27 The second of these cases can only be demonstrated by running a traffic model such as the ITM in both 'fixed matrix' mode and using a simple elasticity formulation with which to adjust forecast demand inversely with cost changes caused by the scheme²². In practice, to undertake the test would require development of the ITM to include an elastic demand function. Fortunately this is straightforward in the SATURN software used by the ITM and if the formulation were established on an 'incremental' basis the existing model calibration/validation would be unaffected. Consequently the

²² Both the fixed and variable matrix test results are appraised economically, for instance using TUBA software. If the economic appraisal results differ by more than 10% in the opening year or 15% in the design year then the scheme is deemed to require full variable demand modelling for which the ITM in its current form is totally inadequate. If not, however, the ITM may be used to assess simple highway schemes on a 'fixed trip matrix' basis.

development of the model for this purpose is relatively trivial, but the tests required to establish the validity of the model, on a scheme by scheme basis, effectively comprise the full process of modelling and economic appraisal required for highway schemes in the recent past.

- 8.28 If the ITM were to be used for this or indeed any other purpose, it is important to note the shortcomings of the model documented earlier in the model review process for this study, particularly:
- ◆ The age of the underlying origin-destination survey data means that there are concerns over the accuracy of the travel demand patterns now modelled;
 - ◆ The absence of any demand segmentation means that the relative sensitivity of different types of user (principally different purposes of travel and different levels of income) cannot be reflected and the impacts on these same groups of users cannot be assessed.
- 8.29 Irrespective of this, the ITM is not suitable for the modelling of more complex highway schemes and PT schemes where public sector funding is required. In such cases the EEM/EERM or a development of it will have to be used. However, the ITM could be used as well as the EEM/EERM to capitalise upon its more detailed representation of the road network and the sources of travel demand in and around Ipswich. This is considered further below.

THE EEM/EERM

- 8.30 With few caveats, the functionality of the forthcoming EERM will be ideal for the testing of the short-listed Haven Gateway interventions listed in Table 8.1. It is understood that it will comply with the most recent DfT guidance and therefore, in theory, should be adequate for the modelling and appraisal of interventions to secure public sector funding even for complex major schemes.
- 8.31 The main caveats to the universal use of the EERM to test the interventions listed in Table 8.1 are:
- ◆ Improvement in local network and zoning detail would be required for any scheme on the local rather than strategic network and any intervention where impacts would be felt on the local rather than strategic network. Such interventions would include the Wet Dock Crossing and many others of those short-listed;
 - ◆ Further to the above, while long distance buses/coaches are modelled, local bus services are not;
 - ◆ There was only limited ability to model park & ride schemes using the EEM and the extent to which this is improved in the forthcoming EERM is yet to be seen;
 - ◆ In a very similar way, the modelling of PT interchange (and therefore schemes to introduce new interchanges or improve existing ones) is very limited²³;

²³ The only practical method for modelling interchange between modes (e.g. bus feeder links or park-and-ride) is to code the minor mode as a centroid connector. If an intervention involves changes at the point of interchange or to the minor mode, manual coding changes will be required to adjust the length of the centroid connector representing the minor mode – which is unlikely to be practicable in a complex system of iterating models.

- ◆ Smart choices may not readily be modelled. So called ‘soft’ measures are by definition not ‘hard’ issues of quantifiable costs. As all conventional transport models are founded on the avoidance of cost (through Utility Theory) such models are not good tools for considering the impacts of such measures.
- 8.32 The first of the above points could be addressed either by increasing the spatial detail of the EERM in terms of both network and zoning in the Ipswich area or by making use of the greater detail of the ITM using a composite approach as presented in the section below. Irrespective of this choice, it will be important to introduce local bus services to the model for many of the PT measures to be modelled.
- 8.33 Changing the model to improve the representation of park & ride and interchange would be a significant undertaking and may not be possible at all using the existing model architecture. Consequently, improvements would probably not be justifiable. Likewise, there is relatively little to be gained by developing the model for the purposes of assessing ‘smart choices’. However, it should be possible in all these cases to model and appraise interventions on an ‘off-line’ basis, using bespoke spreadsheet applications fed by varying degrees with model output. The development of such applications might require approximately £10K of investment in each case and would represent far better value for money than wholesale redesign of the main model. Additionally, such spreadsheet applications would afford far greater flexibility to investigate scheme variants.
- 8.34 Wherever the EEM/EERM is to be used it will be important to ensure the following:
- ◆ Model validation in the vicinity of the intervention and its impacts should be checked and minor adjustments made if necessary;
 - ◆ Model convergence, particularly supply-demand convergence, should be checked for compliance with current guidance.
- 8.35 Finally, the latest guidance does not have a strict requirement for a land-use transport interaction (LUTI) model for scheme modelling and appraisal. As already mentioned it is anticipated that the EERM will possess this functionality through links with the RDM. However, the extent to which land-use transport interaction may readily be modelled in the Ipswich area is unknown. It may require a new version of the RDM to be developed, focused on the Haven Gateway, requiring significant additional investment in model development²⁴. As an alternative to this investment and the risk associated with any model development exercise, it would be possible to investigate alternative land-use scenarios through *additional* sensitivity testing²⁵, where individual measures are deemed to be of such a scale to require this.

²⁴ Estimated to be £45K - £70K excluding matrix development in “Eastern Development Control Contract: Development of Models for Haven Gateway”, 24th March 2006, Faber Maunsell/AECOM.

²⁵ Note that WebTAG 3.10.4 requires a rigorous programme of sensitivity testing in any case. The point being made here is that expanding that sensitivity testing to encompass the likely range of land-use impacts that a transport scheme might have, would reduce the need for further costly model development.

A COMPOSITE APPROACH

- 8.36 Given that the EEM/EERM have insufficient spatial detail in the Ipswich area to model many of the short-listed interventions, it would be desirable to utilise the spatial detail of the ITM within the demand modelling framework of the EERM. Such an approach would require all the checks suggested above for both models but would then involve some model development to create an interface between the two models. This would pass matrices of data whose dimensions are determined by the cordon points around Ipswich, within which the ITM is deemed to have a better representation than the EERM. At each iteration:
- ◆ Strategic highway demand matrices cordoned from the EERM would be passed down to the ITM and used to constrain all external trip ends within the ITM trip matrices;
 - ◆ Local cost skim matrices from the ITM would be aggregated and passed up to the EERM for use in the next iteration of the strategic demand model.
- 8.37 Development of such an interface is not trivial but is readily defined and tested. This would allow the majority of the short-listed interventions to be assessed, with the exception of the interchange, park & ride and smart choices measures discussed above. *However* it would still not allow the local bus aspects of IPT4 and IRa103 to be modelled as neither the ITM nor the EEM/EERM has any representation of local bus services.

CONCLUSIONS AND RECOMMENDATIONS

- 8.38 In theory, simpler highway schemes may readily be assessed using the ITM. In practice there are some problems with solely using this model for the schemes short-listed in the context of this study, notably:
- ◆ In most cases (IR5, IR104, IR42, IR15, IR100, IR26) it is not known whether the highway scheme is 'simple' or 'complex' (requiring full variable demand modelling) according to the guidance. This may only be established by a programme of forecasting and economic appraisal tests, for which purposes the ITM could readily be modified;
 - ◆ One of the simpler highway schemes (IR33) constitutes the use of variable message signs, driver response to which is not well modelled in SATURN;
 - ◆ Another of the simpler highway schemes (IR34) constitutes access control to the A14. Assuming the junctions concerned are those immediately adjacent to Ipswich and are therefore included within the ITM, this scheme may be modelled using the ITM but its impacts would be better understood through the use of a separate microsimulation model.
- 8.39 As the other short-listed highway schemes are liable to be 'complex' and require full variable demand modelling, there is little scope to use the ITM in isolation. However, there may still be value in using the ITM as a tool to:

- ◆ Model and appraise schemes for which no public sector funding is required;
 - ◆ Determine whether highway schemes are 'simple' or 'complex' in terms of the Variable Demand Modelling Advice and thereafter to consider any schemes found to be 'simple';
 - ◆ Use as the local highway modelling component of a system of models based on the EERM.
- 8.40 Given the limitations of the ITM to consider the short-listed schemes, ideally the functionally superior EERM would be used throughout, subject to an independent audit of the final version. However even this model would not be functionally well suited to considering park & ride schemes (IPT 5, IPT6 and IPT21), PT interchange schemes (IRa103 and potentially IPT4) and those involving smart choices (IS2 and IS102).
- 8.41 Development of the EERM to address these three identified problem areas is unlikely to be value for money; the assignment and choice model structures would need significant redesign. Instead development efforts may be better spent developing appropriate off-line spreadsheet tools to consider the impacts of park & ride, interchange and smart choices schemes. The requirements for such tools can only really be quantified when full details of the EERM are known and the scope/nature of the schemes to be addressed may be confirmed. However, the investment in such tools would be relatively minor compared to wholesale redesign, recalibration and revalidation of the EERM.
- 8.42 However, there are other issues compromising the use of the EERM to consider the schemes short-listed for this study. Principally, local bus services are omitted and the network and zoning detail is far too coarse to consider local schemes or schemes with local impacts.

RECOMMENDATIONS:

- 8.43 Given the above, the choice of modelling tools for this study boils down to:
- ◆ Use the EERM alone, but significantly refine the network and zoning detail in the Ipswich area. Matrices would need disaggregating, highway links and junctions adding and public transport (notably local bus) services adding²⁶;
 - ◆ Use the EERM strategically and the ITM locally, developing an interface between them for traffic demand/costs as discussed above²⁷.

²⁶ It is estimated that this could take around 8 months to complete, at a cost of around £200k – source: Atkins estimate plus “Eastern Development Control Contract: Development of Models for Haven Gateway”, 24th March 2006, Faber Maunsell/AECOM.

²⁷ It is estimated that it would also take around 8 months to set up an improved ITM, at a cost of approximately £200k, including some data collection [as a rule of thumb, roadside interview costs are typically £6-8k per site] – source: Atkins estimate plus “Eastern Development Control Contract: Development of Models for Haven Gateway”, 24th March 2006, Faber Maunsell/AECOM.

- 8.44 The latter option is perhaps the most attractive as it capitalises on the strengths of the existing models. However, this option fails to accommodate interventions affecting local bus services. These would need to be dealt with off-line as bus travel cannot be reflected in the existing ITM and it makes no sense to include local bus services in the EERM without first adding spatial detail to the model – thereby removing the advantage of using the ITM for its superior spatial detail.
- 8.45 *If it were deemed acceptable to address bus-based measures in a simpler off-line manner than highway measures, then a composite system of models may be most attractive. If not then the EERM should be developed to include far greater spatial detail in the Ipswich area and local bus services be added, requiring a considerable model development, calibration and validation effort.*
- 8.46 Either way it is recommended that park & ride, interchange and smart choices measures should in any case be appraised outside the main model system, using bespoke spreadsheet tools fed with model outputs as appropriate. This recommendation is based on our understanding of the structure of the forthcoming EERM.
- 8.47 By considering park & ride and interchange schemes on an off-line basis, the only other short-listed intervention specifically involving bus is IPT4 – which includes small scale initiatives to improve bus facilities. On the assumption that such measures would not comprise a ‘major scheme’ then (with reference to para. 8.45) it probably would be acceptable to deal with bus-based measures on an off-line basis, too. This leads to the conclusion that an interface between the ITM and EERM should be developed with a view to assessing:
- ◆ Highway schemes using the EERM and ITM;
 - ◆ Rail schemes using the EERM;
 - ◆ Bus, park & ride, interchange and smart choices schemes using bespoke spreadsheet tools fed by appropriate model outputs.
- 8.48 In all cases the models should only be used once the coverage, spatial detail of network and zoning and the quality of validation in the vicinity of the scheme and its impacts have been checked and improved, as necessary.
- 8.49 Finally, it is recommended that issues raised elsewhere in our Model Review and earlier in this chapter are borne in mind, particularly the age/reliability of the data underpinning the ITM and the potential for convergence-related inaccuracies in iterative supply-demand models of the type used in the EERM. The models available are far from perfect for the job in hand but they provide a robust starting point for the development of tools which are fit for purpose.

9. Taking forward the shortlist

THE SHORTLIST

9.1 Chapter 6 of this report discusses the approach we have taken to identifying a shortlist of transport interventions to meet the objectives set for the study. These are summarised in Table 9.1 below.

Table 9.1 – Shortlisted Interventions²⁸

Ref	Description
IR28	Road pricing in Ipswich
IR15	Wet Dock Crossing
IR42/IR116	Ipswich Northern Bypass – local (IR42) or strategic (IR116)
IRa12	New station – Snoasis
IR12	Demand management measures
IR33	Variable Speed Limits on A14
IS2	"Smarter Choices" Plan
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements
IR26	East Bank Link Road (EBLR)
IR100	Copdock interchange - longer term improvements
IS102	Business Park management (travel planning)
IPT4	Bus and rail station improvements
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor
IRa103	New bus/rail interchange at Nacton
IPT21	Park & Ride - new site - Wherstead Corridor
IR104	A14 Junction Closures
IR34	Access control
IPT6	Park & Ride - improved site – Copdock
IRa106	New station at Martlesham
IR5	General traffic management schemes to improve traffic flow

²⁸ In addition to the shortlist, the following schemes which have already been prioritised by the Region or have received 'minded to' productivity TIF funding should also be taken forward:

- ◆ IPT1 Ipswich – Transport fit for the 21st Century –has been prioritised by the Region for delivery in the medium term and performs well against objectives set for this study;
- ◆ IRa10 – Peterborough-Nuneron rail upgrade – has received a 'minded to' fund decision for productivity TIF and performs well against study objectives;
- ◆ IR10 – A14 ITS scheme – has received a 'minded to' fund decision for PTIF and performs well against study objectives.

- 9.2 The shortlist contains a range of potential interventions from demand management measures (such as road pricing and physical measures) through to infrastructure proposals for both public transport and roads. In addition to the tabulated measures, three schemes that are already being progressed should continue to be taken forward, these being the Ipswich – Transport fit for the 21st Century scheme (which has been prioritised by the Region for delivery in the medium term), and the Peterborough-Nuneaton rail improvement and A14 ITS scheme (both of which have received ‘minded to fund’ decisions through productivity TIF).

SUMMARY TABLES FOR SHORTLISTED INTERVENTIONS

- 9.3 We have reviewed in more detail the extent to which the shortlisted interventions have been developed, assessed and appraised to date. This is set out in Appendix E which includes, for each intervention, a table summarising:
- ◆ Available Supporting Material;
 - ◆ Potential Funding Sources;
 - ◆ Review against appraisal criteria and way forward;
 - ◆ State of Readiness;
 - ◆ Potential Time Frame for Implementation; and
 - ◆ Other schemes in the long list which could be complementary.
- 9.4 The Appendix E tables show that the shortlisted measures are at various stages of development ranging from measures which are already being introduced through implementation of the LTP programme, to ‘new’ measures on which limited work has been done such as access control and variable speed limit measures for the A14 and new station proposals.
- 9.5 Packages of measures have not been formally scored as, in general, schemes are required to demonstrate strong performance in their own right in order to secure funding. Importantly, the Appendix E tables therefore also set out other measures that could potentially complement those that have been shortlisted, and reinforce their effectiveness.
- 9.6 Modelling the impact of an intervention is generally a key input into the appraisal process. Our review of available models and our assessment of their suitability for assessing the shortlisted measures (see Chapters 7 and 8) should therefore be considered alongside the relevant Appendix E tables when considering the potential next steps identified.

POTENTIAL TIMETABLE FOR IMPLEMENTATION OF MEASURES

- 9.7 Given their varying states of readiness, and the potential availability of funds from different sources, we have allocated the shortlisted interventions to the three broad time horizons established in this study. These time horizons are:
- ◆ Short term – up to 2010/11;
 - ◆ Medium term – up to 2021; and

◆ Long term – up to 2030

- 9.8 The measures that could potentially be implemented in the short term are set out in Table 9.2. Given the long-lead time for larger infrastructure projects and those measures that seek to manage demand over a wider area, the short term measures are dominated by those that are already passing through the planning process, influence travel behaviour, or are relatively local traffic/passenger management schemes.

Table 9.2 – Potential Short Term Measures (to 2010/2011)

Ref	Description	Comment
IRa12	New station at Snoasis	Subject to Snoasis proposal being granted planning permission following public inquiry. Scheme performs well against objectives in this context but Unlikely to be taken forward in current form in absence of Snoasis.
IS2	Smarter Choices Plan	Performs strongly against objectives. Could potentially secure LTP funding in short-medium term.
IS102	Business park management (travel planning)	Performs strongly against objectives. Could potentially secure LTP funding in short-medium term.
IPT4	Bus and rail station improvements	Performs strongly against objectives. Would require co-ordination with larger scale 'Ipswich fit for the 21 st Century' major scheme.
IR5	General traffic management schemes to improve traffic flow	Performs strongly against objectives Ongoing implementation of measures through LTP.

- 9.9 Those measures that could potentially be introduced in the medium term are summarised in Table 9.3. The proposed highway schemes should be considered if there remains a residual requirement following implementation of the other measures. For this reason, and because of the long lead-times for developing such measures, these schemes are unlikely to be delivered during the early part of the medium term time horizon.

- 9.10 However, the delivery bodies such as Suffolk County Council and the HA may wish to consider undertaking earlier feasibility work on these schemes. This could include an examination of policy-fit, initial scheme development, links to wider transport strategy and potential funding sources, and modelling work to consider need and impact in parallel with implementation of the other proposed measures on the shortlist. Should additional highway capacity still be required following implementation of the other non-highway measures, this could then allow speedier delivery. However, there could be an element of abortive spend if the scheme is not later required.

Table 9.3 – Potential Medium Term Measures (2011/12 – 2020/21)

Ref	Description	Comment
IR28	Road pricing in Ipswich	Scores strongly against objectives and with strong 'points per £' indicator based on revenue neutral assumption. Review in context of ongoing national debate. If taken forward likely to be towards end of period and would require development of complementary measures. Potential public and political acceptability issues would need to be worked through.
IR15	Wet Dock Crossing	Performs strongly against objectives though some environmental concerns.
IR12	Demand management measures	Performs strongly against objectives. Likely to require complementary investment in other non-car modes including park and ride schemes on the radial routes affected.
IR33	Variable speed limits on A14	Performs strongly against objectives. Could potentially be co-ordinated with IR34 A14 access control and IR10 A14 ITS scheme (TIF) as a package making better use of existing A14.
IRa10	Cambridge – Ipswich: Capacity, speed, rolling stock improvements	Performs strongly against objectives but not prioritised in RPA. Potential for rolling stock improvements to be secured in medium term. Infrastructure enhancements may not be delivered until longer term.
IR26	East Bank Link Road	This scheme included on shortlist at this stage subject to reaching an acceptable position with regard to DfT policy on access to trunk roads. Further work likely to be required to mitigate adverse environmental impacts.
IR100	Copdock interchange – longer term improvements	Performs strongly against objectives but local environmental concerns require further review.
IPT5/IRa10 3/IPT21/IP T6	Additional park and ride capacity (various potential sites)	Perform strongly against objectives. Could potentially be subject to wider study of future park and ride provision for Ipswich in the shorter term. Needs to be carried out in context of development of wider Ipswich Transport Strategy.
IR34	A14 access control	Could potentially be co-ordinated with IR33 A14 variable speed limits and IR10 A14 ITS scheme (TIF) as a package making better use of existing A14.

9.11 Potential longer term measures are set out in Table 9.4.

Table 9.4 – Potential Long Term Measures (2021/22 – 2030/31)

Ref	Description	Comment
IR104	A14 junction closures	Performs strongly against objectives though some concern over impacts on local highway network. Consider in longer term only, potentially following implementation of other A14-related measures (variable speed limits, access control). Also needs considering in context of wider long term development of strategic network in the area eg: Ipswich Northern Bypass.
IRa106	New station at Martlesham	Performs well against objectives, by providing improved connection to strategic rail network. Could also support development proposals in Martlesham area. Not prioritised in RPA for medium term.
IR42/IR116	Ipswich Northern Bypass – Local / Strategic	Performs well against objectives overall but poorly against environmental objectives. See comments below.

9.12 If additional east-west highway capacity were required, initial assessment suggests that, of the large scale infrastructure schemes considered, an Ipswich Northern Bypass may offer the best opportunity to provide this. In contrast to any on-line widening scheme on the A14 it would not require provision of a further Orwell crossing with its associated prohibitive costs. In this context it is considered that the scheme may have merit in the longer term. However, the impact of the other proposed measures should be assessed first, with significant highway measures such as this only implemented should a residual requirement remain.

9.13 As noted for some of the medium term interventions, large scale infrastructure schemes can, however, have a very long lead-time from inception through to construction. The delivery bodies, such as Suffolk County Council in the case of a local route and potentially HA in the case of a strategic route, may wish to consider undertaking earlier feasibility work including an examination of policy-fit, initial scheme development and links to wider transport strategy, and modelling work to consider need and impact in parallel with implementation of the other proposed measures on the shortlist. Any such feasibility study would require close liaison with District and Borough Councils in order to give consideration to planning and development issues and to ensure that all authorities work together to lever funding for the delivery of schemes. This may, however, result in an element of abortive work should the scheme not ultimately be taken forward.

- 9.14 Proposals for closing A14 junctions are only likely to be relevant in the longer term. These could potentially be implemented as a follow-up to other management measures such as ramp-metering should these be required.

COMMENTS ON FUNDING, DELIVERY AND NEXT STEPS

- 9.15 Another key conclusion from this review of the shortlisted interventions is that relatively few of these, except those related to ongoing LTP spend, lend themselves to a single funding source. Although this study has identified primary funding sources for each measure, most could potentially secure funding contributions from several sources. The potential for delivering these schemes is likely to be significantly enhanced if funds can be blended and so it is important that the delivery bodies consider developing appraisals of these which can be adapted to meet the requirements of all of the identified sources.
- 9.16 In addition to 'conventional' funding sources, there is also an important potential role for more innovative funding mechanisms, particularly given the proposed levels of growth envisaged for the Ipswich Policy Area in the emerging East of England Plan. This could build upon the work outlined in the Region's submission to the Comprehensive Spending Review 2007 which proposes use of a co-decision/co-funding model.
- 9.17 This proposes various mechanisms for delivering up-front capital to fund measures including potential regional infrastructure bonds, joint prudential borrowing and enabled borrowing through a public agency (such as English Partnerships, or potentially EEDA). These are then recouped through a future revenue stream which could potentially come from Planning Gain Supplement, incentivised tariffs such as a 'roof tax' on development, or through council tax or tax increment financing. One way forward could be to adopt a similar approach to that being used in Milton Keynes where a series of key transport interventions have been identified and costed, and a 'cost per dwelling' to cover these costs has been identified.
- 9.18 Co-ordinating the appraisal and further development of the shortlisted measures, and attracting funding, is therefore a significant task which will require the various authorities, agencies and delivery bodies to work in partnership. Establishing an Ipswich Policy Area Transport Delivery Group to take forward these issues is therefore likely to be a worthwhile initial step towards making this happen.
- 9.19 A key initial task for this group will be to consider the need for improvements to models in the study area to allow robust business cases to be prepared for identified measures as opportunities arise. For most of the short term measures identified (Table 9.2) there is limited requirement for network-based models.
- 9.20 However, many of those measures identified for the medium (Table 9.3) and longer (Table 9.4) term, including those related to demand management and infrastructure provision, will require robust models to support business cases. Existing tools, such as the Ipswich Traffic Model (ITM), could be useful for exploring potential impacts (or as inputs into off-model analysis) but are unlikely to be adequate in their current form for business case preparation.

- 9.21 In addition, improved models could have an important role in assessing the impacts of development proposals being taken forward through the various Local Development Frameworks, and could be used to help define in more detail a package of measures for the Ipswich Policy Area that could be subject to innovative funding mechanisms. Improved models could also potentially feed appraisals of rail-related interventions although it is likely that many smaller-scale rail measures could be assessed without models using other analytical approaches, subject to the agreement of the rail authorities.
- 9.22 There are three potential approaches to developing suitable models. These are:
- ◆ take the EERM and (significantly) disaggregate the networks and matrices within the Ipswich area – however, this could lead to an imbalance in the model with the Ipswich area being more densely represented than other areas of the Region. It would also involve running a very large model when this may not always be required;
 - ◆ take the EERM, define a cordon around an agreed study area, and construct a new model using this as a basis through disaggregating and updating the matrices and networks – this could be a useful approach but consideration would need to be given to how changes in strategic demand/supply would influence the model;
 - ◆ use the EERM as a higher level model representing strategic movements, enhance and upgrade the ITM for local movements, and develop an interface between the two – this is our preferred approach (see below).
- 9.23 We recommend that a modelling approach based on combining the best attributes of the ITM and East of England Regional Model (EERM) is adopted (third bullet point above). This would provide a tool suitable for the assessment of both local and strategic investment measures, and those involving demand management. Such a structure would also be responsive to strategic changes in transport supply/demand since changes in demands from the higher level regional model could be passed down to feed the more localised model when these are required.
- 9.24 More work would be required to define in detail a suitable model structure, the model study area given the wider Haven Gateway transport agenda, and to ensure compliance with the latest DfT 'VADMA' guidance. However, key tasks likely to be required include a detailed review of the ITM networks and zoning system, including link and junction coding and centroid connectors, and a programme of data collection to include new origin-destination (O-D) data.
- 9.25 The current version of the model is based on O-D data collected almost twenty years, and although updated several times since then, the demand matrices are unlikely to be robust enough for detailed business case assessment. There are real practical issues with regards to setting up roadside interview surveys in urban areas so further examination of the feasibility of undertaking these is recommended. However, RSI surveys have recently been undertaken in both Cambridge (in association with the County Council's TIF work) and Peterborough (as part of the City Council's Northern Gateway Study) so this is not infeasible. In addition, development of an interface

between the ITM and EERM would be required to allow data to be transferred between the two models.²⁹

9.26 In conclusion, the recommended next steps are that:

- ◆ the steering group set up to guide this study continues to meet but with a revised remit as an Ipswich Policy Area Transport Delivery Group;
- ◆ the Group maintains close links and works with other Haven Gateway groupings including the Transport Group, and other regional bodies such as Regional Cities East on matters of common interest;
- ◆ the Group considers undertaking work to improve the models available in the study area as outlined above;
- ◆ models are used to test the impact of the interventions identified in this study to assess their impact in more detail and to consider developing a potential package of measures that could be subject to an innovative funding mechanism;
- ◆ consideration is given to developing more rigorous appraisals of measures, using the enhanced models where appropriate, so that the Group can respond to funding opportunities as they arise.

²⁹ It is estimated that it would take around 8 months to set up an improved ITM, at a cost of approximately £200k, including some data collection [as a rule of thumb, roadside interview costs are typically £6-8k per site so there would be a need to review the overall data-related costs once an overall specification has been agreed] – source: Atkins estimate plus “Eastern Development Control Contract: Development of Models for Haven Gateway”, 24th March 2006, Faber Maunsell/AECOM. In addition, work would be required on developing interfaces with EERM. Around £40k should be assumed for developing and testing the interface.

POSTSCRIPT: IMPLICATIONS OF THE EDDINGTON TRANSPORT STUDY

- 9.27 In December 2006, Sir Rod Eddington published his advice to Government on the long term links between transport and the UK's economic productivity, growth and stability³⁰.
- 9.28 The report concluded that the performance of the UK's transport networks is a crucial enabler of sustained productivity and competitiveness. In recognition of this, the study recommends that the strategic economic priorities for long term transport policy should be growing and congested urban areas and their catchments, key inter-urban corridors, and international gateways.
- 9.29 Although the Eddington report was published mid-way through the programme for undertaking this study, its significance for the transport agenda means it is worthwhile giving brief consideration of the implications it has for this study.
- 9.30 The Haven Gateway Ipswich A14 Corridor study area includes elements of all three of the priorities identified by Eddington; the Haven Ports are an important international gateway, Ipswich itself is a growing and increasingly congested urban area, and the links between the town and other urban centres in the East of England (for example, Cambridge, Norwich, Colchester and Chelmsford) and London represent key inter-urban corridors.
- 9.31 Investment in transport in the study area generally therefore appears to align with the priorities identified in the Eddington study. However, certain interventions that have been shortlisted in this study are likely to be more 'Eddington-compliant' than others. Table 9.5 below considers each of the short-listed interventions in turn and indicates where they match the Eddington priorities.
- 9.32 This shows that the shortlisted interventions provide good coverage across all of the priorities. However, certain interventions appear to perform more strongly than others with an Ipswich Northern Bypass and improvements to the Copdock interchange both potentially supporting all three priorities.
- 9.33 However, Eddington recognises that the transport sector needs to play its part in economy-wide reductions in greenhouse gas emissions, and that the sector should meet its full environmental costs. The report also recommends that transport users should meet their external economic, social and environmental costs. Significant road schemes such as those identified above, and proposals for road user charging, therefore need to be considered in this light.

³⁰The Eddington Transport Study: Transport's role in sustaining the UK's productivity and competitiveness

Table 9.5 – Alignment of shortlisted interventions to Eddington priorities

Ref	Description	Growing urban areas	Inter-urban corridors	International gateways
IR28	Road pricing in Ipswich ³¹	✓		
IR15	Wet Dock Crossing	✓		
IR42/IR116	Ipswich Northern Bypass – local (IR42) or strategic (IR116)	✓	✓	✓
IRa12	New station – Snoasis	✓		
IR12	Demand management measures	✓		
IR33	Variable Speed Limits on A14		✓	✓
IS2	"Smarter Choices" Plan	✓		
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements	✓	✓	
IR26	East Bank Link Road (EBLR)	✓		✓
IR100	Copdock interchange - longer term improvements	✓	✓	✓
IS102	Business Park management (travel planning)	✓		
IPT4	Bus and rail station improvements	✓		
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	✓		
IRa103	New bus/rail interchange at Nacton	✓		
IPT21	Park & Ride - new site - Wherstead Corridor	✓		
IR104	A14 Junction Closures		✓	✓
IR34	Access control		✓	✓
IPT6	Park & Ride - improved site – Copdock	✓		
IRa106	New station at Martlesham	✓		
IR5	General traffic management schemes to improve traffic flow	✓		

Key: ✓ indicates would benefit identified Eddington priority

³¹ Eddington recommends that transport users should meet their external costs and provides a strong backing for congestion-targeted road pricing

APPENDIX A: STAKEHOLDER EVENT

1. Introduction

- 1.1 An important part of the study process is consultation with key stakeholders and elected members.
- 1.2 Task 2 required the identification of a long-list of potential measures.
- 1.3 Engagement with interested parties is an important part of the process and the brief required that a stakeholder event be held. A stakeholder briefing was arranged with a view to satisfying two key aims:
- ◆ Review and validate of the long-list of measures
 - ◆ Allow stakeholders the opportunity to identify any missing options
- 1.4 Consultation with key stakeholders took the form of a series of 'Stakeholder briefing sessions'. Three separate sessions were organised and meetings were held at Ipswich Borough Council offices on the following dates:
1. Monday 8th January 2007 09.45-12.00
 2. Monday 8th January 2007 13:30-15.00
 3. Wednesday 10th January 2007 19.30-21.00
- 1.5 Session 1 included a range of stakeholders from local businesses, local government and wider interest groups. Session 2 was attended by elected members and session 3 was attended by Parish Council representatives. The list of attendees for the events was agreed by the Steering Group. A list of all those invited to attend each of these sessions is included in Annex A1.
- 1.6 The intention of the briefing sessions was two-fold:
- ◆ to provide the Steering Group with an opportunity to update key stakeholders and elected members on the study and its progress; and
 - ◆ for key stakeholders to represent the views of their organisation and let the steering group know of any omissions from the long list which should be considered.
- 1.7 Prior to the events a briefing note was issued to all of the invitees. The briefing note provided an overview of the growth and development context, and a summary of the consultants' understanding of transport problems and issues in the study area. The 'long list' of potential transport measures which might address the identified problems and issues was also included. A copy of this briefing note is included in Annex A2.

FORMAT OF THIS APPENDIX

- 1.8 The remainder of this Appendix outlines the proceedings at each of the briefing sessions and the comments made by those that attended the event.

2. Session 1: Monday 8th Jan 2007 - Morning

2.1 The Morning event on Monday 8th January was for stakeholders from local businesses, local government and wider interest groups. Table 2.1 lists those who attended the session.

Table 2.1 – Morning Attendees

Name	Representing
Stephen Andrews	Mid Suffolk District Council
Mike Atkins	Suffolk County Council
Stephen Auld	Ipswich Borough Council
Mike Bateson	Haven Gateway Partnership
Tim Bellamy	EERA
David Birch	Federation of Small Businesses
Natalie Blaken	EEDA
John Broadribb	STEER
Ian Chadney	Port of Felixstowe (HPUK)
Natalie Chapman	Freight Transport Association
Peter Chappell	Essex County Council
Eric Cooper	Highways Agency
John Dugmore	Suffolk Chamber of Commerce
Carol Grimsey	Ipswich Borough Council
Brian Hammond	Access Group (Ipswich)
Andrew Hunter	Environment Agency
Peter Izzard	Suffolk Preservation Society
Neil Jackson	University Campus Suffolk
Geoff Knight	Ipswich RA Footpath Committee
Alastair MacFarlane	Port of Ipswich (ABP)
Robert Maidment	Suffolk Development Agency
Eric McQuillan	First Eastern Counties Buses
Dave Pedersen	Suffolk Fire and Rescue Service Headquarters
Russel Nunn	The Ipswich Society
Robert Paddison	Babergh District Council
Malcolm Robson	Ipswich Buses Ltd
Stewart Schleip	Babergh District Council
Jeremy Schofield	Suffolk Coastal District Council
Mel Spilling	Suffolk Constabulary

Name	Representing
Andrew Summers	GO-East
Mike Tee	Ipswich Borough Council
Fran Toomey	Suffolk County Council
Peter Welham	SALC
John Williams	SALC
Cllr Paul West	Ipswich Borough Council
John Pearson	Suffolk Local Access Forum

- 2.2 The session was split into three parts, with specific objectives identified in order to gain the most from the event.
- 2.3 The first part of the session was a presentation given by the Steering Group. The presentation provided an overview of the study process, set out the long list of measures, and described the assessment process used to identify the shortlist. A copy of the presentation slides from this session is included in Annex A3.
- 2.4 Following the presentation a question and answers session took place for stakeholders to raise any queries and react to the information they had been given.
- 2.5 Attendees were then divided in to three discussion groups at which they were asked to consider specific issues. The same questions were asked of each discussion group.
- 2.6 Within the groups the stakeholders were asked to discuss problems and issues, and whether or not all of the main problems and issues, now and in the future, had been identified in the briefing note they had been given. Stakeholders were asked to give this consideration with regard to all modes of transport:
- ◆ Pedestrians
 - ◆ Cyclists
 - ◆ PT Users – bus, rail
 - ◆ Road – private car
 - ◆ Freight – road, rail
- 2.7 They were then given the opportunity to highlight any additional issues and the key concerns of those they represent.
- 2.8 Summarised in Table 2.2 are the key areas of concern raised within each of the discussion groups.

Table 2.2 – Key Issues Raised in the Discussion Groups

Group A	Group B	Group C
<ul style="list-style-type: none"> ◆ Safety of pedestrian crossing the A14 at grade ◆ Crossing at Bury Road - need to take account of those with disability ◆ Cyclists not observing rules of road / problems at roundabouts ◆ Need to ensure cycle facilities are built into new developments ◆ Mixing cyclists with pedestrians – issue of disabilities ◆ Need more reliable buses / bus information ◆ Traffic growth slowing down buses faster than bus priority measures implemented ◆ Part time bus facilities e.g. bus lane ◆ Bus priority at traffic lights ◆ Need to raise awareness of bus services ◆ Seasonal issues mean foot ferry is not always reliable ◆ Buses are fully accessible to disabled in Ipswich, but not in wider rural area ◆ Lack of station parking ◆ Encouraging use of rail by ensuring trains are more reliable and safer ◆ Dualing of rail line to Felixstowe 	<ul style="list-style-type: none"> ◆ Support for Market towns – danger of focusing on Ipswich; promote Market Towns as hubs and for development ◆ Inclusion of housing and jobs, especially in future – e.g. jobs on the east side, houses in town ◆ No alternative distinctions therefore penalising Ipswich across has social implications ◆ Disabled access ◆ National Port Strategy 	<ul style="list-style-type: none"> ◆ A12/A14 development – severance impacts of developments ◆ Providing links between access to funding / funding linking communities ◆ Study issues weighted towards the Borough ◆ A14 issues should not be overlooked ◆ Need to reflect problems at Whitehouse Corridor / Copdock Interchange ◆ Junction hopping (anecdotal evidence) – occurs on A14 and A12 on the east side ◆ Precarious nature of the Orwell Bridge ◆ Diversion impacts – people not using the prescribed diversion route (real time information could help) ◆ Sheer volume of traffic – how to encourage modal shift – need to improve public transport before people will get out of their car ◆ Needs to be choice if pricing mechanisms are introduced

Appendix A

Group A	Group B	Group C
<ul style="list-style-type: none"> ◆ Warren Heath Station ◆ Speed of train Ipswich to Cambridge not attractive, deters commuters ◆ Junction capacity issues – could be alleviated with an Ipswich Northern Bypass ◆ Problem of rat-running on county roads to avoid congestion ◆ Variable speed limits to increase capacity 		

- 2.9 The second part of the discussion group activity was to spend some time looking at the study objectives and ‘long list’ of interventions.
- 2.10 Each group was asked to discuss the objectives as set by the study brief and the Steering Group, and consider whether for any of these objectives greater weight can or should be given. Each person was asked to individually identify weightings, scoring objectives as low, medium, or high importance.
- 2.11 The responses provided are tabulated below to show the percentage of responses for each objective considered to require high, medium or low priority. Where no priority was indicated for an objective this is also noted.

Table 2.3 – Objective Weighting Suggestions

Objective	High Priority	Medium Priority	Low Priority	No Priority Given
1	86%	14%	0%	0%
2	29%	36%	14%	21%
3	43%	50%	0%	7%
4	36%	21%	21%	21%
5	29%	43%	7%	21%
6	14%	21%	50%	14%
7	64%	21%	7%	7%
8	64%	29%	0%	7%

- 2.12 Individuals were then asked to consider and discuss the ‘long list’. It was explained that the interventions had been grouped by mode, providing each intervention with a unique reference. It was explained that some of the interventions included in the list are well established and understood and consequently have a lot of supporting information, and that other items are relatively new ideas.
- 2.13 The stakeholders were asked whether they thought the list was comprehensive, whether there was anything missing, or if they had any additional new ideas. They were then asked to identify their top three interventions against the study objectives using either the reference from the ‘long list’ or an alternative suggestion.
- 2.14 The sections below list the interventions for each of the objectives from all of the responses received to this exercise. Where an intervention has appeared in more than one person’s top three interventions for that objective this has been highlighted in bold.

OBJECTIVE 1

- ◆ **IR19 – Copdock Interchange**
- ◆ **IR32 – Lorry Lanes**
- ◆ **IR42 – Northern Bypass**
- ◆ **Upgrade junctions with A1156 and A1214**
- ◆ IR106 - Toll free Orwell Bridge
- ◆ IR108 - Hard shoulder along entire length
- ◆ **IR5 / IR40 – traffic management**
- ◆ **IR39 / IR18 Orwell Bridge Management**
- ◆ IR100 – Copdock Interchange
- ◆ **IH1 / IH2 – HGV Management**
- ◆ **IR33 – Variable speed limits**
- ◆ IR37 – Lorry overtaking ban
- ◆ IRa10 - Upgrade rail link Ipswich to Peterborough and Cambridge
- ◆ IS2 / IS1 / IR17 - Smarter choices
- ◆ IR12 - Demand management measures
- ◆ IR29 Orwell Bridge

OBJECTIVE 2

- ◆ IPT5 / IPT9 – P&R Felixstowe Road / Nacton Road corridor
- ◆ IS7 – Foot ferry
- ◆ IS103 – Green Travel Plane for major employment sites
- ◆ Expand rail services for freight
- ◆ IRa101 - Keep passenger rail services and new station Warren Heath and Claydon
- ◆ Disperse port traffic around county - do not concentrate on one area / region
- ◆ **IRa3 – Peterborough–Nuneaton upgrade**
- ◆ IRa1 – East Suffolk Line Improvements
- ◆ IRa14 – Ipswich north freight chord
- ◆ IH3 – Lorry parks
- ◆ **IR5 / IR40 – traffic management schemes**
- ◆ Improvements required to road and rail links
- ◆ IS2 / IS1 / IR17 - Smarter choices
- ◆ IRa1 / IRa10 - Improve rail capacity
- ◆ Make more use of port related land
- ◆ IR32 - Lorry lanes
- ◆ IH1 / IH2 - HGV management flows

OBJECTIVE 3

- ◆ IR15 – Wet Dock Crossing
- ◆ IR19 – Copdock Interchange
- ◆ **IPT11 – Improve PT between villages & Ipswich**
- ◆ Look at one-way systems
- ◆ IPT17 - Bus priority measures
- ◆ IR28 - Road pricing policies
- ◆ IPC4 - Strategic cycle network
- ◆ **IPT4 / IR19 – Bus & rail station improvements**
- ◆ **IPT19 / IRa19 – PT links to Stansted & London**
- ◆ **IR23 / IR24 – Car park provision in Ipswich TC**
- ◆ IPT3 – Quality Bus Partnerships
- ◆ IPT5 / IPT9 – P&R Felixstowe Rd / Nacton Rd corridor
- ◆ IPT18 – Integrated ticketing
- ◆ IS103 – Green travel plans for major employment sites
- ◆ Improvements required to road and rail links
- ◆ IS2 / IS1 / IR17 - Smarter choices
- ◆ IR12 - Demand management measures
- ◆ IPT11 / IPT4 / IRa9 - Improve public transport
- ◆ IRa8 / IRa12 / IRa18 / IRa101 / IRa102 / IRa103 / IRa106 - New stations
- ◆ IR42 / IR116 - Ipswich Northern By-pass
- ◆ IPT3 / IPT11 / IPT17 - Improved bus services

OBJECTIVE 4

- ◆ **IRa3 – Peterborough-Nuneaton upgrade**
- ◆ IRa10 – Cambridge-Ipswich improvements
- ◆ IRa1 – East Suffolk Line Improvements
- ◆ IS4 - Plan cycle parking as part of development
- ◆ IPC3 / IPC4 - Keep cyclists and pedestrians apart
- ◆ Provide public transport as part of development
- ◆ **IPT19 / IRa19 - High quality PT links to Stansted / London**
- ◆ IR5 / IR40 – Traffic Management
- ◆ Improvements required to transport infrastructure
- ◆ IRa1 / IRa10 - Improve rail capacity
- ◆ IR5 - General traffic management schemes to improve traffic flow
- ◆ IPT3 / IPT11 / IPT17 - Invest in improved public transport
- ◆ IR39 / IR18 - Orwell Bridge
- ◆ Rail upgrades required

- ◆ IS102 - Business Park Management

OBJECTIVE 5

- ◆ IR14 – New Cut Bridge
- ◆ IR15 – Wet Dock Crossing
- ◆ IPT21 – P&R Wherstead Corridor
- ◆ IPT5 / IPT9 / IPT6 / IPT20 / IPT21 - Extra P&R
- ◆ More parking at rail stations required
- ◆ IR30 - HOV lanes
- ◆ Better enforcement (disabled badge abuse)
- ◆ Transport infrastructure to deal with overall / specific developments
- ◆ **IPT11 – Improve PT around village hubs and market towns**
- ◆ IPT1 – Ipswich Transport Fit for 21st Century
- ◆ IR42 – Ipswich Northern Bypass
- ◆ Improvements to transport infrastructure
- ◆ IS2 / IS1 / IR17 - Smarter choices
- ◆ Maintain local facilities such as schools
- ◆ IPT11 / IPT4 / IRa9 - Improved public transport
- ◆ IS6 / IS1 / IR17 - School travel plans

OBJECTIVE 6

- ◆ **IR27 / IR13 – Waterfront Improvements**
- ◆ **IR15 – Wet Dock Crossing**
- ◆ IH3 – Lorry parks
- ◆ Need rail access for freight
- ◆ Careful land use choice re. immediate surroundings
- ◆ IR25 – West Bank Link Road
- ◆ **IR26 – East Bank Link Road**
- ◆ Port of Ipswich unlikely to develop much beyond its current capabilities
- ◆ Rail access via Halifax junction must be retained
- ◆ Unfortunately road access to the port is via Wherstead Rd and / or Stoke Br
- ◆ West bank has advantages of good road link to A14 and availability of rail link

OBJECTIVE 7

- ◆ IPT5 / IP9 – P&R
- ◆ **IS103 – Green Travel Plans for major employment sites**
- ◆ IS102 – Business Park management
- ◆ Improve railway to take heavy traffic off road

- ◆ Better rail passenger services
- ◆ More affordable transport services
- ◆ **IS2 / IS1 / IR17 - Personalised travel planning**
- ◆ IS6 / IS1 / IR17 - School Travel Plans
- ◆ IPC2 / IPC3 / IPC4 / IR31 - Comprehensive cycle and walking strategy
- ◆ Ipswich Major Scheme broken down into component parts if necessary
- ◆ IR30 – HOV lanes
- ◆ IPT11 – Improved PT around village hubs and market towns
- ◆ IPT1 – transport fit for the 21st Century
- ◆ Additional park and ride links in Ipswich at A14 / A137 and A14 / A1189 junctions
- ◆ IRa1 / IRa10 - Improvements to rail links from Ipswich to Cambridge, Peterborough and Lowestoft
- ◆ IPT1 / IPT3 / IPT4 / IRa9 / IPT11 - Improve public transport
- ◆ IPC2 / IPC3 / IPC4 / IR31 - Improve pedestrian and cycle routes
- ◆ Improve rail links
- ◆ IPC3 / IPC4 - Cycling

OBJECTIVE 8

- ◆ IPT5 / IP9 – P&R
- ◆ IPT21 – P&R Wherstead Corridor
- ◆ IPT17 – Bus Priority Measures
- ◆ **IPT1 / IPT3 / IPT4 / IRa9 / IPT11 - Improve public transport**
- ◆ Access for disabled people
- ◆ Link up community transport
- ◆ IPT11 – Improved PT around village hubs and market towns
- ◆ IS6 – School Travel Plans
- ◆ IS4 – Measures to support non-car modes
- ◆ **IPT1 - Anything which promotes the use of PT**
- ◆ Cleaner fuels, improved technology
- ◆ IR109 - Transport impact mitigation measures such as bunding, acoustic fencing etc
- ◆ East Bank Link to A14 required but new junction on A14 would reduce capacity
- ◆ Additional park and ride links in Ipswich at A14 / A137 and A14 / A1189 junctions
- ◆ **IS2 / IS1 / IR17 - Encourage use of sustainable modes of transport**
- ◆ IH1 / IH2 - HGV Plans
- ◆ Improved rail links

2.15 Some stakeholders required more time to consider their responses to the questions and, where this was the case, people were asked to send their comments by post, fax or email.

- 2.16 Suggestions for additional measures, which had not previously been identified, have been included in the long-list.

3. Session 2: Monday 8th Jan 2007 – afternoon

- 3.1 The afternoon session on Monday 8th January was held for elected members. Table 3.1 lists those who attended the session.

Table 3.1 – Afternoon Attendees

Name	Representing
P Bellfield	Suffolk County Council
John Field	Suffolk County Council
Louise Gooch	Ipswich Borough Council
Cllr Russell Harsant	Suffolk County Council
Elizabeth Harsant	Ipswich Borough Council
John Klaschka	Suffolk County Council
Inga Lockington	Ipswich Borough Council
Patricia O'Brien	Suffolk County Council
Gordon Paton	Mid Suffolk District Council
Cllr John Perry	Suffolk Coastal District Council
WA Quinton	Suffolk County Council
Judy Terry	Ipswich Borough Council
David Busby	Babergh District Council
John Carnall	Ipswich Borough Council
Cllr Sherrie Green	Suffolk Coastal District Council
Sandy Martin	Suffolk County Council
K Pollard	Suffolk County Council
K Rawlingson	Suffolk County Council
Nick Ridley	Babergh District Council
Michael Miller	Babergh District Council

- 3.2 The session was split into two parts. The first part of the session was the presentation given by the Steering Group (as presented at the morning session) which provided an overview of the study process, set out the long list of measures, and described the assessment process used to identify the shortlist.
- 3.3 Following the presentation a question and answers session took place for members to raise any queries and react to the information they had been given.
- 3.4 A summary of those comments and suggestions made by District Councillors is provided below.

Orwell Bridge

- 3.5 Orwell Bridge featured greatly in the discussions, some suggestions for improvements at this location were:
- ◆ the expansion of Orwell Bridge to three lanes, with toll
 - ◆ variable speed / traffic management to regulate speeds
 - ◆ a tunnel at Orwell
- 3.6 There was concern at the mention of tolls on Orwell Bridge from several members, who highlighted the need to manage traffic positively rather than by penalising those that need to use this route.
- 3.7 Further comments on this particular location were:
- ◆ a radical solution is required for Orwell Bridge to keep traffic moving
 - ◆ when repairs are being carried out on Orwell Bridge traffic extends through Nacton and Felixstowe Road, increasing journey times
 - ◆ as a result of insufficient / unsuitable rail services for commuters, much of the traffic on the Orwell Bridge is considered to be attributable to London commuters
- 3.8 It was acknowledged that potential solutions to the problems on Orwell Bridge are included on the long-list.
- 3.9 B1078 / B1079 Coddensham could provide an alternative river crossing to the Orwell Bridge.

Copdock Interchange

- 3.10 Questions arose over plans for Copdock, considered by some to be the main problem on the A14. Others agreed that it is necessary to address the problems at Copdock to sort out the A14 corridor, and it was noted that the diversionary route through Sproughton is considered to be unsuitable.
- 3.11 Eric Copper from the HA responded to these comments, and outlined the need to identify potential interventions which could lead to a solution. Eric agreed that it is a difficult location, and that this study is part of the process in identifying solutions.

HGVs / Freight

- 3.12 It was quoted in the presentation that HGVs account for 27% of traffic on the A14, which the steering group confirmed is high for a trunk road in any circumstances, and that we need to be mindful of this.
- 3.13 The A14 Study was raised, and the Steering Group were asked if this had been taken into consideration. It was considered that with the development of the Port infrastructure traffic will double and the percentage of HGVs on the A14 will further increase.
- 3.14 The volume of HGV traffic on the A14 was considered to be a cause of many of the accidents that occur on the route, some suggestions to overcome this were:

- ◆ Lorry overtaking ban on A14
 - ◆ Encourage HGVs to use roads off peak
- 3.15 Whilst there was concern over the amount of HGVs on the route, others highlighted that this is what the A14 was built for.
- 3.16 There was support for transference of freight from road to rail, and the Felixstowe to Nuneaton Route is vital to this. It was felt that getting more freight on rail should be something we are taking very seriously.

A14 Specific

- 3.17 Some considered the proportion of HGVs on the A14 not to be the problem, but that it is the 73% of traffic made up by cars which need to be looked at, i.e. the reason for so much traffic on this section of the A14. Suggestions specific to the A14 included:
- ◆ address the issue of London commuters using their cars rather than rail, e.g. consider parkway stations
 - ◆ reduce speed limits on the A14 – to reduce accidents and improve reliability
- 3.18 Some consider that the original role of the A14 has now been superseded.
- 3.19 The Steering Group acknowledged that a parkway station at Martlesham was not something already included in the 'long list'.

Other Suggestions

- 3.20 Throughout the afternoon's discussion, other suggestions were made relating to a variety of perceived issues in the area:
- ◆ Reduce traffic into Ipswich through rail ticket pricing policies; stations near Ipswich; and a shuttle bus service into Ipswich
 - ◆ Effective signage for the Snoasis development to keep people out of Sproughton
 - ◆ Management of traffic generated by Snoasis, estimated to employ 2000 people, which will increase traffic on the A12
- 3.21 It was explained that the HA has begun studies as part of a scheme identified to mitigate the impact the port of Felixstowe expansion and Snoasis development.
- 3.22 Some other general concerns included the following:
- ◆ infrastructure is not in place for the developments that will take place in the region
 - ◆ short term solutions are not good enough
 - ◆ need to get traffic off roads, or provide new roads / rail links
 - ◆ proposals to develop Yarmouth as a container port will have a huge impact
 - ◆ the benefit of the Felixstowe Road corridor proposals for a bus lane on Bishop Hill, as there is no park and ride this side of town
 - ◆ Nacton Road leading to Duke Street
 - ◆ Congestion in Ipswich

- ◆ public transport provision is not good enough, need to provide linkages to other areas
- ◆ stations at Westerfield – poor road structure

3.23 Suggestions for additional measures that had not previously been identified have been included in the long-list.

4. Session 3: Wednesday 10th January 2007 – Evening

4.1 The evening briefing session on Wednesday 10th January 2007 was held for representatives of Parish Councils in the Study area. The session took the same format as the elected members' briefing with a presentation followed by questions and answers. Table 4.1 lists those who attended the session.

Table 4.1 – Attendees

Name	Parish
David Bailey	Bramford
Bill Green	Haughley
J Timmins	Levington & Stratton Hall
Ian Angus	Levington & Stratton Hall
Chris Blundell	Martlesham
Trevor Boon	Pinewood
Graham Steel	Shotley
Jeremy Peters	Shotley
Simon Curl	Sproughton
Keith Welham	Stowupland
Brian Frost	Trimley St Mary
Simon Ross-Pearce	Woolverstone
Clive Harris	Sproughton
Michael Ninnmey	Felixstowe TC
Lesley Reed	Elmwell
Mr Shaw	Kirton & Falkenham
Susan Robinson	Felixstowe TC
Carl Lay	Claydon
J Rapley	Beyton
K Aimes	Copdock & Washbrook
A Didham	Sproughton

4.2 A summary of the comments and suggestions received at the session is provided below.

Felixstowe

- 4.3 Several people highlighted the dependency of Felixstowe on the A14. There is no other way in or out. In this respect Felixstowe is isolated. There is no option for 'reducing non-strategic' journeys, even if this traffic uses the A12. This is perceived to result in issues at the Dock Spur roundabout, i.e. blocking / stacking and accidents. Journeys made between Felixstowe and Ipswich need addressing, especially public transport provision between the two towns, there needs to be more quality bus and rail provision. There is currently no bus station in Felixstowe.
- 4.4 Dock Spur roundabout also affects villages on the A14, particularly the Trimleys and Kirton. Improvements are needed at the Dock Spur roundabout.
- 4.5 It was felt that a bus station needs to be provided at Felixstowe.

A14

- 4.6 There was concern that the traffic generated by the growth at Felixstowe and other developments, on top of the congestion that already exists, would be overwhelming. The A14 is not fit for purpose, highlighted by the fact that when the Orwell Bridge is closed for long periods there are major delays. Either an upgrade, or a new road is needed.
- 4.7 One observation was that the entire A14 route appears discontinuous, with convoluted junctions along its length, for such an important route.
- 4.8 There was concern at the continued growth of traffic on the A14, particularly at the increased numbers and size of large goods vehicles, and in the increased noise levels experienced at properties, especially the houses in Devon Road and Mill Street.
- 4.9 One attendee at the session said that they would not support any widening of the A14 to dual three lanes as this would inevitably lead to a further increase in traffic, in traffic noise and the consequent nuisance to residents of Stowupland.

Copdock

- 4.10 Copdock Interchange is approaching capacity. It is an intersection of two international routes. The HA have been aware of the problems here for a long time.
- 4.11 Copdock is always blocked in, from London Road to Copdock Interchange, and therefore residents use Copdock / Sproughton villages to avoid them. The retail park blocks residents in.

Noise

- 4.12 Noise from the A14 can now always be heard. The question was asked how we can intervene to ensure that areas of natural beauty are protected against noise. The Steering Group confirmed that environmental impacts are reflected in the Study objectives.

- 4.13 Some residents close to the A14 experience significant noise problems. There is a need for new super silent tarmac. Residents are petitioning in an attempt to replace the concrete around Woolpit-Haughley, but the same issues apply in the Ipswich to Felixstowe corridor.
- 4.14 With regard to noise level, design standards on environmental grounds is very important. Rural communities in particular are affected by noise. Sound barriers are needed on elevated sections of road, and this should be referenced in the study.

HGVs

- 4.15 HGVs need to be able to overtake cars.
- 4.16 Rail bridges are too low to accommodate the super sized containers, and consequently they will have to use the roads.
- 4.17 It was noted that HGV operating centres are appearing on farm land, and strongly felt that goods vehicle operating centres should only be set up adjacent to the A14 or at the Docks.
- 4.18 Improvements in rail infrastructure throughout Suffolk and beyond should be high on the agenda for getting freight off roads.
- 4.19 If the Nuneaton rail link were better, there would be fewer HGVs on the roads and consequently fewer accidents.

Ipswich

- 4.20 There was concern that there seems to have been a deliberate effort in recent years to push traffic out of Ipswich.
- 4.21 Ipswich Northern bypass is thought to provide a lot of answers; it would relieve Copdock, and relieve Orwell Bridge. This should be the first measure that is put in place as it would make everything else unnecessary.
- 4.22 It was noted that access from island platform at Ipswich rail station needs to be improved.

Martlesham

- 4.23 Problems at Martlesham were noted. There is congestion at normal peak times, due to the Innovation Park etc. This is likely to get worse. The A1214 is referred to in the document as a 'Northern Bypass', it is not a bypass. The A1214 is problematic. Heavy lorries will not use roundabouts and signals. This seriously needs addressing. Vehicles use the A12 to avoid Ipswich. Kesgrave and Martlesham need relief. The A14 and country lanes are being used to avoid Ipswich.

Other communities

- 4.24 There was concern that the A14 study is 'looking into Ipswich', and needs to look at peripheral communities also.

- 4.25 The focus appears to be on urban problems and their solutions, with little consideration for the hinterland. At the A137/B1456 junction problems here quickly tail back and impact upon Shotley. This is designated as an Area of Natural Beauty. Special protected areas need balance to be kept. The new college in Pinewood has not been identified, the student population transport is key.
- 4.26 Rural parishes need good bus/rail provision.
- 4.27 A quicker bus link between Stowupland and Stowmarket is needed.

Additional suggestions

- 4.28 Traffic flows and HGV numbers predicted for 2012 indicate grid lock, which means that we are addressing the problem too late. The programme needs accelerating to be complete by 2015.
- 4.29 Ensure traffic destined for A140 north remains on the A14 to the A14/A140 intersection, rather than shortcut on the A1120.

5. Further Suggestions

- 5.1 Following the Stakeholder Events, some additional suggestions were received this are listed in table 5.1.

Table 5.1 – Further Suggestions

Suggestion	Source
<p>Position P&R off A14 close to Stowmarket and other larger towns (Felixstowe), the buses could then shuttle backwards and forwards down the A14 and could be used by people travelling to Ipswich to work as well as to shop.</p>	<p>Elmswell Parish Council</p>
<p>The B113 through Bramford and Sproughton is identified as a pinch-point caused by traffic seeking to avoid Copdock Interchange but this road is also used as a diversion when the A14 is blocked.</p> <p>Papermill Lane and Bramford Road are also used with result that Bramford becomes grid locked. At such times the use of the old section of the A14 between Claydon and Norwich Road, Ipswich could alleviate the situation.</p> <p>Bramford Road and Sproughton Road should be included as a problem/issue with congestion likely to worsen as a result of further developments in the vicinity of Bramford Road.</p> <p>Greater consideration should be given to the benefits that would accrue from the construction of a northern route linking Felixstowe with the A14 Stowmarket. This would alleviate congestion on the southern section and provide an alternative route to the Orwell Bridge.</p>	<p>Bramford Parish Council</p>
<p>Study should look at the Haven Gateway-Newmarket corridor, and not merely at roads.</p> <p>Climate change and the related problems of carbon emissions are of over-riding importance to almost all other issues. Without addressing this issue all the others become irrelevant.</p> <p>Two objectives have the highest priority: ‘Develop more sustainable forms of transport’ and ‘Reduce impact of transport on the environment’.</p>	<p>STEER</p>
<p>Concern about continued growth of traffic on A14, particularly the increased numbers and size of large goods vehicles, and the increased noise levels experienced at properties on Devon Road and Mill Street.</p> <p>Would not support any widening of the A14 to dual three lanes.</p> <p>Concern about the volume of large goods vehicles using the A1120 through (Stowupland) as a short cut between A14 at Stowmarket and A140 at Stonham. Steps should be taken to ensure traffic destined for A140 north remains on A14 to the A14/A140 intersection.</p> <p>Need to decrease numbers of large goods vehicles on the A14 – through improvements in rail infrastructure throughout Suffolk and beyond; along with improved timetabling, higher capacity passenger trains; and inducements to ensure a higher proportion of goods transported by train to destinations beyond the Suffolk border.</p>	<p>Stowupland Parish Council</p>
<p>HA4 Copdock Interchange – most constant problem/issue.</p>	<p>Nacton Parish Council</p>

Suggestion	Source
<p>Ransomes / Nacton Interchange should also be included in the problems and issues – the continual expansion of the Ransomes Retail / Industrial Park, the Ravenswood housing estate and the Ipswich East docks traffic mean that the traffic at this interchange is ever increasing.</p> <p>Daily school travel by car means this interchange is rapidly becoming a bottleneck for both entrance travelling West and exit travelling East and will need future attention.</p>	
<p>In support of the application by the Felixstowe Dock and Railway Company for proposals to mitigate noise and light pollution along the A14/Branch Line Corridor. Main point that doubling of freight on the line will increase noise pollution and that lorry traffic will rise on the A14 by 50% leading to increase in noise pollution from the parallel A14.</p> <p>Expectation that there would eventually be a resurfacing of the A14 that would reduce road noise.</p> <p>Problem – degradation caused by noise and light pollution along the A14/Felixstowe Branch Line transportation corridor as a result of a surge in freight transport from the port of Felixstowe via the national road and rail systems. Suggests earth bund and evergreen landscaping along length of rail improvements from Trimley to Nacton.</p> <p>Expects freight traffic moving by rail and road along the A14/Branch Line corridor to grow to two and a half times what it is today within a few years as a result of port expansion.</p>	<p>Residents of Levington</p>
<p>Concern that study has not included the section of the A14 between Seven Hills (the A12(N)) junction and the Port of Felixstowe.</p> <p>Ensure that the effect of the Corridor Study proposals are not adverse to Felixstowe town and Port.</p> <p>Particular notes:</p> <ul style="list-style-type: none"> ◆ Study needs to be expanded to include A14 between the Seven Hills junction & Felixstowe ◆ Connection of the A14 from the International Gateway of Felixstowe to the rest of the UK’s strategic road network needs to be reflected ◆ References to queues at junctions to be expanded to include Felixstowe junctions ◆ Opposed to the proposal to reduce the Ipswich inner ring road to one lane ◆ Traffic management during Felixstowe port closures is a vital issue for Felixstowe and Ipswich ◆ Importance of infrastructure highlighted in RES, etc ◆ HA7 – Impact of A14 diversions through Ipswich should be expanded to include diversions through Felixstowe and the surrounding villages 	<p>Felixstowe Town Council</p>

Suggestion	Source
<ul style="list-style-type: none"> ◆ Include issues of 'stacking' in relation to the Port of Felixstowe ◆ 'Second Order' impacts should include villages in the vicinity of Felixstowe – Trimley St Mary, Trimley St Martin and Kirton ◆ Concern that plans for the Felixstowe to Nuneaton rail link are not being progressed ◆ Consider traffic management at key locations and particular roundabouts in Ipswich during incidents that lead to congestion ◆ A14 and Ipswich AND Felixstowe are inextricably linked ◆ Road pricing in Ipswich would lead to further congestion on the Orwell Bridge ◆ Opposed to tolling on Orwell Bridge ◆ Improvements to the quality of both the trains and buses which service Felixstowe ◆ Supports policy to widen Orwell Bridge ◆ Support an Ipswich Northern Bypass ◆ Supports proposals for HGV overtaking ban on the A14 ◆ Treat junction closures with great caution, particularly where the junction provides vital local access to the strategic road network ◆ Include improvements to the Dock Spur Roundabout, Felixstowe 	
<p>Impact of trunk road incidents on the amenity of Sproughton Village is severe. – Diversion from A14 through Sproughton Village causes gridlock – B1113 through Sproughton Village not suitable for use as A14 diversion route</p> <p>A14 noise problem for Sproughton residents needs to be resolved</p> <p>Require traffic relief scheme for Sproughton Village, with no diverse effect upon the environmentally sensitive area of Chantry Vale</p> <p>Concern that road pricing in Ipswich will have adverse impact on Sproughton Village</p>	<p>Sproughton Parish Council</p>

APPENDIX B: COAST ANALYSIS – SCORES AND RANKING

APPENDIX C: COAST SENSITIVITY TESTS – ALTERNATIVE WEIGHTING SCENARIOS

Appendix C - Scores against objectives (weighted sensitivity tests)

Ref	Description	Rank			
		Overall	Obj. 1	Obj. 3	Obj. 7&8
IR28	Road pricing in Ipswich	1	1	1	1
IPT1	Ipswich - Transport fit for the 21st Century	2	3	2	2
IRa3	Peterborough - Nuneaton upgrade	3	2	3	3
IR41	Widen Orwell Bridge	4	4	5	13
IR15	Wet Dock Crossing	5	12	9	11
IR107	Orwell Tunnel	6	6	8	20
IR42	Ipswich Northern Bypass – local	7	5	12	27
IR106	New Orwell Bridge	8	7	11	25
IR108	Provide additional lane capacity on A14	9	10	13	-
IRa12	New station – Snoasis	10	15	6	5
IR12	Demand management measures	11	16	4	4
IR32	Lorry Lanes on A14	12	11	17	32
IRa8	New station/Improvements to Westerfield - Ipswich Northern Fringe	13	21	7	7
IR33	Variable Speed Limits on A14	14	13	15	15
IR116	Ipswich Northern Bypass – strategic	15	8	16	-
IR115	New dual-carriageway Stowmarket to Felixstowe	16	9	19	-
IS2	"Smarter Choices" Plan	17	23	10	6
IRa10	Cambridge - Ipswich: Capacity, speed, rolling stock improvements	18	19	14	8
IR10	A14 ITS Scheme	19	14	23	24
IR26	East Bank Link Road (EBLR)	20	34	22	-
IR29	Orwell Bridge tolling	21	17	20	9
IR100	Copdock interchange - longer term improvements	22	20	27	-
IRa18	New stations - Ipswich-Cambridge route	23	25	21	16
IS102	Business Park management	24	24	28	10
IPT4	Bus and rail station improvements	25	31	18	12
IPT5	Park & Ride - new site - Felixstowe Road/Nacton Road corridor	26	26	24	21
IRa103	New bus/rail interchange at Nacton	27	27	25	22
IPT21	Park & Ride - new site - Wherstead Corridor	28	30	26	17
IR104	A14 Junction Closures	29	18	-	28
IR34	Access control	30	22	-	33
IPT6	Park & Ride - improved site – Copdock	31	28	29	19
IS4	Measures to support non-car modes (Ipswich North development area)	32	-	31	14
IRa106	New station at Martlesham	33	29	30	26
IR5	General traffic management schemes to improve traffic flow	34	-	-	30

The Table above shows those interventions that scored more than 100 in the COAST analysis and their overall rank when the study objectives are given equal weight (see the 'overall' column).

As discussed in the main text to this report, three 'what if' sensitivity tests were undertaken to understand the impact of weighting some objectives more heavily than others. In each of the three sensitivity tests, interventions continued to be scored against all of the objectives, but within this the sensitivity tests involved doubling the weights of:

- ◆ Objective 1: To allow the Newmarket to Felixstowe Corridor to continue to function effectively and efficiently as a (inter)national route;
- ◆ Objective 3: Support the role of Ipswich as a 'Key Centre of Development and Change' and as a 'Regional Transport Node' in the emerging EEP; and
- ◆ Objectives 7 & 8: Develop more sustainable forms of transport, and reduce impact of transport on the environment.

The columns headed Obj1, Obj3, and Obj7&8 show the results for these sensitivity tests. For example, under Obj1, the interventions have been scored against all objectives but the value achieved against Objective 1 has been doubled.

The numbers in each column show the revised ranking for each scheme under each sensitivity test. Where no rank is shown (-), this means that the measure falls out of the top third when those objectives are given greater weight.

This shows that, for example, scheme IR28 'Road Pricing in Ipswich' retains its number one ranking under both the un-weighted COAST and the sensitivity tests. [For example, although compared to some measures road pricing has a relatively small impact against Objective 1, the high scores it achieves against some of the other objectives mean that road pricing continues to achieve the highest score overall, even under the Obj1 weighted sensitivity test.]

However, for other measures there is some movement up and down the rankings under the different sensitivity tests.

These movements are also an indication of the strength of performance against the other objectives. For example IR42 (Ipswich Northern Bypass – local) remains in the top third irrespective of the weighting applied. When this is compared to IR116 (Ipswich Northern Bypass – strategic) it can be seen that this falls out of the top third when greater weight is given to objectives 7 and 8. This shows that IR42 (Ipswich Northern Bypass – local) performs better against the other objectives in order to remain in the ranking.

APPENDIX D: ASSUMED COST RATES

APPENDIX D: ASSUMED COST RATES

Table D1: Assumed general cost rates for interventions

Description	Measure	Rate (£ m)	Source/notes
Highway widening from D2 to D3	Length - km	7.0	Advice from HA (Q2 2006 based on outturn TPI costs)
New offline highway D2AP	Length - km	10.6	Advice from HA (Q2 2006 based on outturn TPI costs)
New offline highway S2	Length - km	6.6	Advice from HA (Q2 2006 based on outturn TPI costs)
Park and ride site (new)	Per site	4.0	Experience in Cambridgeshire
Park and ride site (extension to existing)	Per site	2.0	Professional judgement based on experience in Cambridgeshire
New rail station	Per station	15.0	Experience elsewhere including Cambridgeshire
Access control / ramp metering	Per junction	0.5	Based on review of M6 ramp metering costs
Urban traffic management	Per radial route	0.2	Assume 5 key radials
Congestion charging/Orwell Bridge tolls	-	0.0	Assumed to be revenue neutral for purposes of study
Demand management measures	Per radial route	0.5	Assume 5 key radials

Table D2: Assumed costs for specific interventions

Description	Cost (£m)	Source
Ipswich fit for the 21st century	17.3	Suffolk County Council LTP2
East Bank Link Road	85.2	Suffolk County Council pre-LTP2 analysis
Wet Dock Crossing	66.5	Suffolk County Council pre-LTP2 analysis
Copdock Mill interchange - long term improvements	20.0	Professional judgement and F2N report
Peterborough-Nuneaton rail upgrade	80.0	Network Rail Business Case for TIF funds
A14 ITS scheme	33.0	HA Business Case for TIF funds
Cambridge-Ipswich capacity speed and rolling stock improvements	45.0	F2N report
Smarter choices plan and measures	5.0	Assume as costed for Peterborough sustainable towns demonstration project
Orwell Bridge (new/improved)	350.0	Advice from bridge engineers based on recent costs for similar structures
Orwell Tunnel	440.0	Institution of Civil Engineers Proceedings on Orwell Bridge indicate 25% more expensive than equivalent bridge

Notes:

Assume Ipswich section of A14 (A140 to A12N) is 25km long; Assume an Ipswich Northern Bypass would be 13km long; Assume a Stowmarket to Felixstowe road would be 36km long
Only those interventions identified in Table 6.1 costed at this stage

APPENDIX E: SUMMARY TABLES FOR SHORTLISTED MEASURES

Scheme Details: IR28 - Road Pricing in Ipswich	
Option Title	IR28 - Road Pricing in Ipswich
Description of Option	<ul style="list-style-type: none"> ◆ Charge covering the Ipswich urban area inside A14/A12 (details of coverage and approach to charging would need to be defined through further work) ◆ Could potentially be cordon / area based charge ◆ Complementary measures included
Overview of Available Supporting Material	None
Potential Funding Sources	TIF (Congestion TIF)
Review against appraisal criteria and way forward	<p><u>Funding requirements</u> To access congestion TIF funds:</p> <ul style="list-style-type: none"> ◆ 'proposals need to demonstrate a step change from the approaches currently used by bidding local authorities' ◆ DfT are 'most likely to fund packages involving road pricing' ◆ 'authorities should combine demand management measures with other measures to encourage modal shift, such as improved public transport' ◆ Proposals for Ipswich could fit in the 'individual smaller towns and cities' category for which DfT are inviting bids, or potentially 'groups of towns or cities together in a region' by building links with the proposals being considered for Cambridge and Norwich. <p><u>Existing appraisal information</u> There has been no detailed consideration to date of road pricing in Ipswich. There is, therefore, no available information to compare against funding criteria.</p> <p><u>Way forward</u> Should a decision be taken to proceed with exploring road pricing in Ipswich, processes and procedures set out in DfT TIF guidance (January 2006, and February 2007) will need to be followed. These include:</p> <ol style="list-style-type: none"> 1. TIF partnership (optional but advisable) <ul style="list-style-type: none"> ◆ Submission of scheme proposal to DfT, which should contain: <ul style="list-style-type: none"> - Scheme description - Problems & objectives identified; - Assessment of alternative options; - Stakeholder engagement to date & future plans; - Outline of the main risks;

Scheme Details: IR28 - Road Pricing in Ipswich	
	<ul style="list-style-type: none"> - Description of commercial aspects; - Early indication of costs for public transport element of package; - A vfm assessment of the preferred option. <p>2. Programme Entry</p> <ul style="list-style-type: none"> ◆ Granted on basis of acceptable full Scheme Business Case (Feb 2007 Guidance provides detail). Business Case requires consideration of: <ul style="list-style-type: none"> - Strategic fit; - Appraisal and value for money; - Details of delivery; - Funding sources, financial risk & financial sustainability; - The strategy for procurement & management of commercial risks; - Note: Business case is required for 'package' of measures (road pricing proposals plus complimentary measures) and need additional analysis of incremental contribution of different package elements. Package overall must show high vfm (benefits more than double costs) <p>3. Conditional Approval (occurs after powers /consents obtained, subject to conditions) and Full Approval follow the above.</p> <p><u>Models</u></p> <p>Existing models inadequate for assessing impacts of road pricing in Ipswich. Ipswich traffic model may have suitable (highway) network detail but can only reflect reassignment effects. EEM/EERM includes required traveller responses but does not have adequate network detail.</p> <p>Securing TIF funding will require significant investment in model development. Recommended approach would be to cordon down EEM/EERM to provide strategic matrices and to use ITM as a basis for developing an improved local Ipswich area model. Significant new data collection likely to be required including origin-destination surveys.</p>
State of Readiness	To date, there has been no detailed investigation into road pricing in Ipswich though considered briefly, and not taken forward, during Government's "Breaking the Logjam" consultation in 1998. LTP2 (p60) confirms this position. There are some local views that any proposals for road pricing in the Ipswich area should only be considered as part of a wider national scheme following the ongoing national debate.
Potential Time Frame for Implementation	Medium Term
Other schemes in the long list which could be complementary	IPC1 LTP Pedestrian Improvement schemes

Scheme Details: IR28 - Road Pricing in Ipswich

	<p>IPC1b LTP Cycle improvement schemes</p> <p>IPC3 Ipswich cycling strategy</p> <p>IR11 Reduction in long-stay parking provision in Ipswich/better enforcement</p> <p>IR29 Orwell Bridge tolling</p> <p>IR30 High occupancy vehicle lanes into Ipswich</p> <p>IPT1 Ipswich – transport fit for the 21st century</p> <p>IPT3 Quality bus partnerships</p> <p>IPT4 Bus and rail station improvements</p> <p>IPT5/6/21 Park and ride sites</p> <p>IPT17 Bus priority measures</p> <p>IPT100 Additional shuttle buses between key attractors in Ipswich town centre</p> <p>IS2/IS1/IR17 Smarter choices plan</p> <p>IS3/IS1/IR17 Personalised travel planning</p>
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Scheme Details: IR15 - Wet Dock Crossing

Option Title	IR15 - Wet Dock Crossing
Description of Option	A new road bridge over the Wet Dock and the New Cut of the River Orwell, linking the east and west banks of the river
Overview of Available Supporting Material	<ul style="list-style-type: none"> ◆ LTP 2006-2011 Review of Major Projects (Suffolk County Council): Economic appraisals have been undertaken for various packages of measures, which include bridges over the Wet Dock. These generally produce high benefit cost ratios (BCR) but some packages have adverse impacts against certain appraisal criteria (generally environment-related) ◆ Ipswich Major Schemes (Suffolk County Council): An Appraisal Summary Table (AST) has been completed for the Wet Dock Crossing which indicates that the scheme is beneficial in terms of economy, accessibility and integration criteria. Some adverse environmental and safety impacts are identified. The scheme has a BCR of 11.1 ◆ Ipswich Port Area- Wet Dock Crossing and Waterfront Green Route- Engineering Study' by Atkins (2003) for IBC.
Potential Funding Sources	<ul style="list-style-type: none"> ◆ LTP major scheme via RFA ◆ Growth Funds ◆ Developer <p>Likely to require blend of funding from multiple sources.</p>
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ If seeking to secure LTP major scheme funds will need to ensure scheme prioritised at regional level via RFA. Current regional priorities are based on contributions to congestion /infrastructure deficit, regeneration and growth, and to the (then designated) regional interchange centres, plus delivery of Integrated Regional Strategy priorities and Departmental PSAs ◆ Growth-related funding regime unclear in medium term but likely to continue to be linked to delivery/unlocking of housing ◆ To secure 'traditional' developer contributions will need to demonstrate link between scheme and development proposals. Alternatively could potentially secure some funds through Planning Gain Supplement, or through implementation of innovative funding mechanisms such as forward-funding and clawback via roof-tax. In both cases would need to demonstrate need for scheme in wider growth context. <p><u>Existing appraisal information</u></p> <p>See above. Completed AST and indicative scheme</p>

Scheme Details: IR15 - Wet Dock Crossing

alignment available.

Way forward

Given likely need to blend funding sources would need to make progress against all three funding sources.

- ◆ If pursuing LTP major scheme funds will need to engage in next round of regional prioritisation process for RFA. Evidence to support case for prioritisation will need to be compiled. Current criteria for prioritising schemes are shown above but future iterations of RFA may lead to development of revised criteria. Ultimately would need to include scheme in LTP and compile major scheme business case based on DfT guidance (WebTAG)
- ◆ For growth-related funds, in addition to a Green Book compliant demonstration of value for money, are likely to need to make connection between scheme and delivery of housing, jobs and sustainable communities. If funds being sought from other sources (eg: LTP/RFA) likely to need to demonstrate 'additionality' benefits of growth funds
- ◆ To secure developer funding may need to consider developing an Ipswich Policy Area strategy for dealing with transport implications of growth. This could be mechanism by which innovative funding through forward-funding/clawback is implemented. Need for early discussions with potential fund holder if pursuing this eg: EP, EEDA.

Models

For LTP major funds scheme first needs to be prioritised through RFA process. May be possible to do this on basis of output from existing ITM and using other non-model data to support this. Depends on regional prioritisation criteria (see above). Making case for funding from DfT likely to require improvements to ITM; even if scheme classed as 'simple' (see para 8.38) new demand data likely to be required on origins/destinations to allow development of improved matrices; if scheme classed as 'complex' will require development of VADMA compliant model structure and new data collection. Existing ITM plus EEM/EERM will be useful basis for this work.

Model requirements for growth-related funding are dependent on criteria set by funding organisation. Although links with housing and employment could be demonstrated without models, Green Book compliant appraisals (if needed) likely to require models to derive economic indicators (BCR, VFM). These could potentially be undertaken with existing ITM but this depends upon detailed criteria and level of scrutiny by funding body. Likelihood that further data collection

Scheme Details: IR15 - Wet Dock Crossing

	<p>will be required to improve demand matrices.</p> <p>If developer-funded then local planning and highway authorities would need to be satisfied that proposals have been robustly assessed by the developer. If funded through wider developer contributions (eg: pooling/roof tax etc) then likely to need to demonstrate contribution of scheme to wider growth/regeneration proposals for Ipswich Policy Area. Likely to require at the very least improvements to ITM demand matrices through new data collection, plus audit of network representation.</p>
State of Readiness	<p>Scheme has indicative alignment and appraisal information. If desire to proceed with scheme, would need to begin considering role of scheme in wider Ipswich transport arena in more detail, and commence early work on funding options and feasibility.</p>
Potential Time Frame for Implementation	<p>Medium - Long Term</p>
Other schemes in the long list which could be complementary	<p>Potential links to IR26 East Bank Link Road (SCC have previously undertaken model tests combining the two schemes)</p>

Scheme Details: IR42 / IR116 - Ipswich Northern Bypass (Local / Strategic)	
Option Title	IR42 / IR116 - Ipswich Northern Bypass (Local / Strategic)
Description of Option	<ul style="list-style-type: none"> ◆ Connection from A14 west to A12 east ◆ Functioning as local distributor with multiple access points
Overview of Available Supporting Material	<p>SCC undertook a route design and public consultation in 1995 (following inclusion of Northern Bypass in Ipswich Transport Strategy 1991) The Northern Bypass was then removed from the SCC 'Structure Plan' following a direction by the Secretary of State and was therefore not included in the Ipswich 'Local Plan' in 1997. SCC abandoned the scheme following appraisal and consultation (SCC Transport Committee 13 Oct 1998 - Paper Z420)</p>
Potential Funding Sources	<p>Local:</p> <ul style="list-style-type: none"> ◆ Developer (possibly through pooled contributions or innovative funding mechanisms) ◆ Regional Funding Allocation / LTP <p>Strategic:</p> <ul style="list-style-type: none"> ◆ HA Trunk Road Programme ◆ P-TIF.
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ To secure 'traditional' developer contributions will need to demonstrate link between scheme and development proposals. Alternatively could potentially secure some funds through pooled S106 contributions, Planning Gain Supplement, or through implementation of innovative funding mechanisms such as forward-funding and clawback via roof-tax. In these cases would need to demonstrate need for scheme in wider growth context ◆ If seeking to secure LTP major scheme funds will need to ensure scheme prioritised at regional level via RFA. Current regional priorities are based on contributions to congestion/ infrastructure deficit, regeneration and growth, and to the (then designated) regional interchange centres, plus delivery of Integrated Regional Strategy priorities and Departmental PSAs ◆ Following publication of DfT 10 Year Plan, schemes are required to be considered and planned through Regional Spatial Strategy (RSS) process. Scheme will therefore need to be aligned with policy and identified in future reviews of the East of England Plan for it to proceed into the TPI ◆ If subject of a P-TIF bid would need to demonstrate national productivity benefits through application of DfT (2006) guidance on 'Transport, Wider Economic Benefits and

Scheme Details: IR42 / IR116 - Ipswich Northern Bypass (Local / Strategic)

Impacts on GDP'.

Existing appraisal information

None available.

Way forward

- ◆ To secure developer funding may need to consider developing an Ipswich Policy Area strategy for dealing with transport implications of growth. This could be mechanism by which developer contributions through forward-funding/clawback are implemented. Need for early discussions with potential fund holder if pursuing this e.g. EP, EEDA
- ◆ If seeking public funds for a local bypass need to demonstrate policy compliance and would need to be prioritised against competing schemes in RFA. Then likely to require taking forward as an LTP major scheme
- ◆ Consider alignment of scheme with future RSS policies for potential inclusion in Regional Transport Strategy as gateway to entering HA programme
- ◆ If delivery bodies minded to take this forward would need more detailed review of role of scheme in wider Ipswich context in first instance; review of Ipswich Transport Strategy likely to be best vehicle for doing this.

Models

If developer-funded then local planning and highway authorities need to be satisfied that proposals have been robustly assessed/modelled by the developer. If funded through wider developer contributions (eg: pooling /roof tax etc) then likely to need to demonstrate contribution of scheme to wider growth/regeneration proposals for Ipswich Policy Area. Likely to require at the very least improvements to ITM demand matrices through new data collection, plus network audit.

For LTP major funds, scheme first needs to be prioritised through RFA process. May be possible to do this on basis of output from existing ITM and using other non-model data to support this. Depends on regional prioritisation criteria (see above). Making case for funding from DfT likely to require ITM improvements; if scheme classed as 'complex' (likely - see para 8.38) this will require development of VADMA compliant model structure and new data collection. Existing ITM plus EEM/EERM will be useful basis for this work.

EEM/EERM may be adequate as basis for assessing suitability of a Trunk Road scheme for inclusion in a future RTS. Also provides useful basis for P-TIF wider economic benefit calculations. More detailed

Scheme Details: IR42 / IR116 - Ipswich Northern Bypass (Local / Strategic)	
	operational assessments will require improved detail, either through a spatially enhanced EEM/EERM in this area or by developing an improved ITM plus interfaces with EEM/EERM.
State of Readiness	There has been no detailed investigation into an Ipswich Northern Bypass since it was abandoned in 1998.
Potential Time Frame for Implementation	Unknown
Other schemes in the long list which could be complementary	IR12 demand management measures (in Ipswich) Possible links to A14 initiatives including IR4, IR10, IR34 , IR103 and IR104.

Scheme Details: IRa12 - New Rail Station – Snoasis	
Option Title	IRa12 - New Rail Station – Snoasis
Description of Option	<ul style="list-style-type: none"> ◆ New rail station at Great Blakenham dedicated to the Snoasis development
Overview of Available Supporting Material	None
Potential Funding Sources	<ul style="list-style-type: none"> ◆ Developer ◆ DfT Rail / Network Rail (NR) ◆ Potentially Regional Funding Allocation (LTP element) but see below.
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ Planning application for new rail station at Great Blakenham submitted as part of Snoasis proposals. To secure 'traditional' developer contributions direct link between scheme and development proposals need to be secured. Alternatively could potentially secure some funds through Planning Gain Supplement, or through implementation of innovative funding mechanisms such as forward-funding and clawback via roof-tax. In both cases would need to demonstrate need for scheme in wider growth context. ◆ If seeking funds from rail industry would need to follow guidance from (former) SRA "New Stations: A Guide for Promoters". Various routes including delivery by NR offset against access charges paid by TOC, and Design Build Finance Transfer or Design Build Finance Maintain models. All require initial completion of Stage 1 of rail assessment process including assessment of policy compliance, impact on capacity, site suitability, preliminary costs and a preliminary AST ◆ Rail schemes were not included in the last regional prioritisation round. However in future if seeking to secure contribution from LTP major scheme funds there may be a need to ensure scheme is prioritised at regional level via RFA. Current regional priorities are based on contributions to congestion/ infrastructure deficit, regeneration and growth, and to the (then designated) regional interchange centres, plus delivery of Integrated Regional Strategy priorities and Departmental PSAs. Would still need to comply with rail industry requirements as above. <p><u>Existing appraisal information</u> None available.</p> <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Dependent on progress of Snoasis planning

Scheme Details: IRa12 - New Rail Station – Snoasis

	<p>application</p> <ul style="list-style-type: none"> ◆ Need early liaison with rail industry to consider impact of proposals on network capacity/ performance, links to regional and local transport policy, and value for money. Detailed guidance available in (former) SRA “New Stations: A Guide for Promoters” ◆ Best established through early scoping meeting with Network Rail/DfT Rail to understand realism / deliverability of proposals and to agree scope of further appraisal work ◆ This process to comply with ‘Stage 1 – Project Inception’ of new station guidance. <p><u>Models</u> EEM/EERM potentially useful but zone system likely to require enhancement. Output could be used to inform off-line analysis, for instance using PDFH procedures.</p>
State of Readiness	Planning application for new rail station at Great Blakenham submitted
Potential Time Frame for Implementation	Target date for completion of Snoasis project is 2010
Other schemes in the long list which could be complementary	IRa10 Cambridge-Ipswich capacity, speed, rolling stock improvements

Scheme Details: IR12 - Demand Management Measures	
Option Title	IR12 - Demand Management Measures
Description of Option	Demand management measures
Overview of Available Supporting Material	<ul style="list-style-type: none"> ◆ LTP 2006-2011: Suffolk County Council's second LTP outlines the demand management measures they will be implementing, which include pricing policies: availability and cost of parking; workplace travel planning; school travel planning; the promotion of policies to reduce the need to travel by ensuring that jobs, services and other facilities are located near to where people live; and ensuring that developments in Suffolk are well served by public transport, pedestrian and cycle facilities in order to promote sustainable travel. Also various traffic management /roadspace reallocation measures that could have demand management implications (see IR5).
Potential Funding Sources	<ul style="list-style-type: none"> ◆ LTP Integrated Transport Block ◆ Developer funding
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ Since primarily funded from within LTP block, schemes and proposals would need to satisfy SCC internal criteria for prioritising transport spend ◆ Also need co-operation / negotiation with developers through development control process to secure travel plans, compliance with parking policy, and provision for non-car modes of transport where appropriate. <p><u>Existing appraisal information</u></p> <ul style="list-style-type: none"> ◆ Already have LTP2 commitments to reviewing cost and availability of on and off-street parking, reviewing scale of parking provided in new developments, and the promotion of travel plans ◆ Measures on three major radial corridors have already been implemented; Norwich Road, London Road and Woodbridge Road together with the Town Centre Gyrotory System. The remaining two major radial corridors Wherstead Road and Felixstowe/ Nacton Road have been studied and strategies agreed. Both corridors are now awaiting funding to complete so no further appraisal required on these aspects ◆ For developer contributions need to rely on planning policy framework to set context within which contributions can be secured. <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Ongoing implementation of LTP2 and local planning polices. Need funds to be allocated to corridor schemes through internal budget allocation processes when available.

Scheme Details: IR12 - Demand Management Measures

	<p><u>Models</u></p> <p>Approach to testing impact is dependent on individual scheme being considered. Small-scale measures best assessed using off-model analysis or freestanding junction models. Larger scale measures potentially best assessed using microsimulation modelling techniques (eg: Paramics, Vissim). Impact of larger packages of measures could be assessed using existing ITM. Robustness of ITM assessments could be improved with new data collection to update matrices (O/D), and a review of network representation.</p>
State of Readiness	Policy framework broadly in place. Need ongoing implementation of these policies, and delivery of corridor schemes as funds become available.
Potential Time Frame for Implementation	Short-Medium Term
Other schemes in the long list which could be complementary	<p>IPC1 LTP Pedestrian Improvement schemes</p> <p>IPC1b LTP Cycle improvement schemes</p> <p>IPC3 Ipswich cycling strategy</p> <p>IR11 Reduction in long-stay parking provision in Ipswich/better enforcement</p> <p>IR30 High occupancy vehicle lanes into Ipswich</p> <p>IPT1 Ipswich – transport fit for the 21st century</p> <p>IPT3 Quality bus partnerships</p> <p>IPT4 Bus and rail station improvements</p> <p>IPT5/6/21 Park and ride sites</p> <p>IPT17 Bus priority measures</p> <p>IPT100 Additional shuttle buses between key attractors in Ipswich town centre</p> <p>IS2/IS1/IR17 Smarter choices plan</p> <p>IS3/IS1/IR17 Personalised travel planning</p>

Scheme Details: IR33 - Variable Speed Limits on the A14	
Option Title	IR33 - Variable Speed Limits on the A14
Description of Option	Variable speed limits to improve traffic flow and journey reliability
Overview of Available Supporting Material	No A14-specific supporting information available but information available from schemes implemented elsewhere including M25 and M42 Active Traffic Management Pilot Project
Potential Funding Sources	<ul style="list-style-type: none"> ◆ Highways Agency (HA) Route Management Strategy RMS / Making Better Use MBU funds ◆ Potentially a component of future P-TIF bid, building on current A14 scheme (links to IR104 Variable Speed Limits as combined package?)
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ For non-TIF funding scheme likely to require taking forward through revisions to the A14 Route Management Strategy. This considers route function and the land use and development context to identify problems and issues, and desirable route outcomes. Subsequent Route Management Plan should identify committed and potential actions within budget and resource constraints. If variable speed measures are found to comply with RMS route outcomes, the relevant appraisal criteria, and available budget then could be taken forward at this stage as a Local Network Management Scheme (LNMS) ◆ If subject to an additional P-TIF bid would need to demonstrate national productivity benefits through application of DfT (2006) guidance on 'Transport, Wider Economic Benefits and Impacts on GDP'. <p><u>Existing appraisal information</u></p> <p>No A14-specific appraisal information available but can draw upon experience/research elsewhere on the Trunk Road/Motorway network (eg: M25, M42).</p> <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Consider whether variable speed limits should feature in future rounds of P-TIF ◆ Ensure proposals are considered through RMS / RMP processes as potential LNMS <p><u>Models</u></p> <p>Existing ITM and EEM/EERM unlikely to be suitable for detailed assessments although outputs from EEM/EERM could potentially be used to feed a (coarse) assessment of wider economic benefits for P-TIF purposes. More detailed operational assessments may require development of microsimulation models (eg: Paramics, Vissim)</p>

Scheme Details: IR33 - Variable Speed Limits on the A14

State of Readiness	No formal work undertaken on A14-specific scheme
Potential Time Frame for Implementation	Medium-Long Term
Other schemes in the long list which could be complementary	IR10 A14 ITS scheme Could be linked to IR34 Access control, IR101 Signalisation of A14 junctions and IR103 Driver information systems.

Scheme Details: IS2 - “Smarter Choices” Plan / IS102 Business Park Management	
Option Title	IS2 - “Smarter Choices” Plan / IS102 Business Park Management
Description of Option	Development and delivery of a cohesive strategy to include personalised travel planning, school travel plans, green travel plans at major employment sites and trip attractors
Overview of Available Supporting Material	<ul style="list-style-type: none"> ◆ Experience gained from implementation of workplace and school travel plans at existing establishments ◆ LTP2 (p61) includes commitment to continue progress with travel planning activities
Potential Funding Sources	<ul style="list-style-type: none"> ◆ LTP / operators ◆ Developer ◆ Co-working with public transport operators on marketing initiatives
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ Since primarily funded from within LTP block, schemes and proposals would need to satisfy SCC internal criteria for prioritising transport spend. Would need to reach agreement with operators on provision of services ◆ Non-capital (revenue) funding can be scarce so if required (for example appointing a dedicated ‘smarter choices’ officer) would need to be considered against other local authority revenue spending priorities ◆ Also need co-operation / negotiation with developers through development control process to secure travel plans and other smarter choices initiatives where appropriate. <p><u>Existing appraisal information</u></p> <ul style="list-style-type: none"> ◆ Already have LTP2 commitment to continue to promote workplace and school travel plans ◆ Further appraisal information / justification required to satisfy internal budget allocation processes in order to secure funds ◆ No appraisal requirements as such for development-related measures but need to ensure that planning policy framework sets context within which travel plans and ‘smarter choices’ measures can be secured through development control process. <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Consideration of appointment of dedicated ‘smarter choices’ officer to promote and oversee take-up ◆ Ongoing implementation of measures identified in LTP2

Scheme Details: IS2 - “Smarter Choices” Plan / IS102 Business Park Management	
	<ul style="list-style-type: none"> ◆ Consider further take-up of other measures identified in DfT ‘smarter choices’ report including personalised travel plans, PT information and planning (in association with operators), travel awareness campaigns, car sharing and car clubs, promotion of teleworking (see EEDA toolkit) and teleconferencing ◆ DfT report includes further examples of how local authorities can facilitate such smarter choices. <p><u>Models</u> Models not generally required for assessing such measures although ITM/EERM could potentially provide data for use in off-model analysis.</p>
State of Readiness	<ul style="list-style-type: none"> ◆ Some elements already being implemented through ongoing implementation of LTP2 policy ◆ Increased take-up and implementation of other measures could begin immediately subject to availability of funds.
Potential Time Frame for Implementation	Short/Medium/Long Term
Other schemes in the long list which could be complementary	IPC1 LTP Pedestrian Improvement schemes IPC1b LTP Cycle improvement schemes IPC3 Ipswich cycling strategy IR11 Reduction in long-stay parking provision in Ipswich/better enforcement IR30 High occupancy vehicle lanes into Ipswich IPT1 Ipswich – transport fit for the 21 st century IPT3 Quality bus partnerships IPT4 Bus and rail station improvements IPT5/6/21 Park and ride sites IPT17 Bus priority measures IPT100 Additional shuttle buses between key attractors in Ipswich town centre IS3/IS1/IR17 Personalised travel planning

Scheme Details: IRa10 - Cambridge - Ipswich: Capacity, speed, rolling stock improvements	
Option Title	IRa10 - Cambridge - Ipswich: Capacity, speed, rolling stock improvements
Description of Option	<ul style="list-style-type: none"> ◆ Additional capacity provided either through extra services or longer trains, speed improvements, and higher quality rolling stock
Overview of Available Supporting Material	None
Potential Funding Sources	<ul style="list-style-type: none"> ◆ DfT Rail / Network Rail (NR) ◆ Operator ◆ Regional Funding Allocation (but see below)
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ If seeking funds from rail industry would need to follow guidance from (former) SRA “New Stations: A Guide for Promoters”. Various routes including delivery by NR offset against access charges paid by TOC, and Design Build Finance Transfer or Design Build Finance Maintain models. All require initial completion of Stage 1 of rail assessment process including assessment of policy compliance, impact on capacity, site suitability, preliminary costs and a preliminary AST ◆ Operator may be able to provide enhanced rolling stock, particularly if secured through future re-franchising exercise ◆ Rail schemes were not included in the last regional prioritisation round. However in future if seeking to secure contribution from LTP major scheme funds there may be a need to ensure scheme is prioritised at regional level via RFA. Current regional priorities are based on contributions to congestion/ infrastructure deficit, regeneration and growth, and to the (then designated) regional interchange centres, plus delivery of Integrated Regional Strategy priorities and Departmental PSAs. Would still need to comply with rail industry requirements as above. <p><u>Existing appraisal information</u></p> <p>None available.</p> <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Need early liaison with rail industry to consider impact of proposals on network capacity/performance, links to regional and local transport policy, and value for money. ◆ Best established through early scoping meeting with Network Rail/DfT Rail to understand realism / deliverability of proposals and to agree scope of further appraisal work.

Scheme Details: IRa10 - Cambridge - Ipswich: Capacity, speed, rolling stock improvements	
	<p><u>Models</u></p> <p>EEM/EERM could provide indication of potential strategic impacts. Assessments of individual measures likely to require other approaches but this would need discussion and agreement from rail authorities.</p>
State of Readiness	There has been no work undertaken on this, nor have there been any discussions with the rail operator
Potential Time Frame for Implementation	Unknown
Other schemes in the long list which could be complementary	<p>IPT4 Bus and rail station improvements</p> <p>IRa18 New stations Ipswich to Cambridge route</p> <p>IRa23 Rolling stock improvements by deploying cascaded rolling stock</p> <p>IS2/IS1/IR17 Smarter choices plan</p> <p>IS3/IS1/IR17 Personalised travel planning</p>

Scheme Details: IR26 – East Bank Link Road	
Option Title	IR26 – East Bank Link Road (EBLR)
Description of Option	A new link road running from a new grade-separated junction at the A14 just to the east of the Orwell Bridge, to the east bank port facilities, providing a direct link from the port to the A14 and avoiding residential areas.
Overview of Available Supporting Material	<ul style="list-style-type: none"> ◆ LTP 2006-2011 Review of Major Projects (Suffolk County Council): Economic appraisals have been undertaken for various packages of measures including the EBLR as a freestanding scheme, and in combination with options for crossing the Wet Dock. These generally produce high benefit cost ratios (BCR) but have adverse impacts against certain appraisal criteria (generally environment-related) ◆ Ipswich Major Schemes (Suffolk County Council): Appraisal Summary Tables (AST) have been completed for the EBLR which indicate that the scheme is generally beneficial in terms of economy, has some slight adverse impacts against accessibility, integration and safety criteria, but has some large adverse environmental impacts. The scheme has a BCR of 4.4 ◆ Scheme currently the subject of a planning application.
Potential Funding Sources	<ul style="list-style-type: none"> ◆ LTP major scheme via RFA ◆ Growth Funds ◆ Developer <p>May require blend of funding from multiple sources.</p>
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ If seeking to secure LTP major scheme funds will need to ensure scheme prioritised at regional level via RFA. Current regional priorities are based on contributions to congestion/ infrastructure deficit, regeneration and growth, and to the (then designated) regional interchange centres, plus delivery of Integrated Regional Strategy priorities and Departmental PSAs ◆ Growth-related funding regime unclear in medium term but likely to continue to be linked to delivery/unlocking of housing ◆ To secure 'traditional' developer contributions will need to demonstrate link between scheme and development proposals. Alternatively could potentially secure some funds through Planning Gain Supplement, or through implementation of innovative funding mechanisms such as forward-funding and clawback via roof-tax. In both cases would need to demonstrate need for scheme in wider growth context.

Scheme Details: IR26 – East Bank Link Road

Existing appraisal information

See above. Completed AST and indicative scheme alignment available.

Way forward

Unless fully developer funded, scheme likely need to require blend of funding sources; may therefore need to make progress against three funding sources.

- ◆ If pursuing LTP major scheme funds will need to engage in next round of regional prioritisation process for RFA. Very strong evidence to support case for prioritisation will need to be compiled. Current criteria for prioritising schemes are shown above but future iterations of RFA may lead to development of revised criteria. Ultimately would need to include scheme in LTP and compile major scheme business case based on DfT guidance (WebTAG) but further work may be required to mitigate the adverse environmental impacts identified in the earlier ASTs
- ◆ For growth-related funds, in addition to a Green Book compliant demonstration of value for money, are likely to need to make connection between scheme and delivery of housing, jobs and sustainable communities. If funds being sought from other sources (eg: LTP/RFA) likely to need to demonstrate 'additionality' benefits of growth funds
- ◆ To secure developer funding may need to consider developing an Ipswich Policy Area strategy for dealing with transport implications of growth. This could be mechanism by which innovative funding through forward-funding/clawback is implemented. Need for early discussions with potential fund holder if pursuing this eg: EP, EEDA
- ◆ In addition will require ongoing liaison and discussion with the Highways Agency (HA) regarding proposed new junction on the A14.

Models

If (single) developer-funded then local planning and highway authorities need to be satisfied that proposals have been robustly assessed/modelled by the developer. If funded through wider developer contributions (eg: pooling /roof tax etc) then likely to need to demonstrate contribution of scheme to wider growth/regeneration proposals for Ipswich Policy Area. Likely to require at the very least improvements to ITM demand matrices through new data collection, plus network audit.

For LTP major funds, scheme first needs to be prioritised through RFA process. May be possible to do this on basis of output from existing ITM and using

Scheme Details: IR26 – East Bank Link Road

	<p>other non-model data to support this. Depends on regional prioritisation criteria (see above). Making case for funding from DfT likely to require ITM improvements; if scheme classed as 'complex' (likely - see para 8.38) this will require development of VADMA compliant model structure and new data collection. Existing ITM plus EEM/EERM will be useful basis for this work.</p> <p>Model requirements for growth-related funding are dependent on criteria set by funding organisation. Although links with housing and employment could be demonstrated without models, Green Book compliant appraisals (if needed) likely to require models to derive economic indicators (BCR, VFM). These could potentially be undertaken with existing ITM but this depends upon detailed criteria and level of scrutiny by funding body. Likelihood that further data collection will be required to improve demand matrices.</p> <p>In any event, will need robust assessment of scheme's impact on A14. This is probably best achieved by updating the ITM with improved demand data and an audit of the network. Would require HA agreement to approach.</p>
State of Readiness	<p>Scheme has indicative alignment and appraisal information. If desire to proceed with scheme, would need to begin considering role of scheme in wider Ipswich transport arena in more detail, and commence early work on funding options and feasibility. Will require continuation of ongoing discussions with HA regarding potential new junction on A14. ELBR subject to current planning application.</p>
Potential Time Frame for Implementation	Medium - Long Term
Other schemes in the long list which could be complementary	Potential links to IR15 Wet Dock Crossing (SCC have previously undertaken model tests combining the two schemes)

Scheme Details: IR100 - Copdock Interchange – Longer Term Improvements

Option Title	IR100 - Copdock Interchange – Longer Term Improvements
Description of Option	Major physical infrastructure improvements
Overview of Available Supporting Material	<ul style="list-style-type: none"> ◆ Supporting material available on short term improvements that are potentially useful for looking at longer term solutions ◆ Larger scale improvements have been recommended in other studies, including LOIS multimodal study, which includes some limited supporting information.
Potential Funding Sources	<ul style="list-style-type: none"> ◆ HA Targeted Programme of Improvements (TPI) ◆ P-TIF ◆ Developer
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ Following publication of DfT10 Year Plan, schemes are required to be considered and planned through Regional Spatial Strategy (RSS) process. Scheme will therefore need to be aligned with policy and identified in future reviews of the East of England Plan for it is to proceed into the HA programme ◆ If subject to a P-TIF bid would need to demonstrate national productivity benefits through application of DfT (2006) guidance on 'Transport, Wider Economic Benefits and Impacts on GDP' ◆ To secure 'traditional' developer contributions will need to demonstrate link between scheme and development proposals. Alternatively could potentially secure some funds through Planning Gain Supplement, or through implementation of innovative funding mechanisms such as forward-funding and clawback via roof-tax. In both cases would need to demonstrate need for scheme in wider growth context. <p><u>Existing appraisal information</u></p> <p>No detailed appraisal information available on longer term improvements. High level analysis undertaken as part of LOIS multi-modal study but now somewhat historic.</p> <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Consider whether Copdock Interchange improvements should feature in future rounds of P-TIF ◆ Consider alignment of scheme with future RSS policies for potential inclusion in Regional Transport Strategy as gateway to entry into HA programme ◆ To secure developer funding may need to

Scheme Details: IR100 - Copdock Interchange – Longer Term Improvements

	<p>consider developing an Ipswich Policy Area strategy for dealing with transport implications of growth. This could be mechanism by which developer contributions through forward-funding/clawback are implemented. Need for early discussions with potential fund holder if pursuing this eg: EP, EEDA.</p> <p><u>Models</u> Subject to satisfactory validation, EEM/EERM likely to be adequate for assessment of scheme. Could provide travel data to feed a P-TIF bid assessing wider economic benefits, and could also be used to inform alignment of scheme with future RSS policies. Detailed local operational assessment might best be assessed using a new microsimulation model of the interchange (eg: Paramics, Vissim)..</p>
State of Readiness	No detailed investigations of possible longer term improvements at Copdock interchange have been undertaken.
Potential Time Frame for Implementation	Medium-Long Term
Other schemes in the long list which could be complementary	-

Scheme Details: IPT4 - Bus & Rail Station Improvements	
Option Title	IPT4 - Bus & Rail Station Improvements
Description of Option	<ul style="list-style-type: none"> ◆ Various improvements for bus and rail passengers including information, facilities, and integration; Encourage the development of fully integrated transport interchange facilities at railway and bus stations ◆ As part of LTP objective to improve bus and rail interchanges and facilities in Ipswich and ensure that the transport network caters to the needs of all users; Policy AP86
Overview of Available Supporting Material	None
Potential Funding Sources	<ul style="list-style-type: none"> ◆ LTP
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ Since primarily funded from within LTP block, schemes and proposals would need to satisfy SCC internal criteria for prioritising transport spend. <p><u>Existing appraisal information</u></p> <ul style="list-style-type: none"> ◆ None available. <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Ongoing implementation of LTP2 and local planning policies. Need funds to be allocated to schemes through internal budget allocation processes when available. <p><u>Models</u></p> <p>Formal models unlikely to be needed although model output (eg: ITM, EEM/EERM) could feed off-model analysis.</p>
State of Readiness	No formal work yet undertaken on specific improvements
Potential Time Frame for Implementation	Unknown
Other schemes in the long list which could be complementary	IPT3 Quality bus partnerships IPT17 Bus priority measures IPT18 Integrated flexible ticketing system for bus services

Scheme Details: IPT5 / IPT21 / IPT6 - Park & Ride (various)	
Option Title	IPT5 / IPT21 / IPT6 - Park & Ride
Description of Option	<ul style="list-style-type: none"> ◆ New site Felixstowe Road / Nacton Road corridor ◆ New site Wherstead Road corridor ◆ Improved site Copdock
Overview of Available Supporting Material	<ul style="list-style-type: none"> ◆ Some consideration of P&R in Felixstowe Road corridor in First Deposit Draft of Ipswich Local Plan Review (Nov 2001) but to be superseded by emerging LDF ◆ Experience and data available from existing sites
Potential Funding Sources	<ul style="list-style-type: none"> ◆ LTP / operator ◆ Growth Fund ◆ Developer
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ Since primarily funded from within LTP block, schemes and proposals would need to satisfy SCC internal criteria for prioritising transport spend. Would need to reach agreement with operators on provision of services ◆ Growth-related funding regime unclear in medium term but likely to continue to be linked to delivery/ unlocking of housing and development of sustainable communities ◆ To secure 'traditional' developer contributions will need to demonstrate link between scheme and development proposals. Alternatively could potentially secure some funds through Planning Gain Supplement, or through implementation of innovative funding mechanisms such as forward-funding and clawback via roof-tax. In both cases would need to demonstrate need for scheme in wider growth context. <p><u>Existing appraisal information</u></p> <ul style="list-style-type: none"> ◆ Limited information available although experience and data available from existing sites <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ LTP block funds would need to be allocated through internal budget allocation processes when available ◆ For growth-related funds, in addition to a Green Book compliant demonstration of value for money, are likely to need to make connection between scheme and delivery of housing, jobs and sustainable communities. If funds being sought from other sources (eg: LTP/RFA) likely to need to demonstrate 'additionality' benefits of growth funds ◆ To secure wider developer funding may need to

Scheme Details: IPT5 / IPT21 / IPT6 - Park & Ride (various)	
	<p>consider developing an Ipswich Policy Area strategy for dealing with transport implications of growth. This could be mechanism by which innovative funding through forward-funding/clawback is implemented. Need for early discussions with potential fund holder if pursuing this eg: EP, EEDA.</p> <p><u>Models</u></p> <p>It is recommended that park & ride measures be appraised using bespoke spreadsheet tools fed with model outputs from ITM/EERM as appropriate.</p>
State of Readiness	<ul style="list-style-type: none"> ◆ Need further work on a park and ride strategy to establish need and location of potential new and/or extended sites ◆ Strategy could set framework for funding bids ◆ Decision needs to be taken in the context of ongoing review of Ipswich Transport Strategy. Sites may need to be protected within Local Development Documents so important that close links maintained with evolving local planning backdrop.
Potential Time Frame for Implementation	Medium-Long Term [but could be shorter term if can demonstrate need and business case, and identify funding sources]
Other schemes in the long list which could be complementary	<p>IPT3 Quality bus partnerships</p> <p>IPT4 Bus and rail station improvements</p> <p>IPT17 Bus priority measures</p> <p>IR11 Reduction in long-stay parking provision in Ipswich/better enforcement</p> <p>IR12 Demand management measures</p> <p>Links to IS2/IS1/IR17 Smarter choices plan, IS3/IS1/IR17 Personalised travel planning and IR28 Road pricing in Ipswich</p>

Scheme Details: IRa103 - New Bus / Rail Interchange at Nacton	
Option Title	IRa103 - New Bus / Rail Interchange at Nacton
Description of Option	Provision for bus and rail facilities (new station)
Overview of Available Supporting Material	None
Potential Funding Sources	<ul style="list-style-type: none"> ◆ DfT Rail / Network Rail (NR) ◆ Regional Funding Allocation / LTP ◆ Developer
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ If seeking funds from rail industry would need to follow guidance from (former) SRA “New Stations: A Guide for Promoters”. Various routes including delivery by NR offset against access charges paid by TOC, and Design Build Finance Transfer or Design Build Finance Maintain models. All require initial completion of Stage 1 of rail assessment process including assessment of policy compliance, impact on capacity, site suitability, preliminary costs and a preliminary AST ◆ If seeking to secure LTP major scheme funds will need to ensure scheme prioritised at regional level via RFA. Current regional priorities are based on contributions to congestion/infrastructure deficit, regeneration and growth, and to the (then designated) regional interchange centres, plus delivery of Integrated Regional Strategy priorities and Departmental PSAs. Would still need to comply with rail industry requirements as above ◆ To secure ‘traditional’ developer contributions will need to demonstrate link between scheme and development proposals. Alternatively could potentially secure some funds through Planning Gain Supplement, or through implementation of innovative funding mechanisms such as forward-funding and clawback via roof-tax. In both cases would need to demonstrate need for scheme in wider growth context. <p><u>Existing appraisal information</u></p> <p>None available. Some limited data / information potentially available on bus element from existing P&R sites</p> <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Need early liaison with rail industry to consider impact of proposals on network capacity/performance, links to regional and local transport policy, and value for money. Detailed guidance available in (former) SRA “New Stations: A Guide for Promoters”

Scheme Details: IRa103 - New Bus / Rail Interchange at Nacton

	<ul style="list-style-type: none"> ◆ Best established through early scoping meeting with Network Rail/DfT Rail to understand realism / deliverability of proposals and to agree scope of further appraisal work ◆ This process to comply with 'Stage 1 – Project Inception' of new station guidance ◆ Initial work on feasibility could be combined with proposed study on wider P&R strategy (see IPT5 / IPT21 / IPT6 above). <p><u>Models</u> May best be appraised using bespoke spreadsheet tools fed with model outputs from ITM/EERM as appropriate. However, approach would need agreement with</p>
State of Readiness	To date, there has been no detailed investigation of a new bus/rail interchange at Nacton
Potential Time Frame for Implementation	Unknown
Other schemes in the long list which could be complementary	IPT3 Quality bus partnerships IPT4 Bus and rail station improvements IPT17 Bus priority measures IR11 Reduction in long-stay parking provision in Ipswich/better enforcement IR12 Demand management measures Links to IS2/IS1/IR17 Smarter choices plan, IS3/IS1/IR17 Personalised travel planning

Scheme Details: IR104 / IR34 - A14 Junction Closures / Access Control	
Option Title	IR104 / IR34 - A14 Junction Closures / Access Control
Description of Option	<ul style="list-style-type: none"> ◆ Controlled junction closures at peak times to regulate and improve traffic flow and journey reliability ◆ Ramp-metering on all A14 entry slips in the study area to improve traffic flow and journey time reliability.
Overview of Available Supporting Material	No A14-specific supporting information available but information available from schemes implemented elsewhere including M6 ramp metering schemes
Potential Funding Sources	<ul style="list-style-type: none"> ◆ Highways Agency (HA) Route Management Strategy RMS / Making Better Use MBU funds ◆ Potentially a component of a future P-TIF bid, building upon current A14 scheme if can show national productivity benefits (possible links to IR33 Variable Speed Limits as a combined package?).
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ For non-TIF funding scheme likely to require taking forward through revisions to the A14 Route Management Strategy. This considers route function and the land use and development context to identify problems and issues, and desirable route outcomes. Subsequent Route Management Plan should identify committed and potential actions within budget and resource constraints. If access control measures are found to comply with RMS route outcomes, the relevant appraisal criteria, and available budget then could be taken forward at this stage as a Local Network Management Scheme (LNMS) ◆ If subject to an additional P-TIF bid would need to demonstrate national productivity benefits through application of DfT (2006) guidance on 'Transport, Wider Economic Benefits and Impacts on GDP'. <p><u>Existing appraisal information</u></p> <p>No A14-specific appraisal information available but can draw upon experience/research elsewhere on the Trunk Road/Motorway network (eg: M6).</p> <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Consider whether access control should feature in future rounds of P-TIF ◆ Ensure proposals are considered through RMS / RMP processes as potential LNMS ◆ Need for further detailed study to assess benefits to A14, and disbenefits / implications to/for local traffic.

Scheme Details: IR104 / IR34 - A14 Junction Closures / Access Control	
	<p><u>Models</u> Assessment of ramp metering may require development of microsimulation models of individual junctions. Combination of ITM and EEM/EERM with interface could be used to assess impacts of more significant measures such as junction closures. Would require improved representation of demand through (O/D) data collection.</p>
State of Readiness	No formal work yet undertaken on A14-specific scheme
Potential Time Frame for Implementation	Medium-Long Term
Other schemes in the long list which could be complementary	Possible links to IR10 A14 ITS scheme, IR33 Variable speed limits on A14 and IR101 Signalisation of A14 junctions

Scheme Details: IRa106 - New Station at Martlesham	
Option Title	IRa106 - New Station at Martlesham
Description of Option	<ul style="list-style-type: none"> ◆ Park and ride station, also serving Martlesham ◆ Would provide access to Ipswich and London.
Overview of Available Supporting Material	None
Potential Funding Sources	<ul style="list-style-type: none"> ◆ DfT Rail / Network Rail (NR) ◆ Local Transport Plan (LTP) ◆ Developer.
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ If seeking funds from rail industry would need to follow guidance from (former) SRA “New Stations: A Guide for Promoters”. Various routes including delivery by NR offset against access charges paid by TOC, and Design Build Finance Transfer or Design Build Finance Maintain models. All require initial completion of Stage 1 of rail assessment process including assessment of policy compliance, impact on capacity, site suitability, preliminary costs and a preliminary AST ◆ If seeking to secure LTP major scheme funds will need to ensure scheme prioritised at regional level via RFA. Current regional priorities are based on contributions to congestion/infrastructure deficit, regeneration and growth, and to the (then designated) regional interchange centres, plus delivery of Integrated Regional Strategy priorities and Departmental PSAs. Would still need to comply with rail industry requirements as above ◆ To secure ‘traditional’ developer contributions will need to demonstrate link between scheme and development proposals. Alternatively could potentially secure some funds through Planning Gain Supplement, or through implementation of innovative funding mechanisms such as forward-funding and clawback via roof-tax. In both cases would need to demonstrate need for scheme in wider growth context. <p><u>Existing appraisal information</u></p> <p>None available. Some limited data / information potentially available on bus-based P&R from existing sites</p> <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Need early liaison with rail industry to consider impact of proposals on network capacity/performance, links to regional and local transport policy, and value for money. Detailed guidance available in (former) SRA “New

Scheme Details: IRa106 - New Station at Martlesham

	<p>Stations: A Guide for Promoters”</p> <ul style="list-style-type: none"> ◆ Best established through early scoping meeting with Network Rail/DfT Rail to understand realism / deliverability of proposals and to agree scope of further appraisal work ◆ This process to comply with ‘Stage 1 – Project Inception’ of new station guidance ◆ Initial work on feasibility could be combined with proposed study on wider P&R strategy (see IPT5 / IPT21 / IPT6 above). <p><u>Models</u> EEM/EERM potentially useful but zone system likely to require enhancement. Output could be used to inform off-line analysis, for instance using PDFH procedures.</p>
State of Readiness	To date, there has been no detailed investigation of a new station at Martlesham
Potential Time Frame for Implementation	Unknown
Other schemes in the long list which could be complementary	<p>IRa1 East Suffolk Line improvements IPT4 Bus and rail station improvements Possible links to physical and fiscal demand management measures IR12and IR28 Possible links to IPT5/6/21 park and ride sites as part of wider P&R strategy.</p>

Scheme Details: IR5 - General Traffic Management Schemes	
Option Title	IR5 - General Traffic Management Schemes
Description of Option	To provide congestion relief to Ipswich town centre
Overview of Available Supporting Material	<ul style="list-style-type: none"> ◆ LTP 2006-2011: Planned improvements are outlined in SCC LTP2 for traffic management, which include the development of road use hierarchies; urban traffic management and control systems to better co-ordinate traffic signals and signing systems in Ipswich ◆ There is an ongoing stream of measures being implemented to improve traffic flow and safety, and to promote walking, cycling and public transport ◆ Various traffic management measures (including urban traffic management and control system, and car park-related variable message signs are included in 'Ipswich fit for the 21st century' major scheme package.
Potential Funding Sources	LTP (IT block)
Review against appraisal criteria and way forward	<p><u>Funding requirements</u></p> <ul style="list-style-type: none"> ◆ LTP block funds would need to be allocated through internal budget allocation processes when available ◆ Schemes to be developed to conform with internal local authority processes / approaches to prioritisation. <p><u>Existing appraisal information</u></p> <ul style="list-style-type: none"> ◆ Components included within major scheme have already been appraised ◆ Other schemes to be appraised as they are brought forward to comply with internal local authority processes / approaches to prioritisation. <p><u>Way forward</u></p> <ul style="list-style-type: none"> ◆ Continued implementation of existing policies / scheme development processes ◆ Delivery of 'Ipswich fit for the 21st century' major scheme and its traffic management components. <p><u>Models</u></p> <p>Approach to testing impact is dependent on individual scheme being considered. Small-scale measures best assessed using off-model analysis or freestanding junction models. Larger scale measures potentially best assessed using microsimulation modelling techniques (eg: Paramics, Vissim). Impact of larger packages of measures could be assessed using existing ITM. Robustness of ITM assessments could be improved with new data collection to update matrices (O/D), and a review of network coding.</p>

Scheme Details: IR5 - General Traffic Management Schemes

State of Readiness	Policy framework broadly in place. Need ongoing implementation of these policies, and prioritisation and delivery of schemes as funds become available.
Potential Time Frame for Implementation	Short / Medium / Long Term
Other schemes in the long list which could be complementary	IPC1 LTP Pedestrian Improvement schemes IPC1b LTP Cycle improvement schemes IPC3 Ipswich cycling strategy IPT1 Ipswich – transport fit for the 21 st century IPT17 Bus priority measures IR12 demand management measures IR30 High occupancy vehicle lanes into Ipswich IR103 Driver information systems Potential links to A14 management measures IR10, IR33, IR34, IR101 and IR104