A6 to Manchester Airport Relief Road

Major Scheme Business Case

November 2012 (12/11/12)

STOCKPORT METROPOLITAN BOROUGH COUNCIL

MANCHESTER CITY COUNCIL

Cheshire East Council

A6 to Manchester Airport Relief Road

Major Scheme Business Case 1007/0404/079

November 2012

Notice

Document History

JOB NUMBER: 5108350			DOCUMENT REF: Nov 12 2012 - A6 to Mcr Airport Rel Rd - PE Submission			
1	Submission to DfT	RAG	NM	NM (Atkins) / SS (SMBC)	NM (Atkins) / SS (SMBC)	12/11/12
Version	Purpose Description	Originated	Checked	Reviewed	Authorised	Date

Contents

Section Page

List of Tables

List of Figures

Appendices

Appendices A – O are contained in a separate document

Appendix A provides a **summary of the SEMMMS strategy to date**;

Appendix B includes the **traffic modelling and appraisal reports**;

Appendix C includes all the completed **Appraisal worksheets**;

Appendix D includes the **Environmental Scoping Report**;

Appendix E contains a **detailed cost breakdown**;

Appendix F contains **Project Initiation Documents** produced as part of the Delivery Case;

Appendix G contains **technical notes on inflation and optimism bias assumptions;**

Appendix H contains **Balfour Beatty's independent surveyor's report**;

Appendix I contains the ***Complementary Measures and Mitigation Measures Report;***

Appendix J contains the outline ***Benefits Realisation Plan;***

Appendix K *contains the* ***Communications Strategy (included within Appendix F);***

Appendix L contains a technical note on ***the rationale for the scheme*** and details of alternative highway scenarios assessed as part of the business case;

Appendix M contains a report assessing the **Social and Distributional Impacts** of the scheme;

Appendix N contains a note on the derivation of ***Employment and GVA Benefits****; and*

Appendix O contains the ***Independent Cost Report*** by EC Harris

Checklist of appraisal and modelling supporting material

Cost Benefit Analysis

Item	Section/Page
A clear explanation of the underlying assumptions used in the Cost Benefit Analysis.	Economic Assessment Report (EAR) – Chapter 2
Information on local factors used. For example the derivation of growth factors, M factors in COBA and annualisation factors in TUBA (to include full details of any calculations).	EAR Section 2.23 Pages 13 – 14 & EAR App. B
A diagram of the network (if COBA used).	N/A
Information on the number of junctions modelled (if COBA used), for both the do-minimum and the do-something.	N/A
Details of assumptions about operating costs and commercial viability (e.g. public transport, park and ride, etc.).	EAR Section 2.33 Page 14
Full appraisal inputs/outputs (when used, COBA and/or TUBA input and output files should be supplied).	Included in Final EAR as Appendix
Evidence that TUBA/COBA warning messages have been checked and found to be acceptable	Included in Final EAR as Appendix
Spatial (sectoral) analysis of TEE benefits	EAR App. C
Details of the maintenance delay costs/savings.	To be included in Final EAR (Section3) following DfT Document Review
Details of the delays during construction.	N/A

Economic Case Assessment

Item	Section/Page
Assessment of Environmental impacts, to include an environmental constraints map.	MSBC Document Section 4.51 to 4.104
Assessment of Safety impacts and the assumed accident rates presented (COBA output should be provided if an accident only COBA has been run).	MSBC Document Section 4.105 to 4.108
Assessment of Economic impacts.	MSBC Document Section 4.113 to 4.156
Assessment of Accessibility impacts.	MSBC Document Section 4.157 to 4.171
Assessment of Integration impacts.	MSBC Document Section 4.172 to 4.182
A comprehensive Appraisal Summary Table.	MSBC Document page Table 4.3
AST worksheets.	MSBC Document Appendix C

Modelling

Item		Section/Page
An Existing Data and Traffic Surveys Report to include:		**SEMMMS Model Data Collection Report (MDC) (Sept 2011)**
	Details of the sources, locations (illustrated on a map), methods of collection, dates, days of week, durations, sample factors, estimation of accuracy, etc.	MDC Appendix 1 – RSI Surveys, Survey Rates etc
	Details of any specialist surveys (e.g. stated preference).	MDC Section 3 – RSIs, Section 4 - GMHIS
	Traffic and passenger flows; including daily, hourly and seasonal profiles, including details by vehicle class where appropriate.	MDC – Section 4, PT Surveys pages 14 - 17
	Journey times by mode, including variability if appropriate.	MDC Section 8, pages 19 – 23
	Details of the pattern and scale of traffic delays and queues.	n/a
	Desire line diagrams for important parts of the network.	n/a
	Diagrams of existing traffic flows, both in the immediate corridor and other relevant corridors.	Contained in SEMMMS 'LMVR' Document Appendix 4
An Assignment Model Validation Report to include:		**SEMMMS Local Model Validation Report (LMVR) (Oct 2011) and LMVR Update (Sept 2012)**
	Description of the road traffic and public transport passenger assignment model development, including model network and zone plans, details of treatment of congestion on the road system and crowding on the public transport system.	LMVR Sections 1 to 4 pages 1 - 31
	Description of the data used in model building and validation with a clear distinction made for any independent validation data.	LMVR Section 5 pages 32 – 45, Section 6 pages 49 – 54 & Section 7 pages 63 - 72
	Evidence of the validity of the networks employed, including range checks, link length checks, and route choice evidence.	LMVR Section 4 pages 24 – 31
	Details of the segmentation used, including the rationale for that chosen.	LMVR Section 5 pages 32 – 35
	Validation of the trip matrices, including estimation of measurement and sample errors.	LMVR Section 7 pages 63 – 72 & Section 8 pages 76 - 82
	Details of any 'matrix estimation' techniques used and evidence of the effect of the estimation process on the scale and pattern of the base travel matrices.	LMVR Section 6 pages 49 – 54 & Section 7 Page 65
	Validation of the trip assignment, including comparisons of flows (on links and across screenlines/cordons) and, for road traffic models, turning movements at key junctions.	LMVR Section 7 pages 63 – 72
	Journey time validation, including, for road traffic models, checks on queue pattern and magnitudes of delays/queues.	LMVR Section 8 pages 76 – 82
	Detail of the assignment convergence.	LMVR Section 7 page 64
	Present year validation if the model is more than 5 years old.	n/a
	A diagram of modelled traffic flows, both in the immediate corridor and other relevant corridors.	LMVR Appendix 7 page 132
A Demand Model Report to include:		**SEMMMS VDM Model Development Report (VDMR) (Feb 2012)**
	Where no Variable Demand Model has been developed evidence should be provided to support this decision (e.g. follow guidance in WebTAG Unit 3.10.1 Variable Demand Modelling - Preliminary Assessment Procedures).	n/a
	Description of the demand model.	VDMR Section 2 pages 2.2 – 2.6

	Description of the data used in the model building and validation.	VDMR Section 5 pages 5.1 – 5.12
	Details of the segmentation used, including the rationale for that chosen. This should include justification for any segments remaining fixed.	VDMR Section 5 pages 5.1 – 5.12
	Evidence of model calibration and validation and details of any sensitivity tests.	VDMR Section 7 pages 7.1 – 7.7
	Details of any imported model components and rationale for their use.	n/a
	Validation of the supply model sensitivity in cases where the detailed assignment models do not iterate directly with the demand model.	VDMR Section 6 pages 6.1 – 6.7 & Section 7 pages 7.1 – 7.7
	Details of the realism testing, including outturn elasticities of demand with respect to fuel cost and public transport fares.	VDMR Section 7 pages 7.2 – 7.7
	Details of the demand/supply convergence.	VDMR Section 6 page 6.6
A Forecasting Report to include:		**SEMMMS8 Model Forecasting Report (MFR) (Oct 2012)**
	Description of the methods used in forecasting future traffic demand.	MFR Section 4 pages 12 – 20
	Description of the future year demand assumptions (e.g. land use and economic growth - for the do minimum, core and variant scenarios).	MFR Section 4 pages 16 – 20
	An uncertainty log providing a clear description of the planning status of local developments	SEMMMS Uncertainty Log v5 Document – Appendix A
	Description of the future year transport supply assumptions (i.e. networks examined for the do minimum, core scenario and variant scenarios).	SEMMMS Uncertainty Log v5 Document pages 5 – 7 & Appendix B
	Description of the travel cost assumptions (e.g. fuel costs, PT fares, parking).	MFR Sections 4 & 5 pages 12 - 24
	Comparison of the local forecast results to national forecasts, at an overall and sectoral level.	MFR Executive Summary Pages 2 -3
	Presentation of the forecast travel demand and conditions for the core scenario and variant scenarios including a diagram of forecast flows for the do-minimum and the scheme options for affected corridors.	MFR Section 4 pages 16 – 20
	If the model includes very slow speeds or high junction delays evidence of their plausibility.	MFR Section 6 pages 27 – 68
	An explanation of any forecasts of flows above capacity, especially for the do-minimum, and an explanation of how these are accounted for in the modelling/appraisal.	MFR Section 6 pages 27 – 68
	Presentation of the sensitivity tests carried out (to include high and low demand tests).	MFR Section 6 pages 27 – 68

Executive Summary

Overview

The A6 to Manchester Airport Relief Road will **improve surface access to Manchester Airport** and provide **better connectivity along the south Manchester corridor**, to assist Greater Manchester and Cheshire East in meeting their aspirations for economic growth. It directly supports the Government's objective to **provide major transport infrastructure that will deliver economic growth**, a fact acknowledged by the announcement on **prioritisation for funding in the Chancellor's Autumn Statement in November 2011**. The scheme will provide **congestion relief** to local communities and generate **wider benefits to business** through improved journey time reliability on the local and strategic highway network.

The scheme is an integral component of the wider South East Manchester Multi-Modal Strategy (SEMMMS), which has delivered benefits to local communities across south-east Manchester through a range of public transport and sustainable transport measures over the past ten years. It is widely recognised that the A6 to Manchester Airport Relief Road is critical to delivering the long-term objectives of the SEMMMS strategy, and to meet national objectives for growth, employment and connectivity.

The key features of this current business case in support of the A6 to Manchester Airport Relief Road are as follow:

- The scheme will deliver substantial benefits to transport users through travel time, vehicle operating cost savings and accident savings amounting to £880 million, and deliver a **benefit-cost ratio (BCR) of 5.06**;
- The scheme will deliver substantial benefits to the wider economy resulting in:
    - Up to **5,450 new jobs** stemming from the improved connectivity between labour and business markets; and
    - **Additional economic output of up to £2,492 million** generated directly by the scheme
- **Direct alignment with Government policies** aimed at delivering jobs and economic growth, minimising the impact on the environment, and supporting increased social mobility and cohesion;
- An **innovative funding package** has been developed to deliver the scheme, based on contributions from the private sector, and substantial local investment, reflecting the confidence in the ability of the scheme to deliver real benefits to the Greater Manchester and Cheshire East economies;
- **Over £100m of savings on earlier scheme cost estimates**, as a result of value engineering and a thorough review of earlier assumptions – producing a scheme cost estimate of £230.36 million.

Scheme description

The A6 to Manchester Airport Relief Road Scheme will provide 10 kilometres of new 2-lane dual carriageway on an east-west route from the A6 near Hazel Grove (south east Stockport), via the 4 kilometres of existing A555 to Manchester Airport and the link road to the M56. The scheme bypasses heavily-congested district and local centres, including Bramhall, Cheadle Hulme, Hazel Grove, Handforth, Poynton, Wythenshawe, Gatley and Heald Green. It will provide much-needed connectivity for key strategic routes into the North West and to Manchester Airport, including traffic from the A6, A523 and A34 – all of which are key routes for business, leisure travel and freight from Cheshire, Derbyshire, Staffordshire, Yorkshire and beyond.

The scheme incorporates eight new and five improved junctions, 4 railway crossings, a parallel shared cycle/pedestrian path and priority for public transport, and will provide a **step-change in the allocation of existing road space in favour of sustainable modes of transport**, thereby improving access for public transport, pedestrians and cyclists, and improving the quality of life in residential areas along the south Manchester corridor.

The majority of benefits will accrue to road users and local residents through improved access to centres of employment, commerce and leisure facilities. **A package of complementary measures** will maximise the

scope of potential benefits by making the most efficient use of road space where there are forecast reductions in car traffic. Such measures could include widening pavements, provision of bus lanes and general environmental enhancements for non-road users. These measures will prevent available road space from simply filling up with more cars. Similarly, **a package of mitigation measures will contribute to overall value for money** by limiting any negative impacts resulting from the scheme. Together, the complementary and mitigation measures will help **secure substantial environmental, safety and social benefits**.

Problems and objectives

The A6 to Manchester Airport Relief Road scheme will alleviate a number of problems to bring benefits to the local population and businesses and to the wider economy. The major problems in the area – and objectives defined to address them – are presented below.

Problems	Objectives
Poor connectivity along the south Manchester corridor, with a fragmented east-west highway network and lack of surface access to Manchester Airport, that acts as a barrier to economic growth and regeneration. In its Ground Transport Plan the Airport identifies surface access capacity as the most significant constraint on its future growth and therefore the economic benefits that it can help deliver to the Northern economy. Enhanced surface access to the Airport is also important in improving access to employment opportunities at the Airport and the new Enterprise Zone, particularly from nearby deprived neighbourhoods. Whilst the construction of the Metrolink Line to the Airport and other initiatives to promote greater public transport mode share, will reduce the proportion of total trips arriving at the Airport by private car, growth of passenger and employee numbers at and around the airport will translate to an increasing demand for vehicle trips. In the absence of the Relief Road, the highway capacity constraints will constrain the ability of the Airport and the Enterprise Zone to fulfil their potential for job creation and economic growth.	***Increase employment and generate economic growth*** by providing efficient surface access and improved connectivity to, from and between Manchester Airport, local, town and district centres, and key areas of development and regeneration (e.g. Manchester Airport Enterprise Zone) The A6 to Manchester Airport Relief Road scheme will remove the current capacity constraints and substantially improve surface access to the airport. This will enable the Airport and the Enterprise Zone to deliver the envisaged growth in jobs and economic output.
Congestion on the local and strategic network, with average peak hour vehicle speeds of less than 10mph on most parts of the highway network and journey times that are longer than all other 'large' urban areas across the UK, including those in London These problems will become significantly worse in the future if there is no highway improvement. Tests using the do-minimum model indicate that total vehicle delay across the network will increase by nearly 200% between 2009 and 2032.	***Boost business integration and productivity***: improve the efficiency and reliability of the highway network, reduce the conflict between local and strategic traffic, and provide an improved route for freight and business travel.
There are particular congestion problems along the A6 and in the urban centres of Gatley, Bramhall, Heald Green, Hazel Grove, Poynton, Wilmslow, Handforth and Cheadle Hulme, leading to delays to public transport and affecting accessibility.	***Reduce the impact of traffic congestion*** on local businesses and communities. ***Promote fairness through job creation and the regeneration of local communities***: reduce severance and improve accessibility to, from and between key centres of economic and social activity

Problems	Objectives
Poor environmental conditions in the District and Local Centres along the south Manchester corridor, caused by the high volume of traffic passing through these towns to reach other destinations, leading to a number of locations in the study area being designated Air Quality Management Areas	***Support lower carbon travel:*** reallocate road space and seek other opportunities to provide improved facilities for pedestrians, cyclists and public transport.
Unsafe conditions for pedestrians and cyclists through busy urban areas along the extent of the south Manchester corridor, with all non-motorised transport users facing severance and problems of safely accessing education, employment and leisure facilities	***Improve the safety of road users, pedestrians and cyclists:*** reduce the volume of through-traffic from residential areas and retail centres.

The main features of the A6 to Manchester Airport Relief Road major scheme business case are summarised in the remainder of this Executive Summary, focusing on the strategic fit, value for money, scheme delivery proposals, and commercial and financial considerations.

Strategic fit

The Government has prioritised transport as one of the main areas of capital investment to help 'boost economic growth, unlock private investment and help businesses grow and compete effectively in the global economy'. In particular, there is a commitment to funding high value capital transport projects that promote economic growth, minimise the environmental impact of travel, improve public health and address social exclusion. At the same time, there is an onus on scheme promoters to identify alternative sources of funding where possible – encouraging the development of imaginative and workable solutions. The A6 to Manchester Airport Relief Road meets these criteria through its underlying objectives, the benefits it will generate, and via the innovative funding package for delivering the scheme.

The scheme has been developed in accordance with local, sub-regional and national transport policies and demonstrates alignment with the Government's guiding principles, set out in the Spending Review Framework[1] and which continue to sit at the heart of the Government policy:

- **'Meet a tough new set of criteria that deliver value for money'** – the A6 to Manchester Airport Relief Road Scheme generates a BCR of 5.06, being substantially in excess of a BCR of 2.0 which is DfT's threshold for demonstrating high value for money;
- **'Engagement between the Government and all parts of society'** - there is clear support for the scheme at a local and sub-national level, public and stakeholder consultation having been undertaken at previous stages of scheme development and currently being undertaken for later stages in scheme development;
- **'Deliver more for less'** – the scheme (and overall SEMMMS strategy) is based on guiding principles that seek to maximise benefits at all levels, from scheme preparation to delivery and operation – as demonstrated by the £100 million of savings to scheme costs since previous submissions;
- **'Independent challengers…to think innovatively (and reduce) public expenditure while balancing priorities'** – the A6 to Manchester Airport Relief Road Project Board and key stakeholders (including Transport for Greater Manchester) have challenged outputs throughout the development of the scheme, which has used a multi-consultant and officer approach to maximise the opportunities for innovation and peer review, including those around scheme funding;
- **'Challenging spending in all areas, including on contracts and programmes'** – the historic and current approach to programme management, risk analysis and scheme costing means the A6 to Manchester Airport Relief Road Scheme has a robust, fully-developed set of scheme costs – efficiencies

[1] HM Treasury, June 2010 (http://www.hm-treasury.gov.uk/press_10_10.htm)

have been maximised throughout scheme development to produce savings of £100 million compared to original scheme designs.

The strategic need for the scheme is based around three core areas:

- **The Greater Manchester and Cheshire East economy:**
  - Greater Manchester is the largest economy outside of London, contributing over £46 billion to national economic output and supporting 1.17 million workplace jobs – it is therefore a key driver of economic activity and growth in the UK.
  - Cheshire East contributes to over £16 billion of national economic output and has above-average levels of per capita economic output when compared to the national economy – it is therefore home to high-value economic activity.
  - The linkages between cities, towns and district centres across Greater Manchester and Cheshire East means a substantial amount of commuting and business travel occurs in this area. It is an area with a large proportion of high-skilled labour, commuting to high-productivity jobs in Manchester and along the south Manchester corridor between Stockport and Manchester Airport. These commuting patterns extend west into Cheshire and east to parts of Yorkshire and Derbyshire, and are characterised by a reliance on the car, with strategic connectivity provided via the A6, A34 and A523.
  - The North West as a whole is not contributing its full potential to the UK economy; there remains an economic gap of an estimated £20 billion[2] when compared to the average performance of other parts of the UK. The Greater Manchester and Cheshire East economies represent over 50% of the NW GVA and thus economic output from these areas is thought to be around £10 billion per annum lower than its potential. Whilst traffic congestion is not the sole cause of the productivity gap, it is a significant contributor to the problem. Traffic congestion and its impact on journey reliability place a substantial constraint on the ability of the Greater Manchester and Cheshire East economy to achieve its potential. ***The scheme will reduce the conflict between local and strategic trips to deliver journey time reliability for commuters, business and leisure travellers, helping to narrow the 'gap' in economic output with the rest of the UK.***
- **The growth potential of the South Manchester corridor**
  - A hub for creative and knowledge-based industries (KBIs), containing above-average levels of KBIs when compared to the North West and UK economies.
  - Three identified sites in the immediate vicinity of the scheme – Airport City, Handforth Dean and Hazel Grove – that are capable of accommodating and delivering large scale, viable commercial real estate projects that will provide Greater Manchester and Cheshire East with a competitive advantage in capturing inward investment and driving economic growth.
  - The development at the Airport City Enterprise Zone, facilitated by the A6 to Manchester Airport Relief Road, will form part of the Wythenshawe Regeneration Framework – ensuring that employment opportunities are available to those in currently deprived communities.
  - High skilled jobs in an economic hub of health, logistics, cargo, advanced manufacturing and corporate services. These industries will derive significant benefits in productivity from being located within close proximity to the airport and through the benefits to be derived from co-locating with companies within the industry supply chain.
  - The potential to generate up to 5,450 new jobs in high-value sectors, driving the growth of the local, Greater Manchester and national economies. The development of employment land along the south Manchester corridor will be a major driver in increasing productivity levels.
  - At present, congestion and the lack of strategic connectivity is a direct barrier to business and employment opportunity along the south Manchester corridor. ***The scheme will assist in***

[2] North West Regional Economic Strategy 2006

realising the growth potential of the south Manchester corridor through the development of Airport City, Hazel Grove and Handforth Dean – each of which will yield high levels of economic output for Greater Manchester with the attraction of high value industries and a skilled labour force, providing large economic payoffs for the investment placed in the A6 to Manchester Airport Relief Road.

- **Strategic connectivity to Manchester Airport**
  - The airport has been confirmed as the location within Greater Manchester of one of the Government's 21 UK 'Enterprise Zones', as announced by the Chancellor of the Exchequer in March 2011.
  - The airport and its surrounding infrastructure is one of Greater Manchester's key differentiators from other comparator cities outside London and this hub of connectivity and industry is seen as the region's most important asset in attracting investment from abroad.
  - It is a key international gateway, home to over 100 airlines, serving 220 destinations worldwide and carrying almost 20 million passengers per annum – 86% of which are international trips.
  - A major hub for international freight traffic, its World Freight Terminal accommodates 170,000 tonnes of cargo throughout the year – this is expected to increase to 250,000 tonnes (47%) by 2015.
  - It sustains 19,000 jobs on-site and a further 16,000 indirectly, generating an income effect of around £800 million per annum.
  - The Manchester Independent Economic Review (MIER) stated that Manchester Airport is an existing strategic urban asset, arguing that its development should be nurtured to maximise its substantial benefits to the wider economy through national and international connectivity for business and tourism – and that improved surface access to the airport is essential to this policy.
  - A lack of surface access capacity is the most significant constraint on the future growth of Manchester Airport and therefore the economic benefits that it can help to deliver to the northern and national economies. Enhanced surface access is also important in improving access to employment opportunities, particularly from nearby deprived neighbourhoods. ***The A6 to Manchester Airport Relief Road will promote sustainable economic development through the provision of efficient surface access and improved connectivity to, from and between Manchester Airport and the local, town and district centres and employment sites and wider strategic network.***

The highway network within the study area contains designated freight routes of importance to the wider economy. The A6 provides a direct link to/from Manchester that is utilised by a significant volume of freight traffic. The **delays experienced by freight traffic on the A6, as a result of the interaction with local traffic, generates productivity losses to businesses at a pan-regional level**.

The Greater Manchester Strategy recognises the need to improve surface access to Manchester Airport and emphasises the key role that the A6, A523 and A34 in Stockport and Cheshire play both locally and strategically. These links provide access routes into the North West and links to the M60 and Manchester Airport for traffic from the West Midlands and Wales.

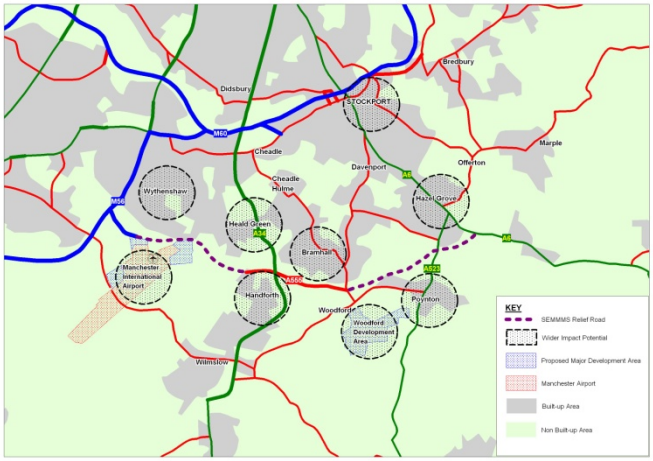
Value for money – what the scheme will deliver

Delivering benefits to transport users

A comprehensive transport modelling and appraisal framework has been developed that is fully compliant with DfT guidance (WebTAG). Outputs from the future year forecasting demonstrate that, **without the scheme, traffic conditions will deteriorate substantially by 2017**, with road users experiencing increased levels of congestion and longer journey times. By 2032, the majority of road users will experience significant delays, particularly on the major routes for business and commuting, with journey times increasing by up to 19%. The provision of **the A6 to Manchester Airport Relief Road will significantly improve the situation**, providing improved (quicker) surface access to Manchester Airport than is currently available, at both 2017 and 2032. Congestion on the local road network will be significantly reduced, as through-traffic transfers to the new route.

An economic appraisal has been undertaken to establish the value for money of the scheme proposals and confirms the **substantial benefits to transport users as a result of the scheme -** monetised journey time savings of approximately £825 million and total transport economic efficiency benefits of £858 million. When taken in conjunction with the scheme costs, the **overall value for money is high, generating a BCR of 5.06.** The majority of these benefits accrue to transport users in areas around Bramhall, Hazel Grove, Stockport and Wilmslow, but with users across the wider study area experiencing an improvement to some degree.

Delivering benefits to the wider economy



The proximity of the proposed scheme to Manchester Airport and the proposed Airport City development, to the future major development sites at Hazel Grove and Handforth Dean, and to Manchester and Stockport, provides substantial potential for wider economic benefits. By reducing the interaction of local and strategic traffic, the scheme will also deliver benefits to business through the more efficient movement of freight.

Completion of the Relief Road is predicted to deliver an **increase in economic output across Greater Manchester and Cheshire East of up to £2,492 million** across the 60-year appraisal period, with the most significant benefit being to the local economies of Stockport, Cheshire East and Greater Manchester. The scheme is expected to deliver employment benefits in the local area by improving connectivity between labour markets, businesses and key transport networks. This is predicted to deliver a **net increase of up to 5,450 jobs across Greater Manchester and Cheshire East**.

The A6 to Manchester Airport Relief Road scheme will provide the connectivity required to fully realise the growth opportunities in the corridor.

Limiting the impact of transport on the environment

The proposed relief road will contribute to a strategy that is focused on securing environmental benefits as an integral part of economic and s ocial objectives. Implementation of the proposed scheme will involve specific environmental impacts within the proposed highway corridor between the A6 and the Airport – some of which will require mitigation to offset any adverse effect. A comprehensive assessment of the environmental impacts has been under taken to show where the scheme will bring benefits, and also to identify those areas where mitigation may be required. The main findings from the assessment are as follow:

- An **overall positive impact in relation to air quality and noise** – reductions in noise levels and concentrations of traffic-related pollutants where traffic is removed from other parts of the network will offset the slight negative impacts in the rural hinterland south of the Greater Manchester conurbation;

- A **neutral** impact on greenhouse gas emissions – there is a negligible change in overall carbon emissions;
- **Improved rights of way and access to the countryside** through the provision of safe crossing points and a segregated pedestrian and cycleway on the new route, and enhanced footpaths, cycleways and bridleways on existing network;
- A **slight adverse impact on landscape and visual amenity** - integrating planting and landform to established woodland and field patterns, and ensuring the road is integrated into the existing landscape pattern, will offset any negative impact of introducing a new road into a rural environment;
- Appropriate mitigation to ensure that ecological corridors are maintained and lost habitat is compensated and enhanced to offset the **slight adverse impact on ecology and biodiversity**;
- Proposals for the management and treatment of surface water discharge aimed at achieving a 'high level polishing treatment' system with associated ecological and landscape benefits – this will help offset the **moderate adverse impact on heritage of historic resources**
- The inclusion of proposed design features relative to watercourses and floodplains, and mitigation measures relative to construction in the vicinity of sensitive water resources will lead to an overall **neutral impact on hydrology and water quality**.

The scheme will deliver clear environmental benefits in those areas where a heavy volume of traffic is removed. In areas that experience an increase in traffic along the new route, appropriate mitigation measures have been identified to limit the impact – **the overall impact on the environment is deemed neutral to slight adverse**.

Addressing social exclusion and improving public health

There are a number of deprived areas within the study area, principally around Stockport, Adswood and Wythenshawe, which are characterised by high incidences of worklessness, low incomes, low educational attainment and poor health – in short, a generally poor quality of life based on national indicators of deprivation.

Whilst some of these issues are due to long-standing, inter-generational factors, a key problem identified through engagement with stakeholders and the public is the barrier to opportunity that exists as a result of poor transport accessibility. Congestion on the highway network has had a negative impact on bus reliability, with the result that some services have become unviable and therefore withdrawn. The impact of reduced bus service provision in some locations affects those low income households without cars, for whom public transport is often the only available alternative for accessing employment, services and facilities. The impacts of congestion therefore affect the ability of the poorer and least mobile residents within the study area to engage in society, ultimately widening the inequality gap at a local and strategic level. The scheme therefore aims to regenerate local communities and encourage community, cultural and social inclusion through reduced severance and improved accessibility to, from and between key centres of economic and social activity. **The scheme will support the regeneration of local, district and town centres** (e.g. Poynton, Bramhall and Hazel Grove) and **improve accessibility to employment, facilities and services for those in deprived communities** (e.g. Wythenshawe and parts of Stockport). Safety, accessibility and environmental improvements lie at the heart of the SEMMMS strategy, and the scheme will deliver benefits in all areas by removing long-distance traffic from the local road network, and via the step-change in provision for public transport, cycle and pedestrian networks.

The WebTAG assessment produced an **overall positive impact in relation to access to services**, due to improved connectivity between District and Local Centres along the south Manchester corridor and the contribution to delivering the Wythenshawe Regeneration Initiative - enabling the local population to access jobs in future development areas.

The high volumes of traffic within the study area create a significant level of conflict between road users. There is evidence of accident clusters on the wider local network and at key areas of congestion, with particular problems on and around the congested A6. The scheme will reduce traffic through local centres, leading to a reduction in the number of accidents in urban areas. The increased vehicle speeds on the new route means that whilst there is a significant decrease in the total number of accidents, there will be a slight

increase in the severity of injuries incurred. Overall, the analysis indicates that there are 1032 fewer personal injury accidents over the 60 year assessment period. This is due to a large reduction in the number of 'slight' injury accidents but there are predicted to be small increases in 'serious' and 'fatal' injury accidents. Overall, the scheme generates a £16m saving in accident costs.

Delivering the scheme

The A6 to Manchester Airport Relief Road is supported by all three major political parties in each of the Local Authorities through which the road passes. It is also supported by the Greater Manchester Combined Authority (GMCA) and Transport for Greater Manchester (TfGM). This high level of consensus between the councils means that the scheme faces few political hurdles in progressing to construction.

Extensive work has already taken place to ensure that the mechanisms for delivering the scheme are in place, from initial conception right through to construction and maintenance. The project is overseen by a **steering group** known as the **Chief Executive Steering Group**, comprising the Chief Executives of Manchester City Council, Stockport Metropolitan Borough Council, Transport for Greater Manchester and Manchester Airport Group. The **Senior Responsible Owner (SRO)** responsible for the delivery of the project is Eamonn Boylan (Chief Executive of Stockport Metropolitan Borough Council).

The **Project Delivery Team** (PDT) is responsible for resolving all project issues that require cross sponsor agreement but do not have a strategic impact on the scheme. The PDT is led by the Project Director. The **Project Development and Design Team** consists of a significant number of specialist skilled staff, which includes full-time staff employed by the partners and specialist consultants providing advice on transport, environmental, design and engineering issues relating to the scheme proposals.

A suite of Project Initiation Documents, setting out the detailed management and delivery processes have prepared and are included in Appendix F.

A detailed project plan shows the programme for scheme delivery. The key dates are as follow:

- Public Consultation – autumn 2012 to spring 2013
- Programme Entry submission – autumn 2012;
- Submission of the planning application – summer 2013;
- Publication of draft Orders – summer 2013;
- Conditional Approval (if required) - autumn 2013;
- ECI contractor appointment - autumn/winter 2013;
- Full Approval –autumn/winter 2014;
- Award Construction contract – autumn/winter 2014; and
- Scheme opening to the public – summer 2017

Other key elements of the delivery of the scheme include the following:

- **A full Quantified Risk Assessment** has been undertaken to identifying the key risks to the scheme delivery;
- **Extensive public consultation** over the ten years of the SEMMMS strategy, with the public consultation process on the current scheme proposals including junction options currently being undertaken;
- A **comprehensive communications and consultation strategy** is in place to ensure all stakeholders and interested parties are fully consulted and informed through all stages of scheme development; and
- **Proposals for before and after monitoring and evaluation**, to demonstrate the extent to which scheme objectives were met, to monitor performance of the road and ensure that any potential issues post-implementation are identified and addressed.

Financial and commercial considerations

The total scheme cost on which this major scheme business case for funding is based is £230.36 million, including inflation and risk but excluding optimism bias. This is based on:

- £4.36 million of preparation costs;
- £39.85 million for land acquisition;
- £186.16 million for scheme construction, supervision and other associated works costs, including £4.4 million in complementary measures and £34million to cover risks.

The detailed cost estimate for preparation, design, supervision and construction of the scheme was prepared by Corderoy, based on its in-house data base of approximately seventy ECI and DBFO[3] contracts. Allowances for the cost of land, environmental mitigation, complementary measures and S tatutory Undertakers' costs have been determined separately by the project team. In January 2011, Balfour Beatty was commissioned to undertake a review of the buildability aspects of the scheme, and to independently review the assumptions relating to quantities, rates and prices. These were compared to similar schemes recently constructed by Balfour Beatty. The use of actual costs of current schemes – particularly those in the local area – ensures a robust approach to the development and review of scheme costs. An independent review of costs has also been undertaken by EC Harris.

An innovative funding package is being developed to provide the greatest opportunity for the scheme to be delivered. Based on a full scheme outturn cost of £290 million, the funding package comprises:

- £165m funding to be made available from the Coalition Government (National Infrastructure Plan)
- £125m of local contributions through the Greater Manchester Transport Fund

The scheme is dependent on funding sources as listed above, including that to be available from that which will be generated from the Greater Manchester model as part of the overall Grater Manchester Transport Fund. The Greater Manchester model was announced by the Deputy Prime Minister and confirmed by the Chancellor in the recent March 2012 budget.

The strategic objectives of the A6 to Manchester Airport Relief Road and those factors that influence the chosen procurement route are identified as:

- Certainty that the scheme can be delivered within the available funding; and
- The ability to tie up contractual commitment with the point at which all promoting authorities are prepared to and are able to commit to the project, in full.

The preferred procurement route for the delivery of the A6 to Manchester Airport Relief Road is a Professional Services Contract (PSC) arrangement for immediate needs, followed by a staged ECI arrangement for taking the scheme forward.

[3] Design, Build, Finance and Operate (DBFO)

Summary

This business case sets out the work undertaken to date to support the case for the A6 to Manchester Airport Relief Road scheme. The scheme will deliver benefits to transport users, the economy, and to local communities in the south Manchester corridor.

The SEMMMS Strategy was developed on behalf of, and subsequently endorsed by, the previous Government. The contents of the strategy were endorsed across the North West at all political levels with strong public support for the multi-modal package of measures. Elements of the strategy have already been financed by Central Government and the A6 to Manchester Airport Relief Road has been prioritised by the Greater Manchester Combined Authority (GMCA) for inclusion in the Greater Manchester Transport Fund, with a contribution from this fund to the overall cost of the scheme.

Across the North West the need for the A6 to Manchester Airport Relief Road has been recognised and supported. It is supported by local MPs, the GMCA and TfGM, the three promoting authorities and councillors from all three main political parties. This support was also demonstrated by the high level of public response and support during the consultation on the original scheme.

The Government is committed to improving connectivity to international gateways and investing in infrastructure that will generate economic growth and employment, enhance the environment and support social cohesion. This business case presents the strong case for investment in the A6 to Manchester Airport Relief Road to meet these objectives and deliver substantial benefits to UK plc, as well as to the local communities of Greater Manchester and Cheshire East.

1. Introduction

Purpose of this document

1.1 This document presents the Major Scheme Business Case for the A6 to Manchester Airport Relief Road scheme. The scheme has been identified by Central Government as one of a number of nationally important infrastructure projects, which are required to revitalise the economy. £165 million of Central Government funding has therefore been allocated for the delivery of the scheme[4].

The A6 to Manchester Airport Relief Road Scheme

Background and Other Options Considered

1.2 The original SEMMMS study developed and tested six separate strategy options in order to arrive at a preferred strategy of interventions. The six strategy options consisted of a mix of Road, Heavy Rail, Light Rail and Quality Bus interventions along with non-infrastructure options to address the transport problems of the study area. This assessment led to the development of a recommended strategy that incorporated a substantial public transport investment in new infrastructure and services and also the construction of all three remitted road schemes but to a lower standard of provision. In addition to the infrastructure interventions proposed, the strategy included recommendations for road space reallocation, transport change measures and urban regeneration proposals.

1.3 Over the last ten years since the completion of the SEMMMS study, approximately £63 million has been spent on SEMMMS projects including Quality Bus Corridors, accessibility Improvements to Bus Stops and transport interchanges, the provision of yellow buses as well as Road space reallocation involving the creation of on street cycle facilities and improvements to the pedestrian network.

1.4 Having assessed a wide range of public transport interventions, the SEMMMS study recognised that many of the serious traffic congestion problems would only be addressed through the construction of the remitted road schemes. The proposed A6 to Manchester Airport scheme has thus been developed following an extensive examination of alternative options and is only one element of an integrated package of investment.

What the scheme includes

1.5 The A6 to Manchester Airport Relief Road scheme comprises the individual elements described below. In a number of locations, alternative junction layouts are being consulted upon through the current public consultation exercise. The Preferred scheme option will be developed following any amendments to the scheme as a result of the feedback from the public consultation.

- **The Relief Road**, which is a broadly east-west route from the A6 near Hazel Grove (south east from Stockport) to the Ringway Road / Ringway Road West junction with an improved Ringway Road West adjacent to Manchester Airport, incorporating eight new junctions and four railway crossings;
- **Provision of a segregated cycle/pedestrian** route adjacent to the new road and existing length of the A555, providing a new orbital link for the Strategic Cycle /Pedestrian Network;
- **A package of complementary measures** in accordance with the SEMMMS Strategy that will maximise the scope of benefits by making the most efficient use of road space where there are forecast reductions in car traffic. These measures will prevent available road space from simply filling up with more cars; and

[4] Subject to the satisfactory completion of the Major Scheme Business Case and contingent on local funding to meet the total scheme cost of £290 million (including an allowance for Optimism Bias at 27%).

- **A package of mitigation measures** will contribute to overall value for money by limiting any negative impacts resulting from the scheme, including environmental and construction engineering mitigation to minimise the effect of the road on local communities and surrounding habitats.

What the scheme will provide

1.6 The scheme will provide strategic connectivity to Manchester Airport and along the south Manchester corridor. The development of the Manchester Airport Enterprise Zone as a hub of future economic growth and employment means there will be opportunities for local, national and international business activity and employment opportunities for residents across Greater Manchester, Cheshire and beyond. The A6 to Manchester Airport Relief Road scheme will complement the development of the airport, providing an alternative and efficient route, linking people to jobs, and businesses to markets.

1.7 Originally identified as integral to the successful delivery of the SEMMMS strategy mapped out in 2001, the need for the A6 to Manchester Airport Relief Road scheme has grown over time. Congestion and poor journey time reliability are a major problem on the highway network in south Greater Manchester, impacting upon the thousands of commuters, business travellers and freight operators that rely upon it to provide access to jobs and business activity. It also affects the ability of bus operators to meet the needs of public transport users, and the congestion in local town centres along the south Manchester corridor has environmental and societal implications, leading to poor air quality, increased risk of accidents, and reduced accessibility to education and employment opportunities – particularly for those in the deprived communities such as Wythenshawe. The lack of efficient surface access to Manchester Airport along the south Manchester corridor has been identified as a major constraint on the ability of Greater Manchester to achieve its potential as a major hub of economic activity. There is, therefore, a fundamental need for the scheme to overcome these problems.

1.8 The detailed appraisal undertaken in support of this business case shows that by reducing congestion, improving journey times and journey time reliability and encouraging business activity, the scheme will contribute to:

- travel time savings valued at £825 million
- up to 5,450 new jobs; and
- up to £2,492 million in increased national economic output (GVA).

1.9 The substantial benefits of the scheme, combined with scheme costs that have been subject to robust value engineering processes, means the A6 to Manchester Airport Relief Road generates a benefit-cost ratio of 5.06 – it therefore demonstrates high value for money.

An integrated and innovative approach to project delivery

1.10 The scheme is supported and promoted by three local authorities: Cheshire East Unitary Authority (CE), Manchester City Council (MCC) and Stockport Metropolitan Borough Council (SMBC). Further support and funding is provided by the Greater Manchester Combined Authority (GMCA) and Transport for Greater Manchester (TfGM). All partners and supporters are committed to the efficient delivery of the scheme to ensure the North West economy can thrive in the future. The scheme promoters have relevant experience in delivering large-scale infrastructure projects, and have put in place a robust programme management and overall governance structure to ensure the A6 to Manchester Airport Relief Road is delivered on time and to budget. This process extends beyond initial scheme delivery, with all partners committed to ensuring that the scheme delivers the forecast benefits.

1.11 As part of this commitment to scheme delivery, the scheme promoters have developed an innovative funding proposal – based around an Earn-Back model, but also comprising local contributions from the Greater Manchester Transport Fund - to secure the scheme's future development. The A6 to Manchester Airport Relief Road scheme is in a unique position to take advantage of different sources of funding, due to its proximity to Manchester Airport and the

designation of the development at Airport City as an Enterprise Zone: one of 21 identified across the UK by the Chancellor of the Exchequer as being hubs for economic growth and employment. The development of innovative funding proposals aligns directly with the Government's objective to adopt a 'bottom-up' approach to scheme development – placing the onus as much on Local Authorities and Local Enterprise Partnerships as Central Government to propose imaginative and workable solutions.

1.12 Careful consideration has also been given to phasing the construction of the scheme to make best use of interdependencies with other schemes; principally, integrated construction of the Ringway Road Highway Improvement Works (RRHIW) and with the Metrolink Airport Extension (MAE). Integrated delivery of the RRHIW and MAE incorporates a dual-carriageway section between Shadowmoss Road and the T1 roundabout at Manchester Airport; an underpass at the RB2 roundabout to allow the Metrolink to pass under the dual-carriageway; and replacement of the RB2 roundabout with a signal-controlled junction arrangement that will also include Aviator Way.

1.13 The governance, planning and statutory arrangements are already in place to provide integrated delivery of the RRHIW element of the SEMMMS scheme with the MAE works, and the benefits are substantial:

- Cost savings of up to £25 million compared to procuring two separate contracts;
- Construction delay savings of up to £3 million;
- Avoiding additional utility diversion works and future disruption to Metrolink and road users that would otherwise occur if delivered separately;
- Journey time savings associated with the Metrolink underpass, estimated at around £2 million; and
- Early delivery of an element of the National Infrastructure Plan scheme, via improved access to Manchester Airport and the Enterprise Zone.

1.14 Other elements of the A6 to Manchester Airport Relief Road scheme will be delivered as per the approach set out in The Commercial Case (Chapter 6) and The Management Case (Chapter 7). Potential risks from delivering an integrated solution have been identified and addressed. The impact on delivery of the other elements of the scheme are expected to be minimal, due primarily to the fact that the main delivery bodies for the MAE (Manchester Airport, Manchester City Council and TfGM) are also key stakeholders for the A6 to Manchester Airport Relief Road scheme: Manchester Airport and Manchester City Council are both on the Chief Executive Steering Group.

Alignment with Central Government policy

1.15 The approach to scheme development, and the scheme itself, align directly with the latest guidance on major scheme appraisal by DfT. It is also underpinned by a set of guiding principles, defined on the basis of the Government's 2010 Spending Review Framework for all future assessments[5], but which are equally valid today:

- **'Meet a tough new set of criteria that deliver value for money'** – the A6 to Manchester Airport Relief Road Scheme generates a BCR of 5.06, demonstrating high value for money;
- **'Engagement between the Government and all parts of society'** – there is clear support for the scheme at a local and regional level, public and stakeholder consultation having been undertaken at previous stages of scheme development and is again being undertaken this autumn with further planned consultation for the later stages in scheme development toward full approval;
- **'Deliver more for less'** – the scheme (and overall SEMMMS strategy) is based on guiding principles that seek to maximise benefits at all levels, from scheme preparation to delivery and operation – as demonstrated by the £100 million of savings to scheme costs since previous submissions;

[5] HM Treasury, June 2010 (http://www.hm-treasury.gov.uk/press_10_10.htm)

- **'Independent challengers to think innovatively (and reduce) public expenditure while balancing priorities'** – the A6 to Manchester Airport Relief Road Project Board and key stakeholders (including Transport for Greater Manchester) have challenged outputs throughout the development of the scheme, which has used a multi-consultant and officer approach to maximise the opportunities for innovation and peer review, including those around scheme funding;
- **'Challenging spending in all areas, including on contracts and programmes'** – the historic and current approach to programme management, risk analysis and scheme costing means the A6 to Manchester Airport Relief Road Scheme has a robust, fully-developed set of scheme costs – efficiencies and cost savings have been maximised throughout scheme development to produce savings of over £100 million compared to original scheme designs.

1.16 A substantial amount of work has been undertaken over a number of years to develop the optimal scheme and associated business case for the A6 to Manchester Airport Relief Road – one that will bring immediate benefits via the improved highway connectivity, but also helping to realise the longer-term objectives of the original SEMMMS strategy. **This business case summarises the current position of the scheme, providing confirmation of the substantial progress made to date and the rationale for continued scheme development as part of the DfT's future spending programme. It also provides details of innovative funding proposals that strengthen the case for further scheme development.**

1.17 The business case, prepared on behalf of the funding partners, demonstrates the strong case for implementing the scheme. It demonstrates the strong strategic case – based on the benefits it will bring to the Cheshire East, Manchester and Stockport economies and via increased commercial development at Manchester Airport and along the south Manchester corridor. The alignment of scheme objectives with those at local, sub-national and national level is clearly shown. It presents a robust value for money case, based on a DfT-compliant approach to transport modelling and appraisal. It also confirms the effective processes for governance and overall scheme delivery to provide certainty that the scheme will be delivered on time and within budget.

Structure of this document

1.18 This document is structured in accordance with the Department for Transport's Guidance on Major Scheme Business Cases, which was updated in 2011. Following this Introduction, the remainder of the document is structured as follows:

- ***Chapter 2*** provides a **scheme description**, including a detailed physical description of the scheme and associated scheme drawings.
- ***Chapter 3*** presents the **strategic case** for the scheme. This includes a summary of the underlying business strategy for the Greater Manchester and Cheshire East economies, an overview of the current and future problems the scheme is designed to address, and the specific objectives of the scheme, against which the success of the scheme will ultimately be measured..
- ***Chapter 4*** presents the **economic case**, demonstrating the impact of the scheme on the economy, environment and society, based on an appraisal framework that is fully-compliant with DfT guidance.
- ***Chapter 5*** presents the **financial case,** including a comprehensive cost breakdown, a description of how the cost estimate has been derived, and assumptions relating to risk and future inflation.
- ***Chapter 6*** presents the **commercial case,** setting out the preferred route to procurement, including consideration of alternative proposals discounted at this stage**.**
- ***Chapter 7*** presents the **management case**, with clear proposals for governance, project planning, risk management, stakeholder management and evaluation, supported in more detail by Project Initiation Documents (contained in the appendices – see below).

1.19 Supporting information is provided in appendices, as follow:

- ***Appendix A*** provides a **summary of the SEMMMS strategy to date**;
- ***Appendix B*** includes the **traffic modelling and appraisal reports**;
- ***Appendix C*** includes all the completed **Appraisal worksheets**;
- ***Appendix D*** includes the **Environmental Scoping Report**;
- ***Appendix E*** contains a **detailed cost breakdown**;
- ***Appendix F*** contains **Project Initiation Documents** produced as part of the Delivery Case;
- ***Appendix G*** contains **technical notes on inflation and optimism bias assumptions;**
- ***Appendix H*** contains **Balfour Beatty's independent surveyor's report**;
- ***Appendix I*** contains the **Complementary Measures and Mitigation Measures Report*;***
- ***Appendix J*** contains the outline **Benefits Realisation Plan*;***
- ***Appendix K*** contains the **Communications Strategy** (included in Appendix F)***;***
- ***Appendix L*** contains a technical note on **the rationale for the scheme** and details of alternative highway scenarios assessed as part of the business case;
- ***Appendix M*** contains a report assessing the **Social and Distributional Impacts** of the scheme;
- ***Appendix N*** contains a note on the derivation of **Employment and GVA Benefits*;*** *and*
- ***Appendix O*** contains the **Independent Cost Report** by EC Harris

2. Scheme Description

Overview

2.1 This section of the MSBC provides a physical description of the proposed A6 to Manchester Airport Relief Road Scheme. The scheme has been developed over a long period, taking account of previous public and stakeholder engagement. Final amendments may be made based on the results of public consultation being undertaken this autumn / winter, but the underlying philosophy and design of the proposed scheme will remain as described in this chapter.

2.2 The scheme details as described in this chapter have been developed by the project team, taking into consideration the developing outputs from the transport modelling, environmental and value for money aspects. The final scheme details will not be fully determined until the further consultation with the public, stakeholders and other interested parties, such as landowners, has been completed. The outcome of the consultation will subsequently be considered by each of the promoting local authorities in order for them to approve the preferred scheme layout.

2.3 The location, components and physical characteristics of the scheme are provided (see ***sections 2.4 – 2.17***). In accordance with the guidance on MSBCs, and given the nature of the scheme, details are provided of specific junction types and locations, scheme length and alignment, and link standard. Also included are details of the segregated cycle/pedestrian route and the complementary and mitigation measures that form part of the overall scheme proposals (see ***sections 2.18 – 2.40***). The priority areas and measures described in this chapter have been developed by the project team, taking into consideration the developing outputs from the transportation modelling. The final package of complementary and mitigation measures will not be fully determined until agreement is reached with Cheshire East Council, Manchester City Council, Stockport Council and other stakeholders. The outcome of the consultation will subsequently be considered by each of the promoting local authorities in order for them to approve the final package of measures.

Scheme Location

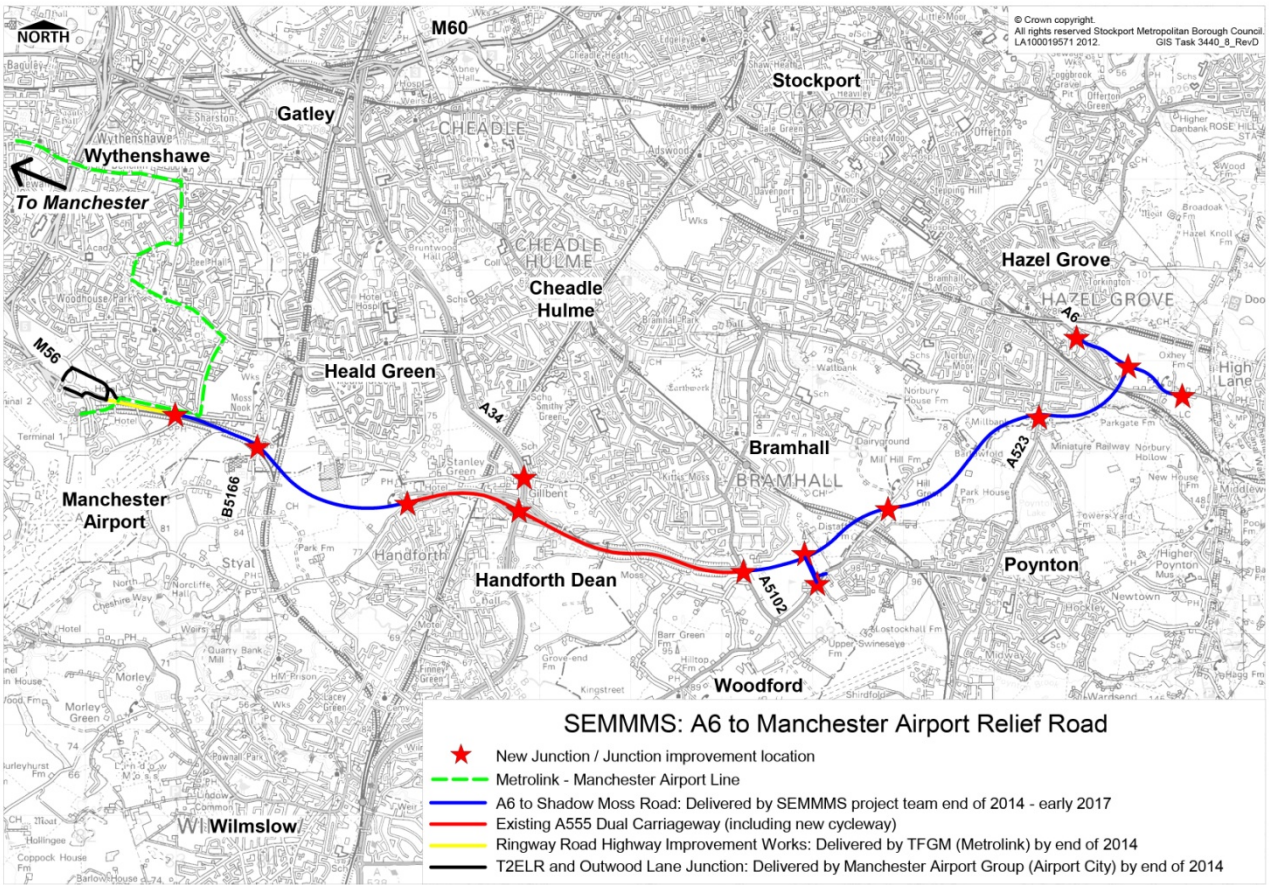
2.4 ***Figure 2.1(overleaf)*** shows the location of the proposed scheme. The specific components of the scheme are presented in more detail below.

Components of the Proposed Scheme

2.5 The A6 to Manchester Airport Relief Road Scheme comprises the following:

- **The Relief Road**, which is a broadly east-west route from the A6 near Hazel Grove (south east from Stockport) to Manchester Airport and the link road to the M56, incorporating up to thirteen new and improved junction arrangements and four railway crossings – see Figure 2.1 below;
- **Provision of a segregated cycle/pedestrian route** adjacent to the new road and the existing length of the A555, providing a new orbital link for the Strategic Cycle /Pedestrian Network;
- **A package of complementary measures** in accordance with the SEMMMS Strategy that will maximise the scope of benefits by making the most efficient use of road space where there are forecast reductions in car traffic. These measures will prevent available road space from simply filling up with more cars; and
- **A package of mitigation measures** will contribute to overall value for money by limiting any negative impacts resulting from the scheme, including environmental and construction engineering mitigation to minimise the effect of the road on local communities and surrounding habitats.

Figure 2.1 – Location of the A6 to Manchester Airport Relief Road Scheme



Physical Description of the A6 to Manchester Airport Relief Road

Overview

2.6 The proposed A6 to Manchester Airport Relief Road scheme includes a new 2-lane dual carriageway connecting the A6 to Manchester Airport. The scheme bypasses Bramhall, Cheadle Hulme, Hazel Grove, Handforth, Poynton and Wythenshawe District Centres and Gatley and Heald Green Local Centres (as shown in ***Figure 2.1***, above).

2.7 The scheme improves access to / from Manchester Airport and its employment areas as well as Hazel Grove, Newby Road, Bramhall Moor Lane, Poynton and Stanley Green employment areas. Access to a number of regeneration areas is also improved by the scheme, including Stockport Town Centre and Wythenshawe. The junction providing access to the A5149 Chester Road also provides the entry point to the proposed Poynton Relief Road.

2.8 The scheme will provide a high quality route for freight vehicles to access the strategic road network (i.e. M56) and Manchester Airport from the south east Manchester and Cheshire East / Derbyshire area, and as an alternative route to using existing residential streets.

2.9 The new road is approximately 10 kilometres long, of predominantly dual 2-lane carriageway standard and will include eight new and five improved junction arrangements. It also incorporates a further 4 kilometres of existing A555 dual carriageway to the south of Bramhall. There are four rail crossings in the new sections, one of which is over the West Coast Main Line (Stockport to Stoke). A pedestrian and cycle route is proposed for the whole length of the scheme, including retrofitting it to the 4 kilometre existing section of A555. The alignment of the A6 to Manchester Airport Relief Road is presented in ***Figure 2.1 above***. The physical characteristics of the scheme are described in ***sections 2.10 – 2.17***, below. However, detailed junction options will be considered in specific locations subject to the outcome of the planned public consultation. The segregated cycle/pedestrian route is summarised in ***sections 2.18 – 2.20***. The complementary and mitigation measures are described in ***sections 2.21 – 2.40***.

Physical characteristics of the A6 to Manchester Airport Relief Road

2.10 The new road starts from a traffic signal T-junction with a 1 kilometre realigned section of the A6, Buxton Road on pasture and golf club land. The golf course was adapted in the 1990s to accommodate the new road, as preliminary work for the DfT's then A6(M) scheme, and its operation is therefore not affected by this scheme proposal. At the most recent public consultation for the Relief R*oad the A6 junction* was proposed to be a large signalised roundabout with a fourth *arm, not presently* required, continuing the route northwards.

2.11 From the new A6 T-junction the route passes under the existing Buxton Road which is taken over the new road on a new bridge for the use of buses, cycles and p*edestrians and then* goes under the Hazel Grove to Buxton railway line. After the railway the route avoids houses in Old Mill Lane to the north while minimising its impact on ancient woodland opposite. It then passes between Norbury Brook and residential property in Ashbourne Road and Darley Road. At Macclesfield Road there are two junction arrangements proposed. The first: an at-grade signalised cross road arrangement, the second a two junction plus link road arrangement, with the route passing under Macclesfield Road. Traffic modelling, environmental, land use, safety, and economic factors were considered as part of the junction design reappraisal.

2.12 From Macclesfield Road the route runs to the north of Norbury Brook and associated woods and south of the residential streets of Sheldon Road and Longnor Road before it crosses Norbury Brook at Mill Hill Hollow. Treatment ponds are proposed adjacent to the road for attenuating and treating surface water from the new road at this location. The proposal is then to pass either in cutting under Woodford Road, which would be raised in the vicinity of the Relief Road, or with a new staggered signalised junction arrangement (at ground level). Then the route passes on embankment over the West Coast Mainline (WCML) Railway. At the 2004 public consultation the Councils' proposal was for the road to pass over both Woodford Road and WCML on a much larger embankment.

2.13 A new at-grade signalised gyratory or cross-road arrangement is proposed near Bramhall Oil terminal to link the Relief Road to the A5149 to the east of Woodford village and west of Poynton town. Alternative junction options at the location of the Relief Road / Bramhall Oil Terminal junction are being considered for inclusion within the project to accommodate the future Poynton Relief Road. The design of the A6 to Manchester Airport highway at this location enables the linking with the Poynton Relief Road alignment options that are being considered by Cheshire East Council. Between the east end of the scheme at the A6 and the Bramhall Oil terminal the land crossed is agricultural, predominantly used for horse grazing. West of the Bramhall Oil terminal to A5102, Woodford Road, Bramhall the route crosses a nine holes golf course which has a time-limited planning consent because of the road proposal.

2.14 At the A5102 Woodford Road, a limited manoeuvre grade separated junction, with the Relief Road in cutting, will replicate the existing traffic movements at the junction. There are two options for the arrangement close to the existing ground level; signalised gyratory or double T junction arrangement. At this point the route passes through a gap in the housing on Woodford Road and joins the existing section of the A555. A pedestrian and cycle track will be created adjacent to the existing A555, and where the A555 crosses over the A34 there will be junction adaptations to facilitate and manage the anticipated traffic flows. The existing junction of the A555 and the A34 will be improved to accommodate the increase in traffic flows. Similarly, to the north and south of the A555, the junction of the A34 with Stanley Road will be improved by either signalisation plus expansion of the existing roundabout or construction of a signalised cross road arrangement in the same location. The existing A555 extends as far as the B5358, Wilmslow Road, where west facing slip roads will be added to the half of a diamond junction that was built as part of the existing A555. The Relief Road will pass under the B5358 where there are two small roundabouts (on the B5358) in a dumbbell arrangement at the top the slip roads. The proposals set out in this paragraph are the same as those which were the subject of the previous public consultation.

2.15 Between the B5358, Wilmslow Road, and B5186, Styal Road, the road passes across Styal golf course and some agricultural land one of two proposed alignments. The first alignment of the relief road passes over the Styal railway line, which is in existing deep cutting, and then between the

airport southern rail spur and M oss Nook substation, at approximately ground level. The alternative alignment passes north of the Moss Nook substation. At Styal Road an at-grade signalised cross road arrangement is to be constructed requiring extensions to the existing road over rail bridge for the northern airport spur on the southern alignment. The northern alignment would require construction of a similar at-grade cross road arrangement on Styal Road northern of the rail spur. The main considerations in finalising the design of this junction are traffic capacity, minimising bridge construction over the Airport rail link, minimising utility diversions, road safety, land use and economics. Further consultations to help to determine the final layout with landowners, Network Rail and the utilities have taken place.

2.16 From Styal Road the Relief Road runs parallel to the Airport rail spur and finishes to the east of the junction of Ringway Road and Ringway Road West. The junction will be modified as part of the Ringway Road Highway Improvement Works Scheme which has been designed by TfGM in liaison with the scheme design team. There is no junction proposed with Shadowmoss Road but access to the Airport for emergency services will be accommodated.

Provision of a segregated pedestrian and cycle route

2.17 The scheme will include provision of a segregated pedestrian and cycle route adjacent to the new road and existing length of the A555, providing a new orbital link for the strategic cycle/pedestrian network. This new orbital link will be fully integrated with the existing local cycle and pedestrian network to maximise access to the new route and therefore the benefits associated with the scheme.

2.18 The project team is currently developing proposals to connect the scheme's pedestrian and cycle route with the existing local network to deliver an integrated and accessible new east-west link for pedestrians and cyclists. Details of these proposals will be provided following completion of the consultation exercise with CEC, MCC, SMBC and local stakeholders.

2.19 The provision of these new links to the existing network will be an important component of the overall scheme, particularly when combined with the complementary measures described below. The pedestrian and c ycle network will provide a high-quality, safe and direct east-west link, supporting the step-change in provision of infrastructure for non-motorised modes required to encourage more people to choose cycling and walking as an alternative to the car.

Complementary and Mitigation Measures

Overview

2.20 A package of complementary measures will maximise the scope of potential benefits by making the most efficient use of road space where A6 to Manchester Airport Relief Road leads to a reduction in traffic flows on the existing highway network. These measures will prevent available road space from simply filling up with more cars.

2.21 Similarly, a package of mitigation measures will contribute to overall value for money by limiting any negative impacts resulting from the scheme (i.e. where traffic flows are forecast to increase as a result of the scheme). Together, the complementary and mitigation measures will help secure substantial environmental, safety and social benefits, along with improvements in the form of urban regeneration and public realm.

2.22 The complementary and mitigation measures will be introduced to coincide with completion of the A6 to Manchester Airport Relief Road. These schemes will be site specific, route- or centre-based and will include:

- The provision of new cycleways and footpaths to link the existing network to the new, segregated cycleway forming part of the core scheme;
- Enhancement of existing networks for cyclists, pedestrians and equestrians;
- Priority schemes for public transport;
- Public realm improvements;

- Modest traffic management proposals, such as traffic calming on residential routes; and
- Junction remodelling to optimise the operational capability of existing junctions.

2.23 Transport modelling (see ***Chapter 4 Value for Money Case*** and ***Appendix B***) has been undertaken to identify locations affected by the scheme and where complementary and/or mitigation measures should be considered.

2.24 This minor works package is considered to be an essential element of the major scheme, as it will maximise opportunities to secure both the scheme objectives and those of the wider SEMMMS strategy.

Proposed complementary measures

2.25 Covering a large area of south east Greater Manchester and North East Cheshire, the impact of the scheme is geographically diverse. This ranges from Cheshire villages on the fringe of the Peak District in Cheshire and as sociated cross-country rural routes, to the south Manchester conurbation/north Cheshire commuter belt dormitory towns.

2.26 Following consultation with CEC, MCC and SMBC officers, complementary measures are proposed, including the following areas:

- Heald Green;
- Hazel Grove; and
- Styal Road

2.27 The scope of complementary measures is outlined below, with additional details provided in the *Complementary Measures and Mitigation Measures Report (Appendix I)*.Further details on the specific problems in the areas identified for intervention, are provided as part of Chapter 3 (*The Strategic Case*).

Public transport enhancement

2.28 The predominant impact of the scheme is to reduce traffic across much of the adjacent area, providing a significant opportunity to enhance public transport infrastructure and services.

2.29 In terms of its impact on pub lic transport, benefits afforded by the scheme where traffic flow reductions are projected can be summarised as follows:

- Increased reliability and efficiency of existing bus services on congested routes, such as the A6 through Hazel Grove;
- Opportunities to provide sections of bus priority to further enhance bus services; and
- Opportunities to reassess phasing of signal junctions across the network to account for the changes in traffic flows.

2.30 At the small number of locations where traffic flows are projected to increase, resulting in the need for mitigation measures, there could be detrimental impacts on the operation and appeal of public transport. Schemes will be designed to minimise these effects including the operation of public transport. For example, traffic calming schemes will be designed with the views of bus operators in mind, and any junction signalisation schemes will consider the potential provision of bus priority where practical.

Proposed mitigation measures

2.31 Mitigation measures on the highway network are proposed at the following locations:

- Wythenshawe - the introduction of a 20 mph zone focussed on Shadowmoss Road, Portway and Cornishway, combined with new and/or improved traffic calming features to further deter strategic traffic from using these routes to access the Airport. Traffic signage will play an important role in directing strategic traffic wishing to access the Airport to use the most appropriate routes through the area, notably Simonsway, Styal Road and the western section of the Relief Road.

- Handforth - an environmental scheme in Handforth town centre between School Road and Grangeway, supplemented by some traffic calming on the B5358 from the roundabout junction with Dean Row Road to the signalised junction with Manchester Road/ Wilmslow Road.
- Wilmslow - In order to offset the predicted delay to A34 traffic it is recommended that some form of capacity enhancement measure is introduced at the A34/ A538 Manchester Road roundabout as part of the minor works package.
- Bramhall - the completion of the Relief Road presents an opportunity to enhance the pedestrian environment and improve the public realm within the District Centre. A shared space scheme encompassing Ack Lane East / Bramhall Lane South and Ack Lane East/ Moss Lane junctions will complement the way in which these closely spaced junctions operate at busy times of the day, namely, as informal non-prioritised give-way junctions achieved through direct eye contact between drivers from different slow-moving traffic streams.
- Poynton – a proposal to monitor traffic flows along Clifford Road post scheme opening. A sum has been included for traffic calming this route should the monitoring show this to be required.
- A6 Hazel Grove to Whaley Bridge - The nature of the surrounding land means that it is not possible (nor desirable) to significantly increase network capacity. Accordingly, a package of mitigation measures is being developed aimed at assisting pedestrian and cycle safety along this length of the A6. In parallel, CEC, SMBC, Derbyshire County Council, Peak District and TfGM will work together to develop a modal shift strategy for the A6 to Derbyshire which will complement the public transport enhancements the Scheme will secure in terms of increased reliability and efficiency of existing bus services in the corridor.

2.32 Further details on the specific problems at each of these locations – based on the future year model forecasting undertaken as part of the business case – are provided in Chapter 3 (The Strategic Case). Further areas for mitigation may be considered as the scheme progresses and following the current public consultation. The specific highway mitigation measures will be supported by mitigation that will be undertaken to minimise the impact on the environment and through the construction of the road – these are summarised below.

Environmental mitigation measures

2.33 The proposed scheme will affect local communities and t he surrounding natural habitat. The environmental assessment is being undertaken in tandem with scheme design and will influence it to ensure any such effects are minimised and t hen more detailed mitigation strategies will be developed to minimise adverse impacts and s eek to maximise any improvements to the environment. The following key principles will be adopted for the approach to mitigation:

- A ‘nil detriment’ approach will be adopted in relation to environmental impacts, such that the impact of the scheme construction and operation will be no worse than in the future year ‘do-minimum’ scenario;
- Negative impacts will be avoided where possible;
- Improvements to the environment will be carried out where such opportunities arise; and
- Development will be integrated, as far as practicable, within the existing landscape, and every attempt will be made to ensure that all created habitats are congruous within their landscape setting.

2.34 Specific mitigation principles for the key species and others (e.g. badgers, newts, bats, otters and breeding birds) and potential invertebrates will all be progressed in accordance with best practice, with specific mitigation measures (e.g. over-sizing of culverts and incorporation of animal passage shelves) incorporated into the engineering design as appropriate.

2.35 Impacts on the receiving human and physical environment will be mitigated by incorporating proposals to limit severance and loss of access (e.g. through the maintenance and replacement of public rights of way). The provision of exchange land for land taken by the preferred route will be a material consideration for areas of community land lost, and the identification of compensatory land will be conducted, with a specific need to maximise benefits for individual business and agricultural holdings.

2.36 Where noise issues prevail, these will be mitigated through the use of appropriate road design and bunding, or landscaping features.

2.37 A detailed flood risk and drainage study is being undertaken and will influence the design of the scheme and potential mitigation measures.

2.38 Detailed mitigation strategies will be developed and incorporated into, and will inform, the detailed development of the preferred route as it progresses through the EA process. The key environmental issues, along with mitigation principles will be incorporated into a detailed environmental aspects register, which will form the basis for the preparation of a scheme specific environmental management plan, in accordance with ISO 14001 and other best practice guidance.

Mitigation of Construction Impacts

2.39 Construction activities could create a number of impacts which would impact on the local environment and communities unless mitigated and managed, such as air quality, noise, vibration and dust. A construction code of practice is being developed in consultation with the relevant enforcement authorities and this will become part of the planning application and tender documentation.

3. The Strategic Case

Introduction

3.1 This section of the MSBC describes the strategic case for the A6 to Manchester Airport Relief Road scheme. It confirms that **the major problems on the Greater Manchester highway network are traffic congestion and unreliable journey times.** This is exemplified in the study area on the **A6 and through town and district centres in the south Manchester corridor, and poor connectivity and inefficient surface access to Manchester Airport** – and that these have much wider implications in terms of their impact on the economy, environment and society.

3.2 The strategic case draws on information about the Greater Manchester economy and the key role that Cheshire East and Stockport play as areas housing a high-skill population and as growing centres of employment in their own right. It explains the important and growing role of Manchester Airport, both as an international gateway and as a hub of economic growth, employment and leisure opportunities. The Chancellor of the Exchequer has designated Manchester Airport City as one of 21 national 'Enterprise Zones' - areas that are critical to delivering substantial and immediate economic growth and employment. **The scheme will link directly to the Enterprise Zone, which could generate up to 20,000 new jobs as well as facilitating growth around a wider necklace of employment sites along the south Manchester corridor**.

3.3 The strategic case demonstrates the critical need for the scheme, to ensure that current problems on the highway and public transport networks do not jeopardise the future growth in the North West. It provides the context and rationale behind **the substantial benefits that the scheme is expected to deliver: over £800 million in travel time savings and £2,492 million in economic output (Gross Value Added, GVA), plus up to 4,200[6] additional jobs once the scheme has reached maturity (rising to 5,450 at the end of the 60 year appraisal period), emphasising why the scheme has been identified as a key component of the Government's National Infrastructure Plan,** and why it is supported so widely by local stakeholders across Greater Manchester and Cheshire East. The economic benefits are discussed in more detail in Chapter Four (The Economic Case) of this MSBC.

3.4 The strategic case presents a cohesive argument for investment, by showing **a clear link between scheme objectives and the underlying business strategy for Greater Manchester and Cheshire East** – and demonstrating further how these objectives align with those of the national Government.

3.5 The A6 to Manchester Airport Relief Road has been developed over a number of years, and remains a key component of the wider SEMMMS strategy, which has been at the heart of transport investment and interventions in south Manchester since 2001. We emphasise, however, that **this is not an historic scheme in search of a current problem - there is now an even stronger case for investment than originally envisaged in 2001. This is based on the growing levels of congestion and lengthening journey times in the area, and with a much greater recognition of the strategic importance of the Greater Manchester economy and Manchester Airport to the future growth of UK plc**.

3.6 **The Government has made clear that its priorities are the economy and the reduction of carbon emissions, and has identified the A6 to Manchester Airport Relief Road scheme as one of the key drivers of growth and employment in the North**. Moreover, through the provision of dedicated facilities for cyclists and pedestrians, and via the wide-ranging complementary and mitigation measures, the scheme promoters can demonstrate a commitment to minimising and mitigating adverse impacts on the environment and the affected communities.

[6] This figure is based on analysis undertaken for the business case using TfGM's economic prioritisation tool and outputs from the transport model. It therefore relates to potential increase in GVA and jobs resulting directly from the scheme.

The substantial benefits the scheme will deliver, and the alignment of the scheme's objectives with national priorities, confirm that investment is needed now.

Compliance with DfT requirements for *The Strategic Case*

3.7 The DfT's guidance document, *'The Transport Business Case: Strategic Case'*, outlines the areas that should be covered as part of the MSBC documentation. ***Table* 3.1** shows where the relevant information can be found in this document.

Table 3.1 – Compliance with DfT requirements for the Commercial Case

Sub-Section	DfT requirements	Location in this chapter
Business strategy	Provide the context for the business case by describing the strategic aims and responsibilities of the organisation responsible for the proposal e.g. the DfT/HA/LA/NR	Section 3.8
Problem identified	Describe the problem identified. What is the evidence base underpinning this? Is there justification for government intervention?	Section 3.42
Impact of not changing	What is the impact of not changing?	Section 3.87
Internal drivers for change	*What is the driving need to change e.g. improved technology, new business / service development as a result of policy? (Non-compulsory)*	*n/a*
External drivers for change	*What is the driving need to change e.g. legislation, pressure from public / other departments?(Non-compulsory)*	*n/a*
Objectives	Establish specific, measurable, achievable, realistic and time-bound objectives that will solve the problem identified. Ensure that they align with the organisation's strategic aims.	Section 3.88
Measures for success	Set out what constitutes successful delivery of the objectives.	Section 3.90
Scope	Explain what the project will deliver and also what is out of scope.	Section 3.93
Constraints	*High level internal / external constraints e.g. technological environment, capability to deliver in-house, major contracts with provider, etc*	*Section 3.96*
Inter-dependencies	Internal / External factors upon which the successful delivery of project are dependent.	Section 3.97
Stakeholders	Outline the main stakeholder groups and their contribution to the project. Note any potential conflicts between different stakeholder groups and their demands.	Section 3.104
Options	Set out all the options identified (including do-nothing) and evaluate their impact on the proposal's objectives and wider public policy objectives. Risks associated with each option should be identified as should any risks common to all options.	Section 3.106

Business strategy

Introduction: a review of national transport priorities

3.8 The Government has long-term objectives aimed at improving the economy, environment and society. These are the three tenets against which major transport infrastructure projects are assessed, and will continue to be assessed in future.

In its Autumn Statement 2011 and National Infrastructure Plan 2011, the Government presented its vision for the UK transport system, which included a number of elements of direct relevance to the A6 to Manchester Airport Relief Road scheme:

- Transport infrastructure can play a vital role in driving economic growth by improving the links that help to move goods and people around and by supporting the balanced, dynamic and low-carbon economy that is essential for future prosperity.
- Local transport systems must enable suburban areas to grow. The transport network must support good value and rapid movement of goods around the country. The transport system must be efficient but also resilient and responsive to infrequent and unexpected pressures.
- Airports and ports are the gateways to international trade and the Government will work to improve the road and rail connectivity to major ports and airports.

3.9 To help deliver its vision, the Government has identified the A6 to Manchester Airport Relief Road scheme as one of 70+ major infrastructure projects aimed at addressing congestion and improving performance on the road network. This is part of the Government's initiative to *'keep Britain moving by improving the capacity, performance and resilience of roads, railways and international gateways…targeting some of the worst pinch points where the networks are under particular stress and locations that are key in supporting growth'*[7].

3.10 Manchester Airport is the largest airport outside London, and acts as the main air gateway in the north of the UK. Its routes to over 200 global destinations provide vital connectivity for moving people and goods. Successive national policy has supported its growth, and as capacity limits bite on the London Airports, it is likely to play an increasingly important national role; as the only airport outside Heathrow to have 2 runways, it has ample capacity for future growth.

3.11 It is clear when examining the business strategy for Greater Manchester (below) that there is strong alignment between the priorities that have been defined at the local and sub-national level, and those that underpin the Government's transport policy at a national level. It is also clear that the scheme development and appraisal is consistent with another of the Government's core objectives: to provide value for money in the provision of major transport infrastructure. This aspect is covered in more detail in Chapter 4 (The Economic Case).

3.12 The business strategy of the three scheme promoters align directly with the Government's core objectives. They are driven by long-term aspirations but reflect the current recession and unprecedented levels of future uncertainty at a local, national and global level. Economic growth and employment lie at the heart of these strategies, alongside objectives for lower carbon emissions and a commitment to fairness - another key element of the Government's strategy as presented in the Chancellor's Autumn Statement.

3.13 From the business strategy there are clear links to the objectives for the A6 to Manchester Airport Relief Road scheme, which are presented later in this chapter. The business strategy is driven by the overall strategy for Greater Manchester, which we present in detail below, and is supported by a summary of the strategic priorities for Cheshire East Council, Manchester City Council and Stockport Council. Finally, we confirm the importance of Manchester Airport and its newly-designated Enterprise Zone to UK plc, strengthening further the case for improved surface access via the A6 to Manchester Airport Relief Road scheme.

[7] National Infrastructure Plan2011, HM Treasury, November 2011

A strategy for Greater Manchester and Cheshire East

A strategy for Greater Manchester

3.14 In its third Local Transport Plan (LTP), produced by the Greater Manchester Combined Authority (GMCA) and T ransport for Greater Manchester (TfGM), the business strategy for Greater Manchester is clearly stated. The LTP identifies Greater Manchester as 'the most important economic centre in the UK outside London, with significant opportunities for growth', and sets out the plans and spending priorities for Greater Manchester, the ten Greater Manchester Councils, and other key partners in the short, medium and l onger term. This section summarises these plans and priorities, and confirms the importance of the A6 to Manchester Airport Relief Road as one of a number of key transport projects that will help deliver the strategy.

How has the business strategy been developed?

3.15 **The long-term strategy has been underpinned by a number of local and national strategies and policies**. The key driver is the Greater Manchester Strategy, which was published by the Association of Greater Manchester Authorities (AGMA) in 2009 and which sets out the key priorities to enable the conurbation to achieve its economic potential.

The key priorities identified by AGMA were:

- Provide improved access to labour for key employment sites where the returns to improved labour connectivity are greatest;
- Improve connectivity through the city's key national and international gateways;
- Support the development of new sites, for example by targeting transport to serve growth points;
- Extend longer distance labour markets to expand the overall pool of labour available to businesses in the city;
- Reduce journey times and congestion and deliver improved journey time reliability for all journeys; and
- Improve end t o end j ourney levels of service on m odes primarily used for business travel thereby bringing businesses closer together.

3.16 Another core element underpinning the business strategy has been the **new governance arrangements for Greater Manchester**, which came into force in April 2011. Under these new arrangements, the GMCA was established to extend the scope of work started by AGMA – providing a much greater level of local control over areas of policy, administration and investment.

3.17 Likewise, the establishment of Transport for Greater Manchester (TfGM) has included the agreement of **a series of new protocols with the DfT and other relevant statutory bodies in relation to the planning and management of local transport networks**. These new governance arrangements, in conjunction with the new Local Enterprise Partnership (LEP) for Greater Manchester, provide opportunities for driving forward the long-term strategy to ensure the growth aspirations of Greater Manchester are realised.

3.18 **The long term strategy has taken due account of the policies and priorities of Central Government**, particularly in relation to the key areas of economic growth and environmental sustainability – as well as the opportunity for developing innovative new funding strategies.

3.19 Other key features of the business strategy – and indeed, key features of the development of the A6 to Manchester Airport Relief Road – are the **development of a strategy through close partnership working and an extensive process of public consultation**. The contributions from different organisations within Greater Manchester, and feedback received from the public and from local businesses, have helped frame, refine and validate the approach adopted in the strategy – and to ensure a set of plans and priorities that meet the immediate and future needs of the conurbation.

Defining the strategy: aims and objectives for Greater Manchester

Building on the work undertaken to date by AGMA, the core objectives for Greater Manchester, as defined in its LTP3, are as follows:

- To ensure that the transport network supports the Greater Manchester economy to improve the life chances of residents and the success of business;
- To ensure that carbon emissions from transport are reduced in line with UK Government targets in order to minimise the impact of climate change;
- To ensure that the transport system facilitates active, healthy lifestyles and a reduction in the number of casualties, and that other adverse health impacts are minimised;
- To ensure that the design and maintenance of the transport network and provision of services supports sustainable neighbourhoods and public spaces and provides equality of transport opportunities; and
- To maximise value for money in the provision and maintenance of transport infrastructure and services.

3.20 The GMCA, TfGM and the ten Greater Manchester councils aim to deliver the strategy through the implementation of projects, service improvements and initiatives, across the full range of transport modes. The strategy aims to bring forward these improvements to strengthen the economy, whilst simultaneously encouraging people to use active and sustainable modes of transport.

3.21 The strategy is clear in advocating the construction of a limited number of new roads where it can be demonstrated that they benefit the economy; and includes the A6 to Manchester Airport Relief Road scheme as one of three highway schemes that will fulfil this need.

3.22 Moreover, the complementary measures included as part of the scheme, and the improved facilities for cyclists and pedestrians, mean that it will also deliver those elements of the strategy aimed at reducing the dependence on car travel – particularly for short-distance trips. By delivering the A6 to Manchester Airport Relief Road scheme, the GMCA has the opportunity to meet its strategic objectives for the highway network, namely: to improve the reliability of strategic routes and to maximise the efficiency and reliability of the network.

3.23 The LTP3 also focuses on the importance of freight to the Greater Manchester economy - the knowledge that an efficient and reliable transport network is critical to meeting the needs of freight operators, given that virtually all freight movements rely on the highway network for at least part of their journey. The A6 to Manchester Airport Relief Road scheme has direct (positive) implications for freight, by improving links to Manchester Airport and improving connectivity with the proposed new tri-modal freight terminal and distribution centre at Port Salford and, further afield, to the Port of Liverpool.

3.24 Other, wider issues that form the overall strategy for Greater Manchester, and which align directly with objectives for the A6 to Manchester Airport Relief Road include:

- Safe and secure travel – working with partners across the conurbation to deliver an ongoing programme of safety, and with a view to improving conditions for pedestrians and cyclists, particularly in the built up town and district centres;
- Accessible transport – recognising that people with disabilities, the young, and the deprived will require assistance to enable them to access education, employment and services;
- Greener transport – Greater Manchester will develop a new Air Quality Action Plan alongside plans to tackle climate change, and will continue to develop and promote a network of electric vehicle charging points, as part of the 'Plugged-In Places' initiative.

3.25 The Greater Manchester Strategy (August 2009) reaffirms that transport connectivity will be one of the key determinants of the ability of Manchester to achieve sustainable economic growth: *"Continued and sustained economic growth will be a function of the relative ease, or otherwise, by*

which people are able to travel to work, education, retail or leisure and the relative ease, or otherwise, of business to be able to access markets and distribute goods and services."

3.26 The delivery of the A6 to Manchester Airport Relief Road scheme is part of an overall programme of major highway and public transport projects planned for Greater Manchester, and will play a key role in helping to achieve the objectives set out in the Local Transport Plan and Greater Manchester Strategy.

A strategy for Cheshire East, Manchester and Stockport

3.27 Given the close partnership working across the conurbation, the objectives and pr iorities for Cheshire East, Manchester (City of) and Stockport align closely with those for Greater Manchester. These are summarised in ***Table 3.2, 3.3 and 3.4 respectively***. The emphasis, as with Greater Manchester and Central Government objectives, is on the economy and on reducing carbon emissions, with other objectives aimed at reducing fatalities and ill-health associated with accidents and poor environmental conditions.

3.28 All three local authorities emphasise the need for better accessibility to jobs and promote improved connectivity to Manchester Airport via the A6 to Manchester Airport Relief Road scheme – recognising the growing role that the Airport will play through its designation as an Enterprise Zone and also via links to the international business community. The benefits of this are expected to be two-fold: first, through the growth and employment opportunities directly associated with the airport; and second, as a result of business growth in the town and district centres of the south Manchester corridor.

Table 3.2 – Business strategy and priorities for Cheshire East Council

Business strategy objective (and source)	Key priorities for meeting the objectives
• Maintain and enhance the role of Cheshire East as a knowledge economy, through innovation in its businesses and skills development of its workforce *(Economic Development Strategy, June 2011)* • **Provide a better connected economy, through enhancing transport connections to other areas, making the most of the strategic location and assets** *(Economic Development Strategy, June 2011)* • Actively raise the profile of Cheshire East and 'sell' the assets and opportunities of the area, particularly to external investors, influencers, decision-makers and visitors *(Economic Development Strategy, June 2011)* • **Facilitate economic growth through progressing schemes that will create jobs and improve the attractiveness of the area as a place to invest, live and visit** *(Economic Development Strategy, June 2011)* • Improve the liveability, local transport and aspirations for the area *(Economic Development Strategy, June 2011)* • Ensure a sustainable future *(Local Transport Plan, March 2011)* • **Create conditions for business growth** *(Local Transport Plan, March 2011)* • **Drive out the sources of poor health** *(Local Transport Plan, March 2011)* • Nurture strong communities *(Local Transport Plan, March 2011)* • Unlock the potential of our towns *(Local Transport Plan, March 2011)* • Supporting the vitality and accessibility of our town centres *(LDF Options Paper)* • **Developing improved transport and infrastructure networks** *(LDF Options Paper)* • Conserving and enhancing the natural and built heritage *(LDF Options Paper)*	• Promote economic diversification across a range of business sectors, with a focus on future growth sectors. • It will retain and grow existing businesses already in the area, including those in the advanced manufacturing sector, and stimulate the formation of new businesses and support for existing small and medium-sized enterprises (SMEs). • Attracting new investment in growth sector and develop stronger links between economic priorities, by ensuring businesses have easy access to effective business support and high quality skills provision. • Improve graduate retention in the area through enhanced links with universities and employers, and addressing the needs and aspirations of graduates • Improve the coordination, quality of, and access to employment and skills activities in the sub-region. • Improved access to, and between, jobs and amenities • Develop improved transport links and integration with other centres of employment • Highlight the Borough's heritage as an asset that can stimulate future economic growth • Ensure that Cheshire East products such as its commercial sites, transport infrastructure and visitor attractions, are developed with a view to improving external perceptions, attracting new investors and visitor spend, which will benefit the local workforce and businesses • Stimulate regeneration in town centres in terms of economic development and cohesive communities • Actively work to bring forward and promote the availability of strategic employment sites that are commercially attractive to investors, developers and occupiers • Reduce congestion and improve transport links between towns in Cheshire East and beyond • Respond to the challenge of climate change, through mitigation and adaptation • Improving transport connections and accessible services whilst protecting and enhancing heritage and countryside • Harness emerging growth opportunities • Make the most of tourism, heritage and natural assets • Create a climate attractive to business investment

Table 3.3 – Business strategy and priorities for Manchester City Council

Business strategy objective (and source)	Key priorities for meeting the objectives
• **Ensuring that transport contributes to the economic growth agenda and securing social outcomes** • **Contributing to environmental outcomes, to create neighbourhoods of choice** • Supporting the competitive advantage of current and future employers by ensuring good access to the City Centre • **Providing improved access for all users to the employment, cultural and leisure opportunities that a growing city centre offers to Manchester's residents, workers and visitors** • Tackle the issues climate change and deliver a low-carbon economy in a manner that is both environmentally and economically sustainable • Improving both actual and perceived personal safety and security	• **Promoting economic growth** • Promoting community spirit and pride in Manchester • **Creating desirable neighbourhoods** • Making communities safe and feel safer • Delivering environmental sustainability • **Reducing worklessness** • Raising ambitions • Supporting families • Raising standards in education • Improving health and wellbeing

Table 3.4 – Business strategy and priorities for Stockport Metropolitan Borough Council

Business strategy objective (and source)	Key priorities for meeting the objectives
• **A competitive economy with a diverse and expanding business base** *(Stockport Community Strategy)* • **Vibrant district centres well used by residents and well served by retail, leisure and cultural facilities** *(Stockport Community Strategy)* • Cohesive & engaged communities with low crime rates and engendering community pride *(Stockport Community Strategy)* • Active and empowered people with good emotional and mental health *(Stockport Community Strategy)* • **Good connections with excellent public transport resulting in less congestion** *(Stockport Community Strategy)* • A sustainable approach to the natural environment *(Stockport Community Strategy)* • Sustainable Development – Addressing Inequalities and Climate Change *(Stockport LDF Core Strategy)* • Access to Services and Inclusive Communities *(Stockport LDF Core Strategy)* • Safeguard and Improve the Borough's Environment *(Stockport LDF Core Strategy)*	• The regeneration of local, district and town centres and improved accessibility to employment, facilities and services will support those in deprived communities • **Reduction in traffic congestion through local centres resulting in reduced vehicle emissions and consequently reduced carbon emissions improving the local and global environment** • **Efficient surface access and improved connectivity between Manchester Airport, employment sites and local, town and district centres** • Sustainable and inclusive communities will be forged by the regeneration of local communities to encourage community, cultural and social inclusion • Adoption of sustainable principles with mitigation measures being put in place to ensure there is no net-loss in environmental terms • Development of efficient highway and public transport networks, linking international gateways to surrounding economic centres • Efficient linkages between Manchester Airport and the district centres, promoting extensive economic development that will benefit the local economy and provide employment opportunities for the local population • Shift local traffic, providing a safer, healthier environment for local residents, encouraging greater utilisation of local services • Reducing severance and improving accessibility, to generate increased trade for local businesses • Strengthening the links within communities to ward against crime

The importance of Manchester Airport and the Enterprise Zone

3.29 Manchester Airport is the largest airport outside the South East and the only international gateway to the north that has the capacity for substantial growth in business-based and tourist air traffic anticipated in existing growth strategies. In March 2011, the airport was designated by the Chancellor of the Exchequer as one of 21 UK 'Enterprise Zones', which will benefit from reduced tax rates for businesses to locate and invest in the area with a view to generating employment and economic growth.

3.30 The airport serves over 200 destinations across the world and continues to expand its network of direct links to major cities and ec onomies across the world. It is the only UK airport outside London capable of supporting a significant network of long haul services. It has a clearly evidenced and significant economic contribution to Manchester, the North West and to UK plc.

3.31 Manchester Airport is a major hub f or international freight traffic, its World Freight Terminal accommodating 170,000 tonnes of cargo throughput per year, making it the UK's fourth-largest airport in terms of flown cargo volume. By 2015, the volume of freight traffic through Manchester Airport is expected to increase to 250,000 tonnes per annum – an increase of 47%,

3.32 The Manchester Independent Economic Review (MIER) stated that Manchester Airport is an existing *"strategic urban asset"*, arguing that its development should be nurtured to maximise its substantial benefits to the wider economy through national and international connectivity for business and tourism. MIER noted of Manchester that *"its airport is one of the (City Region's) key differentiators from other comparator cities outside London and important in attracting investment".*

Manchester Airport carried 18.7 million passengers in 2009. International passengers represent 86% of this market, including destinations to Singapore, Islamabad, Dubai and New York – the sort of places that the MIER would *"encourage Manchester to be thickening links to."* National forecasts predict that passenger numbers will increase to around 40 million passengers per annum by 2030 with a corresponding increase in employees.

3.33 It is identified in the Northern Way (2008) as the most significant airport in the North of England, catering for more passengers than all the other northern airports combined. It is the only airport in the North with a network of inter-continental scheduled services and the only airport in the North that caters for a substantial volume of air freight.

3.34 York Aviation (2006), in its study of the economic importance of the Manchester Airport Group companies, identified the economic impacts of air transport:

- Direct impacts: employment, income or outputs that are wholly or largely related to the operation of an airport and are generated either on-site or in the surrounding area;
- Indirect impacts: employment, income or outputs that are in the chain of suppliers of goods and services to the direct activities;
- Induced impacts: employment, income or outputs that are due to household spending resulting from direct and indirect employment;
- Catalytic impacts: employment, income or outputs that are generated by new businesses locating to the North West, inward investments and inbound tourism; and
- Productivity/competitive advantage impacts: employment, income or outputs gains amongst existing businesses in the economy due to increased export volumes and productivity improvements.

3.35 As cited by the MIER: *"on site the Airport sustains 19,000 jobs, together with a further 16,000 indirectly. This translates to an income impact in the City Region of around £800m, before taking into account the wider impact on the North West economy."*

3.36 As York Aviation highlights, whilst challenging to quantify, the consensus is that the catalytic impacts and the productivity and competitive advantage impacts of air transport greatly outweigh the direct, indirect and induced impacts. T hese significant impacts, listed below, come about because provision of international air services:

- Is an important element in company location decisions - the presence of an international airport can be a important factor in:
  - attracting new investment from outside the area, and especially companies from overseas,
  - retaining existing companies in the area, whether they had previously been inward investors or indigenous operations, and
  - securing the expansion of existing companies in the face of competition with other areas;
- Promotes the export success of companies located in the area by the provision of passenger and freight links to key markets;
- Enhances the competitiveness of the economy, and the companies in it, through its fast and efficient passenger and freight services; and
- Attracts inbound tourism, including both business and leisure visitors, to the area.

Manchester Airport sustains 35,000 jobs, generating £800 million of direct productivity benefits, and provides links to 200 destinations around the world. It is the largest airport in the UK outside the south-east and the only international gateway to the North West offering the capacity for growth in business and tourist travel as envisaged in The Northern Way.

3.37 The airport has one of the largest catchments in the UK, attracting people from across the country. Approximately 89% of these trips use the road network. This has clear implications for the surrounding road network, where airport traffic mixes with strategic north-south and east-west movements, in addition to local traffic.

3.38 The Greater Manchester Strategy recognises the need to improve surface access to Manchester Airport and emphasises the key role that the A6, A523 and A34 in Stockport and Cheshire East play both locally and strategically. These links provide access routes into the North West and links to the M60 and Manchester Airport for traffic from the West Midlands and Wales.

Airport City

3.39 Manchester Airport City was designated as Greater Manchester's Enterprise Zone in March 2011. In January 2012, the Chancellor of the Exchequer unveiled the detailed Masterplan for a £659-million mixed use economic development – the first of its kind in the UK. Similar concepts now exist at 15 of the top 24 airports in Europe, designed for companies who require excellent access to international flights. This will see Manchester Airport developing as an international business destination in its own right, with the aim of attracting companies that would not previously have located in the North of England, or even in the UK.

3.40 The development at the Enterprise Zone is a 116-hectare space that will offer new business occupiers up to £275,000 of rates relief, a simplified planning process, superfast broadband and focused support from the Department for Trade and Industry for inward investment. Over the next 15 years, the Enterprise Zone is expected to create around 20,000 new jobs.

3.41 The A6 to Manchester Airport Relief Road will complement the growth of 'Airport City', providing much improved access from the east, complementing the extension of the Manchester Metrolink system to serve the Airport, which is due for completion in 2016. This development and employment opportunity will occupy a range of sites close to Manchester Airport, forming part of the agreed Wythenshawe Regeneration Framework. .

In its Ground Transport Plan[8] **the Airport identifies surface access capacity as the most significant constraint on its future growth and therefore the economic benefits that it can help deliver to the Northern economy**. Enhanced surface access to the Airport is also important in improving access to employment opportunities, particularly from nearby deprived neighbourhoods. The A6 to Manchester Airport Relief Road scheme will substantially improve the surface access to the airport.

[8] Ground Transport Plan, part of the Manchester Airport Master Plan to 2030; and Civil Aviation Authority, UK Airport Statistics: 2009

Problem identified

3.42 Work undertaken specifically in support of this business case confirms that traffic congestion and the lack of connectivity along the south Manchester corridor remain the most important transport issues to be resolved in the area, due to the substantial implications this has for the economy, society and environment. This culminates in a poorer current and future standard of living for people residing in parts of the south Manchester corridor, severely constraining the ability of the North West to 'punch its weight' in the national and international economy. The core problems that the scheme is designed to address are:

- Traffic congestion and poor connectivity in the study area, which constrains the **economy** through:
  - Lengthening journey times for highway and public transport users, thereby reducing labour market catchments and business-to-business activity,
  - The creation of congestion outside the peak periods (peak spreading), affecting both highway and public transport, reducing the attractiveness of the local town centres and thereby affecting the competitiveness of local businesses,
  - Creating delays on designated freight routes (e.g. the A6), generating productivity losses for businesses at a pan-regional level,
  - Increased use of the strategic motorway network (e.g. the M60) by local traffic, restricting its ability to cater for strategic commuter and business travel by highway and bus-based public transport at a local, sub-national and national level,
  - Constraining Manchester Airport's potential as a major regional, national and international hub of transport and economic activity, and
  - By placing constraints on the ability of Manchester Airport, major development sites in the area and on Cheshire East and Greater Manchester, the area is missing out on potentially substantial levels of wider economic benefits;
- Traffic congestion and poor connectivity in the study area impact on **society** by:
  - Contributing to poor transport accessibility, particularly as a result of lengthening and increasingly variable public transport journey times, which has a greater impact on the more deprived communities of South East Manchester, thereby widening the inequality gap,
  - Creating poor environmental conditions, through poor local air quality and the higher noise levels associated with the traffic congestion,
  - Increasing the perceived safety risk of pedestrian and cyclists, increasing the level of community severance, and
  - Increasing the actual safety risks in terms of the number of accidents on the highway network;
- Traffic congestion and poor connectivity in the study area impact on the **environment** through:
  - A poor and declining level of air quality, resulting in worsening health for the local population,
  - The inefficient fuel consumption caused by stationary and slow-moving traffic during peak periods, which generates more emissions than in free-flow conditions,
  - The journey time delays it imposes on public transport, making car the only viable alternative for many local residents and leading to increased carbon and other emissions.

3.43 The evidence base underpinning these problems is presented below (paragraphs 3.44 – 3.87).

Congestion and connectivity

Current levels of congestion and poor journey time reliability

3.44 Traffic count data collated by Transport for Greater Manchester confirms that the volume of traffic in the south Manchester corridor (Stockport and Trafford districts) has started to increase again since 2009 (following a slight decrease during the recession in 2008/09). These are the only two districts of Greater Manchester showing an increase. The statistics confirm the following:

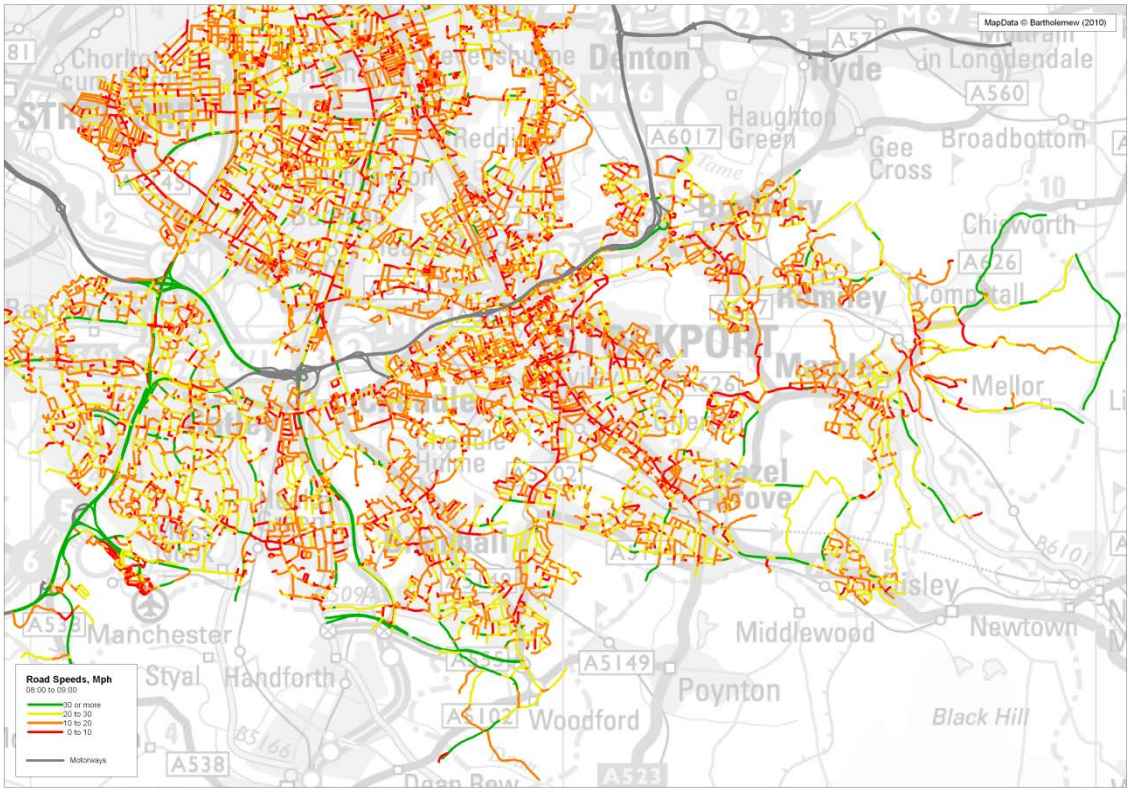
- 12-hour weekday flows on A and B roads in Stockport and Trafford districts *increased by 0.4% and 3.0% respectively* between 2009 and 2010, compared to an overall *decrease* of 1.9% across Greater Manchester:
- The above increases were driven by an increase in cars and heavy goods vehicles on the Stockport and Trafford highway networks, which was partially offset by a reduction in light goods vehicles in both districts:
  - A 0.8% increase in the number of cars and a 5.0% increase in heavy goods vehicles was partially offset by a 4.2% reduction in light goods vehicles in Stockport District,
  - A 3.6% increase in the number of cars and a 20.0% increase in heavy goods vehicles was partially offset by a 6.0% reduction in light goods vehicles in Trafford District;
- Average journey time rates (minutes per mile) during the morning and evening peak hours are higher in Stockport than across Greater Manchester as a whole and have increased since 2008.

3.45 ***Figure 3.1*** provides an illustration of the levels of congestion on the highway network, using observed vehicle speeds[9] as a proxy for network 'stress'. Both the local and strategic highway network are shown to be suffering from severe stress (i.e. those routes highlighted in red), with particular problems along the A6 and in urban centres such as Gatley, Bramhall, Heald Green, Hazel Grove and Cheadle Hulme.

3.46 The mix of local and strategic traffic is one of the major causes of congestion on the highway network. Freight traffic from Derbyshire, Staffordshire and Cheshire, using the A34, A523 and A6 to access Manchester Airport, Manchester City Centre and distribution centres and other destinations across the North West, mixes with commuter and business traffic travelling between Cheshire and parts of Greater Manchester, and with local commuter and leisure trips in the centres along the south Manchester corridor. These travel patterns have a direct impact on the ability of the transport network to provide efficient connectivity and access to markets and jobs in the future. It also means that local communities are faced with large volumes of traffic and heavy goods vehicles passing through their centres, creating problems in terms of air quality, noise and safety.

[9] 2008 AM Peak (0800-0900) observed vehicle speeds, November 2008, GMTU

Figure 3.1 – Observed Vehicle Speeds as a Proxy for Network Stress/Congestion



3.47 Analysis undertaken as part of the development of the base year traffic models for the scheme show a large amount of journey time variability on the roads within and traversing the study area, both within and across time periods. The main findings from an assessment of 32 routes within and across the study area were:

- The morning (0800-0900) and evening (1700-1800) peak hours display substantial journey time variability:
  - across all routes journey times are, on average, 64% longer in the AM peak and 71% longer in the PM peak than the potential journey time within in each time period (the equivalent figure for the inter-peak is 25%),
  - comparing across time periods, AM peak and PM peak journey times are, on average, 26% and 24% longer than the equivalent mean inter-peak journey time;
- The greatest levels of journey time variation (unreliability) are observed on the motorway network…
  - the maximum observed variation in journey time in the AM peak was 166%, on the M56 between Manchester Airport and West Didsbury i.e. the difference between the minimum observed journey time of under seven minutes, and the maximum observed journey time of over 17 minutes,
  - the maximum observed variation in journey time in the AM peak was 205%, on the M60 between Junction 6 and Junction 24 i.e. the difference between the minimum observed journey time of ten minutes, and the maximum observed journey time of over 31 minutes;
- …but journey time reliability and delay is a problem across the whole study area:
  - More than half of all routes surveyed in the AM and PM peak hours displayed a variation in journey time that was more than 50% greater than the potential minimum journey time for each route in that time period, which included the A6, A34, A555 and other routes through local and district centres such as Hazel Grove, Bramhall and Heald Green,

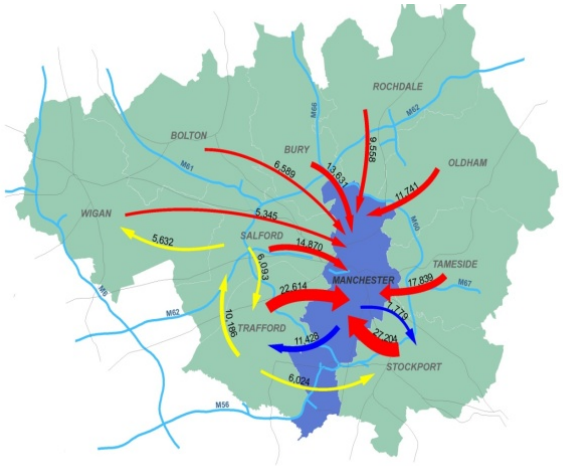
- Looking across time periods, more than two-thirds of all routes showed journey time variability in the peak hours that was more than 50% longer than the potential journey time in the inter-peak,
- Almost half of all routes in the AM and PM peak hours had mean journey times that were 25% greater than the equivalent mean inter-peak journey time.

3.48 The findings from the journey time analysis confirm that journey times in general are much longer in the peak hours than the potential journey time were there free-flowing traffic conditions. It confirms also that within each time period – but particularly in the morning and evening peak hours – most routes in the study area suffer from regular and substantial journey time variability. Journey times across the study area are therefore highly susceptible to delay and very unreliable.

3.49 The impact of traffic congestion and journey time unreliability has far-reaching impacts, as the polycentric nature of the Manchester City Region means that whilst Manchester City Centre is the hub of economic, social and cultural activity, a number of distinct town centres exist as economic and social bases in their own right. In the south-east Manchester area, the largest of these centres is Stockport, and this is complemented by Hazel Grove, Heald Green, Poynton, Bramhall, Wilmslow, Handforth and Cheadle Hulme. The emergence and future potential of Manchester Airport as a hub of international commerce means the area traversed by the proposed A6 to Manchester Airport Relief Road Scheme contains substantial pockets of economic activity.

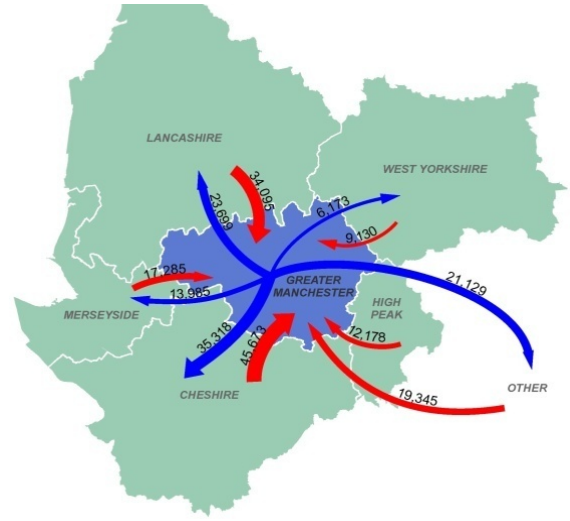
3.50 However, these economic centres do n ot exist in isolation. The linkages between the town and district centres, and beyond to the larger centres of Manchester and Stockport, means a s ubstantial amount of commuting and business travel occurs in this area. It is an area with a large proportion of high-skill labour, commuting to high-productivity jobs not only in Manchester, but to employment centres along the south Manchester corridor between Stockport and Manchester Airport.

Commuting Flows in and around Manchester



3.51 As the largest economy in the North West and given the wide range of jobs available, Greater Manchester attracts labour from across the North West and neighbouring regions. It acts as a substantial sub-regional ‘attractor’, dominating flows from Cheshire and Lancashire and acting as a s econdary destination of importance for Merseyside, with significant commuting flows from Derbyshire and Yorkshire.

Commuting Flows to/from Greater Manchester



3.52 The linkages between town and district centres, and to Manchester and S tockport, means a s ubstantial amount of commuting and business travel occurs in the study area. It is an area with a large proportion of high-skilled labour, commuting to high-productivity jobs in Manchester and along the south Manchester corridor between Stockport and Manchester Airport.

3.53 Analysis of commuting patterns in Greater Manchester (figure above) confirms the large volume of traffic travelling between Manchester, Trafford, Stockport and other southern areas. Further evidence of travel patterns is

presented in ***Figure*** 3.2 and ***Figure 3.3.*** Figure 3.2 indicates commuting patterns, showing the average distance travelled to a location of employment in the indicated Ward. Figure 3.3 shows the proportion of commuting trips undertaken by car to the destination Ward.

Figure 3.2 – Average Commuting Distance (By Destination)

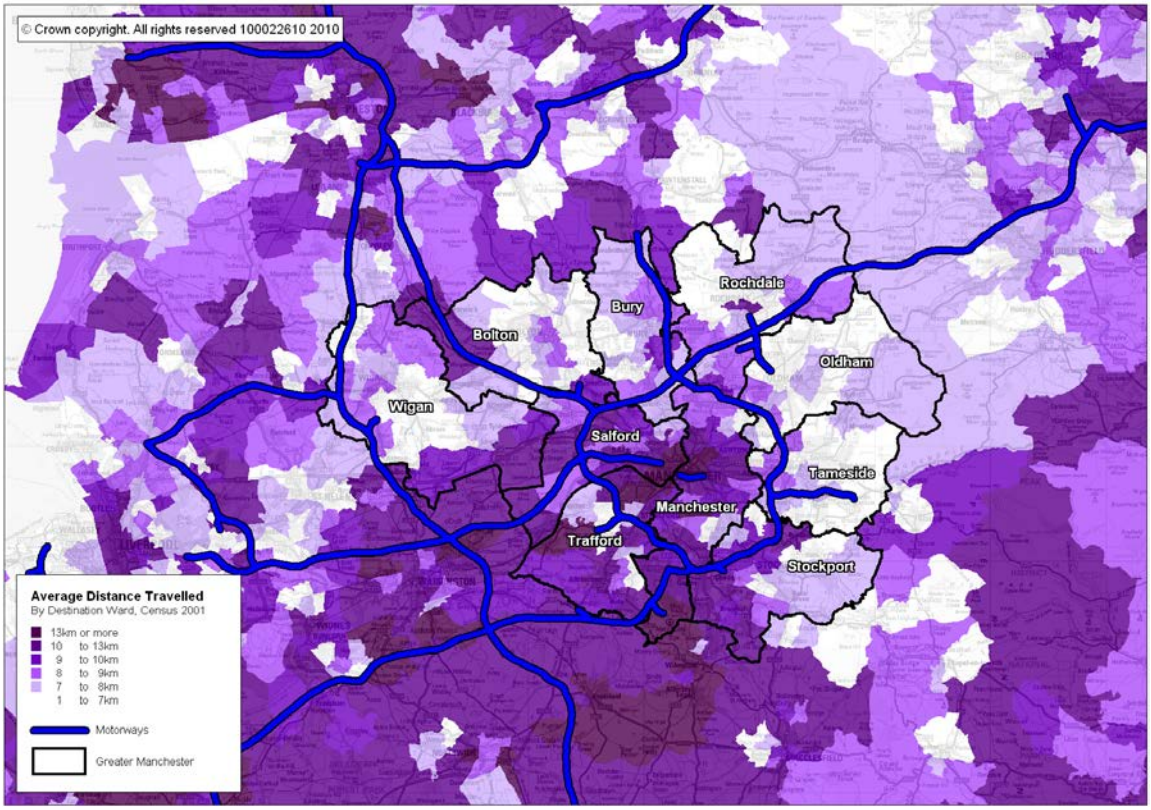
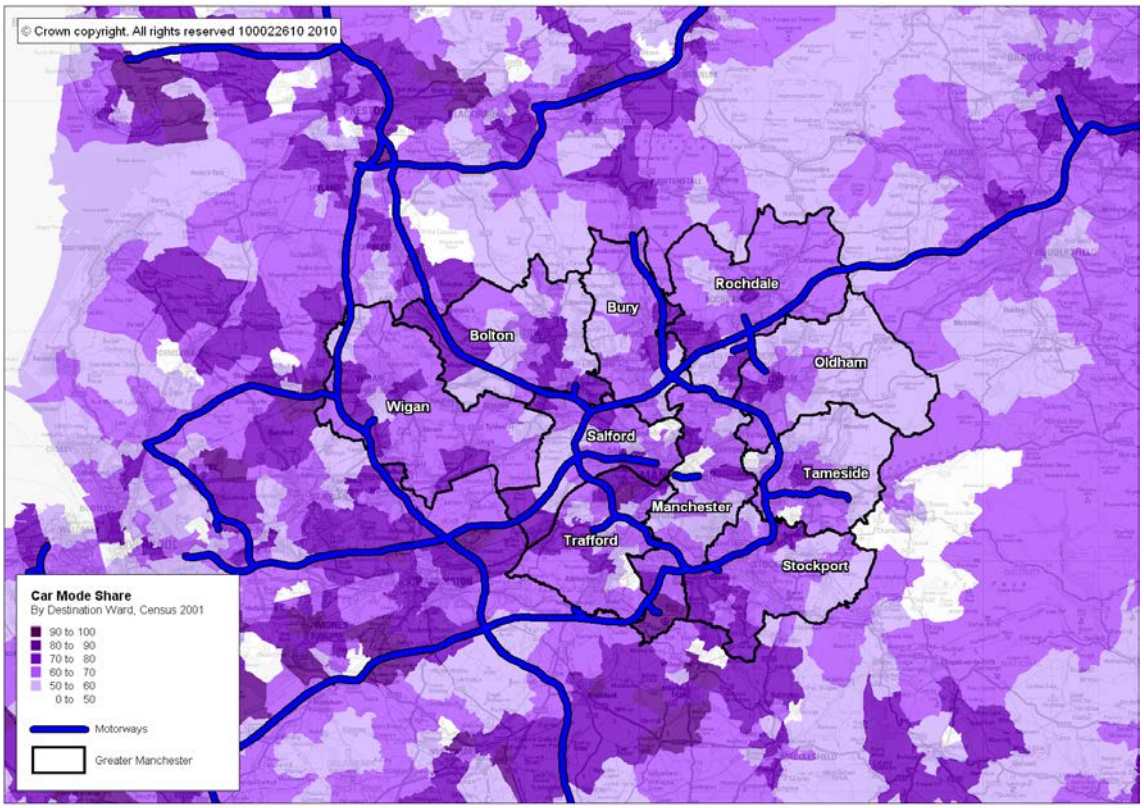


Figure 3.3 – Car Mode Share (By Destination)



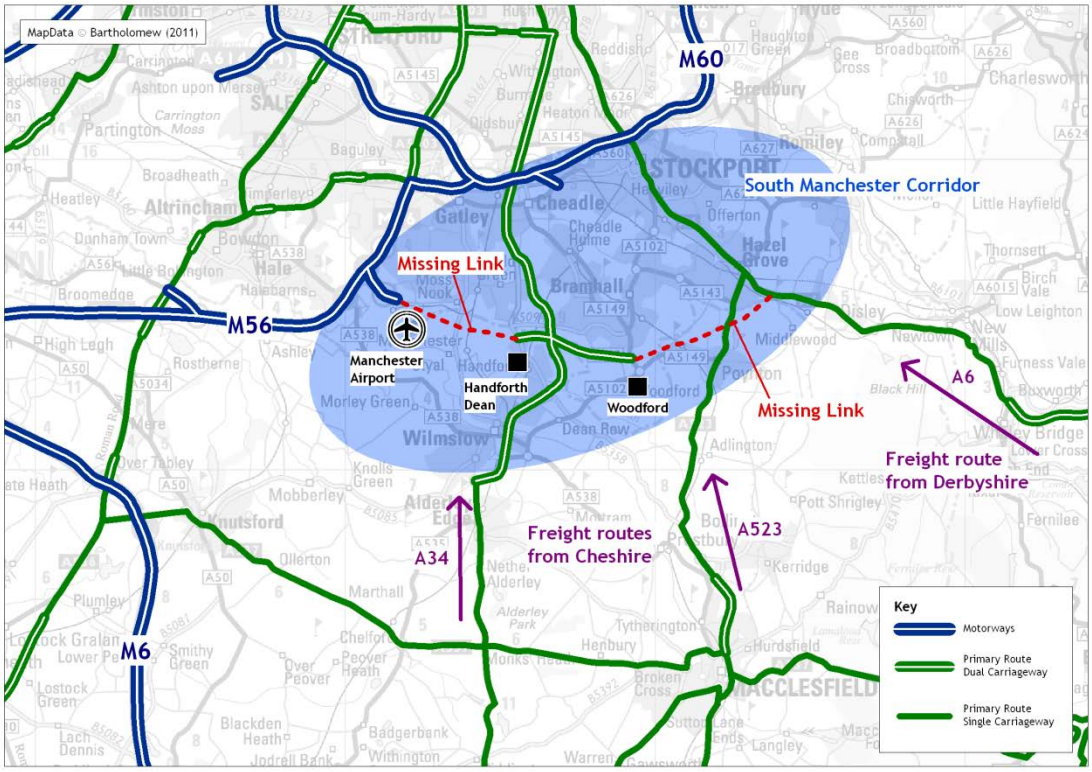
3.54 The longer distances travelled by people in south Greater Manchester and Cheshire, and high car mode share from and to these locations, are shown by the darker shade in both figures. The pattern this shows is that the locations with a greater number of high-value workers (Cheshire East, Stockport, Trafford) tend to travel to areas such as central and southern Manchester to the high-value jobs. Many of these trips, by necessity of their origin and destination, traverse the area of highway network that will be relieved by the A6 to Manchester Airport Relief Road. The majority also use the car. These two factors combine to explain some of the heavy congestion shown previously in ***Figure 3.1***.

3.55 A large number of work trips (between 10,000 and 20,000) are made across the Cheshire East boundary into Manchester City Centre whilst a significant proportion of residents also travel just over the Cheshire East boundary to employment areas that encompass Manchester Airport to the north and Congleton, Holmes Chapel and Middlewich to the south. There is also a large volume of traffic in the other direction, with commuters from Greater Manchester heading to locations in Cheshire East such as Macclesfield and Knutsford - primary attractors due to the high concentration of knowledge-intensive manufacturing and pharmaceuticals in Cheshire East.

The lack of strategic connectivity along the south Manchester corridor

3.56 A substantial body of work has been prepared over the past five years to demonstrate the importance of Manchester Airport – and of having in place efficient surface access to the airport. ***Figure 3.4*** shows the current 'missing link' and how the scheme will provide this connectivity by linking to Manchester Airport to the west, and the A6 to the east, of the existing A555 Manchester Airport Eastern Link Road.

Figure 3.4 – The current lack of connectivity along the south Manchester corridor



3.57 Future prosperity in Cheshire East, Manchester and Stockport is dependent on just this type of improved connectivity, as one of a range of factors that will support the region's development and growth. Investment in the A6 to Manchester Airport Relief Road will help create much-needed jobs and stimulate the business growth that the Government is hoping will drive the economy forward. **The Greater Manchester and Cheshire East economies are key drivers of regional and national economic growth – the scheme will provide the efficient and well-connected transport network required to ensure that they continue to thrive in future.**

3.58 Manchester Airport, the largest UK airport outside of London and a key international gateway, is adjacent to the conurbation. National and sub-national policies recognise the importance of Manchester Airport as a key economic driver for the North West, and also identify its key role in providing international connectivity for the UK – with a catchment that extends well beyond the immediate towns and cities into Derbyshire, the East Midlands, Shropshire and beyond. The proposals for Manchester Airport not only as an international transport hub, but also as a centre for international business and commerce, mean access to a skilled local labour market is essential. **The A6 to Manchester Airport Relief Road will provide efficient surface access between Manchester Airport and surrounding areas of employment and labour, to ensure the North West economy achieves its potential and narrows the productivity gap with the rest of the UK**[10].

3.59 The south Manchester corridor, running from Stockport through Trafford and parts of Cheshire East, contains a large volume of high-value, knowledge-based industry – and this is expected to increase as Manchester Airport develops as a growing hub of international economic activity. In particular, Airport City, Handforth Dean and Hazel Grove offer substantial development potential. The south Manchester corridor is therefore likely to be a major factor in generating increased employment and economic output, but it is also reliant on having easy access to a highly skilled population to support its own development. **The A6 to Manchester Airport Relief Road will complement the future development of the south Manchester corridor, to contribute to the economic growth and employment in Greater Manchester, Cheshire East, and to UK plc.**

The wider implications of congestion and poor connectivity in Greater Manchester

Impacts on the economy

3.60 The Greater Manchester Transport Innovation Fund bid recognised the critical inter-dependencies between economic growth and Manchester's transport system. Work undertaken to establish the point at which traffic congestion was likely to impact on economic growth found that, in the short term (up to 2013) congestion would begin to affect Greater Manchester's economic growth potential and that by 2021 this could significantly undershoot the proposed growth target as a direct result of growing traffic congestion levels and increased public transport overcrowding. This work has also been supported by the Manchester Independent Economic Review (MIER), published in 2009, which identified ineffective internal connectivity as a key constraint in Greater Manchester being able to fully exploit its agglomeration potential.

3.61 The MIER provides a rigorous and detailed assessment of the current state and future potential for the Manchester economy, and highlights the need for improving transport connectivity: *"the greatest economic benefits are to be gained from focus on improving transport within the travel-to-work areas of cities themselves rather than between them – and this is the case for Manchester."*

3.62 Traffic congestion, and more specifically its impact on journey time reliability, has potentially far-reaching implications in terms of the economy. The North West economy currently faces a productivity gap of £20 billion, a substantial contribution to which is the inability of the transport network to cater for the volume of demand using it.

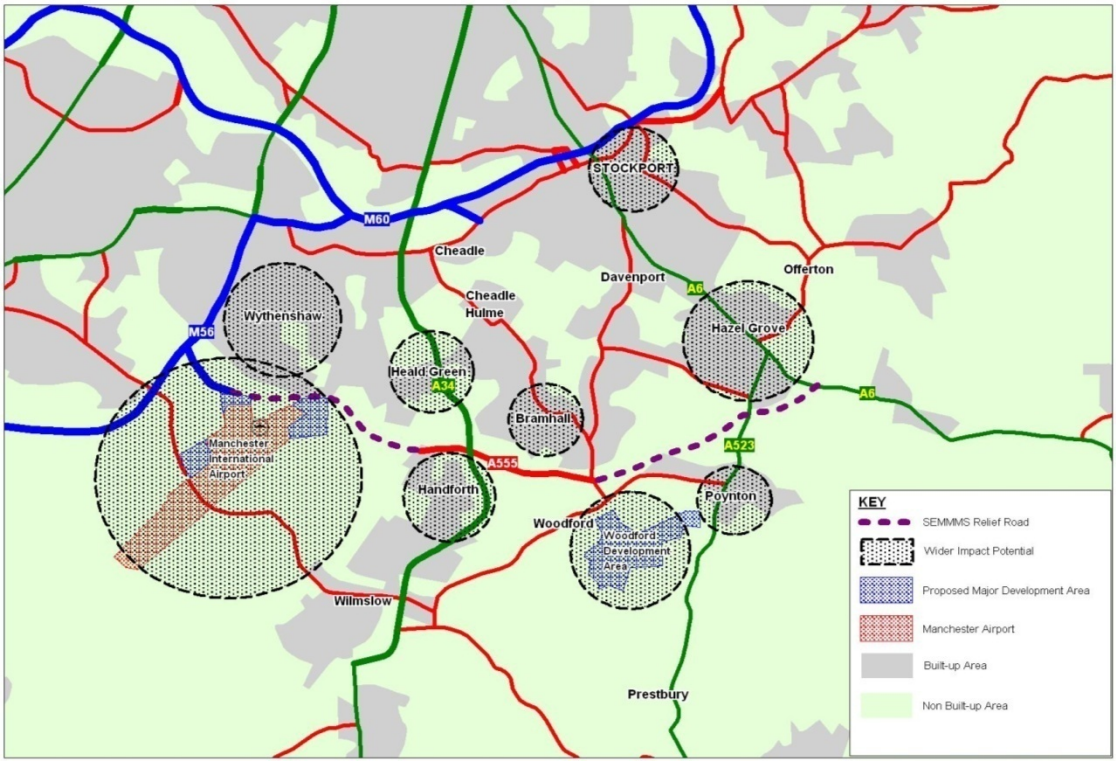
3.63 Whilst the main contributory factor to the productivity losses is on the strategic transport network, this is exacerbated by problems on the local roads in and around district and centres.

3.64 **The congestion that occurs as a result lengthens the 'effective' distance between labour markets and businesses, placing a limitation on the skills available and reducing the potential for business-to-business activity**. There is a risk, therefore, that the potential agglomeration benefits in and around the Manchester City Region are not being fully realised.

[10] The productivity gap is measured by comparing Gross Value Added (GVA) - the sum of incomes earned from the production of goods and services – across different regions. The North West economy currently faces a GVA gap with the rest of the UK of up to £20 billion – up to £12 billion of which stems from Greater Manchester and Cheshire economies. (*Validation of the Productivity Gap between the North West and other Regions, and between North West Sectors*, Cambridge Econometrics and SQW, June 2006)

3.65 ***Figure 3.5*** illustrates the potential sources of agglomeration benefits that are yet to be f ully realised.

Figure 3.5 – Potential Sources of Wider Economic Benefits



3.66 The proximity of the proposed scheme to Manchester Airport, to the major development and employment sites at Handforth Dean and Airport City, Manchester and Stockport, suggests **there is potential for substantial wider economic benefits as a direct result of the scheme**. Discussions are now taking place between the prospective developer of the Woodford site, SMBC and Cheshire East Council as to the future use of this site enabling the proposed Poynton Relief Road to be taken forward and its linkage to the relief road route. The base economic analysis (TUBA) presented in this Business Case does not include any benefits derived from possible future developments in the South Manchester Corridor. Only committed developments have been included within the core scenario.

3.67 At a local level, the substantial **congestion in peak periods has led to the spreading of traffic into non-peak periods, having a further negative impact on local businesses and on public transport reliability**. Increasingly, the **congestion in the local town centres makes them unattractive destinations for business, retail and leisure** purposes.

3.68 The highway network within the study area contains designated freight routes of regional importance. The A6 provides a direct link to/from Manchester that is utilised by a high volume of freight traffic. However, **the delays experienced by freight traffic on the A6 as a result of the interaction with local traffic generate productivity losses to businesses at a pan-regional level**.

3.69 Similar problems have been identified on the strategic motorway network. The M60 has a multi-functional role, providing access into and around Manchester, whilst also forming part of the east-west Trans-Pennine strategic national corridor and serving movements between the north and south. However, the **growing congestion on the local road network means the M60 is increasingly used for short-distance, local movements (i.e. junction-hopping), severely restricting its ability to cater for strategic commuter and business travel at a sub-regional, regional and national level**. As with the problems identified above, this has significant implications for the North West in terms of its ability to narrow the productivity gap with the rest of the UK.

3.70 The congestion and journey time delays have potentially wider-reaching consequences when one considers the proximity of the study area to Manchester Airport, the second largest airport in the UK outside of London and a major international gateway. Efficient, sustainable links between airports, businesses and labour markets are recognised by the Government as one of the most critical factors in the ability of the UK to achieve its potential in terms of economic growth. **The current lack of efficient surface access to Manchester Airport, particularly along the eastern corridor, is a major constraint on the regional and national economy**. Although the Airport has set challenging targets for its public transport mode share, its continued and forecast growth presents access problems from the inadequate orbital network to its east. Moreover, there is evidence to show that congestion on the highway network has had substantial impacts on bus journey time reliability, resulting in some services becoming commercially unviable. **The public transport network will be unable to cater for forecast growth in passenger and business activity at Manchester Airport without complementary surface access improvements for car users**.

Impacts on society

3.71 Transport is increasingly recognised as having a significant role to play in both the creation and alleviation of social problems. Transport does not merely serve society; it shapes society, determining where people live, work, shop, study and fulfil their leisure and social activities. Furthermore, improving access to opportunities helps improve levels of social inclusion and facilitates economic growth.

3.72 The absence of adequate transport provision, barriers in the use of the transport system and the impacts of transport on individuals have important consequences for employment, education, healthcare, housing and land use policy and thus the way in which economic activity is distributed. In addition the health, safety and, thereby, general quality of life of individuals and communities is also likely to be affected as a result of transport networks. Disadvantaged people are predominantly concentrated in areas that are disproportionately affected by the negative impacts of road traffic, such as pedestrian accidents, noise and air pollution and severance.

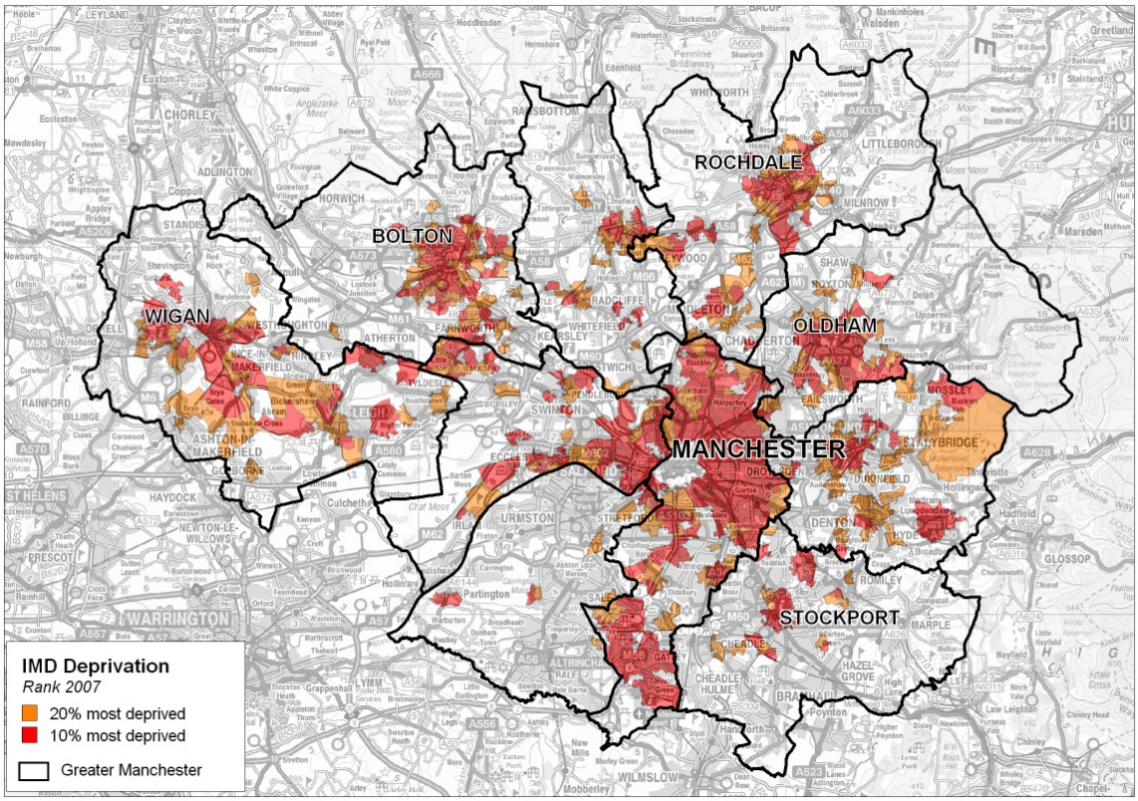
3.73 The Greater Manchester Strategy cites that: *"residents in deprived communities often have less access (physical or otherwise) to jobs in the local labour market"*. This is further supported by evidence presented in the North West Regional Economic Strategy, which indicated that attitudes to acceptable travel to work times were an important perceptual barrier to employment. Lower skilled and lower paid occupations demonstrated shorter travel horizons in comparison to other workers. Affordability is the primary driver for jobseekers; evidence gained from the North West Accessibility and Regeneration study found that their travel horizon was limited to a maximum cost of £15 per week, or 40 minutes maximum journey time. The Study also concluded that local job creation should be the primary intervention in isolated and deprived areas, and not additional transport provision.

3.74 Despite the economic strengths identified in the study area (i.e. distinct economic and social bases with linkages to the regional centre, high-skill labour markets; proximity to Manchester Airport), there exist pockets of deprivation containing some of the more disadvantaged communities within south Greater Manchester. These deprived areas, principally around Stockport, Adswood and Wythenshawe are characterised by high incidences of worklessness, low incomes, low educational attainment and poor health – in short, a generally poor quality of life based on national indicators of deprivation (see ***Figure 3.6***).

3.75 Whilst some of these issues are due to long-standing, inter-generational factors, **a key problem identified through engagement with stakeholders and the public is the barrier to opportunity that exists as a result of poor transport accessibility**. Congestion on the highway network has had a negative impact on bus reliability, with the result that some services have become unviable and therefore withdrawn. The impact of reduced bus service provision in some locations affects those low income households without cars, for whom public transport is often the only available alternative for accessing employment, services and facilities. **The impacts of congestion therefore affect the ability of the poorer and least mobile residents within the**

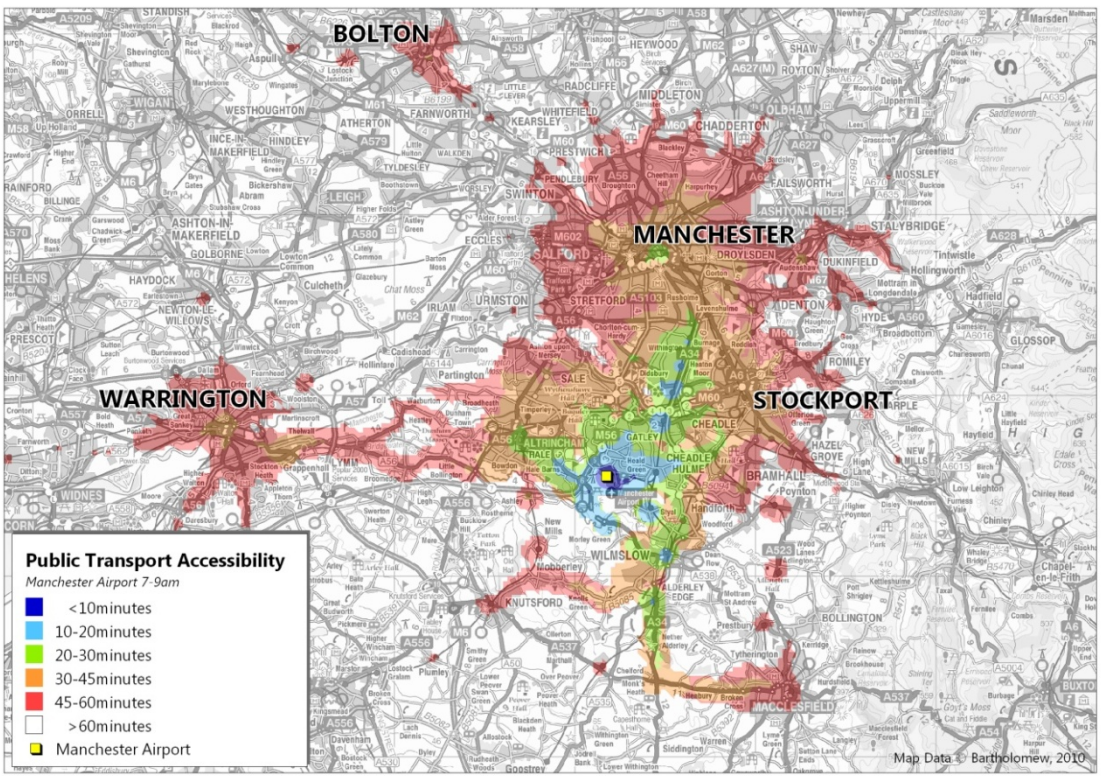
study area to engage in society, ultimately widening the inequality gap at a local and regional level.

Figure 3.6 – Overall Indices of Multiple Deprivation (2007)



3.76 Accessibility to key employment destinations such as Manchester Airport can restrict the range of job opportunities available. ***Figure 3.7*** presents the relative accessibility of Manchester Airport by public transport

Figure 3.7 – Public Transport Accessibility to Manchester Airport



Impacts on safety

3.77 The high volumes of traffic within the study area, combined with its continued growth over the last three years results in a significant level of conflict between road users, resulting in over 600 injury accidents across Stockport district and 805 casualties – 77 of which were killed or seriously injured (KSI). Whilst numbers are not as high in Cheshire East, there remains a commitment to reducing accidents on the road network.

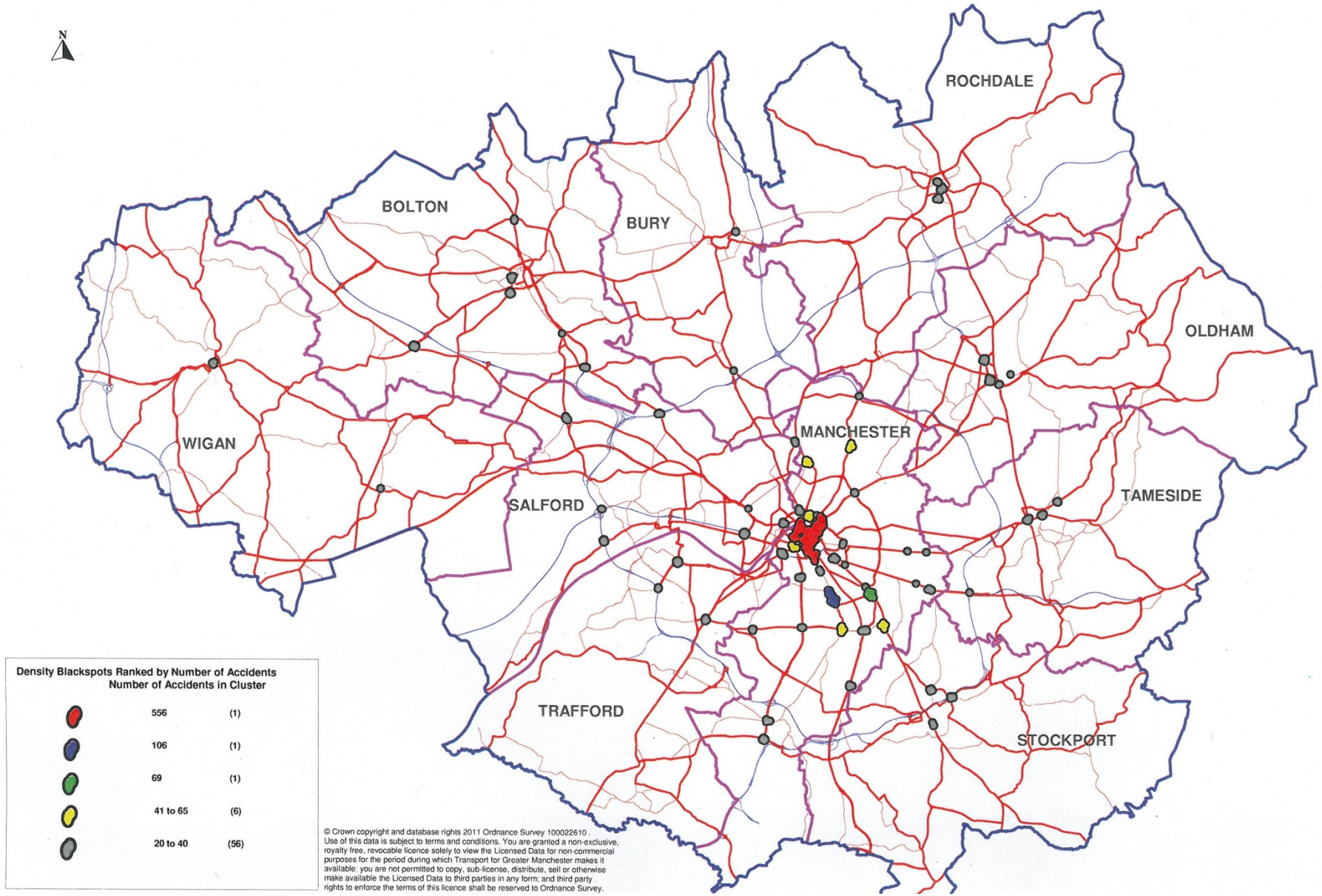
3.78 There is evidence of **accident clusters on the wider local network and at key areas of congestion**, with particular problems on and around the congested A6. Details on accident clusters for the three year period 2008 to 2010 are provided in the GMTU Report 1517 *"Reported Road Casualty Statistics Greater Manchester 2010"*.

3.79 The safety issues stem primarily from the heavy volumes of traffic using unsuitable parts of the highway network passing through residential communities. This impacts on the safety of all road users. Increased safety perception issues for both pedestrians and cyclists are attributed to the high traffic volumes and are evidenced by the low proportion of cycle trips that are undertaken in the study area. This **perceived safety issue will clearly be a deterrent to potential cyclists and may suppress usage, restricting any transfer of vehicle trips to this more sustainable mode**.

3.80 The segregated cycle and pedestrian facilities that will be provided by the scheme will provide the step-change in provision of infrastructure for non-automated modes that is required to encourage more people to choose cycling and walking as an alternative to the car. This is true for trips to Manchester Airport (and development along the route), and also for 'feeder' routes on the existing pedestrian and cycle network to join up with public transport facilities.

3.81 By providing safer cycle and pedestrian routes, designed to the latest standards, the scheme will reduce the number of accidents involving collisions with automated modes. It will also deliver wider health benefits in the longer term by encouraging greater use of non-automated modes among the local population. The explicit benefits of the cycle and pedestrian provision are not captured by the transport models or the economic assessment reported in this Business case; these benefits would be in addition to those reported through the traditional economic assessment process.

Figure 3.8 – Clusters of Accidents on Motorway and 'A' Road in Greater Manchester (2010)



Impacts on the environment

3.82 Poor air quality, high noise levels and road safety are all issues which stem from traffic congestion. Air quality is an important environmental indicator and has a direct impact on economic growth because it influences the health and quality of life of the local population.

3.83 There are 12 Air Quality Management Areas (AQMA) across the Cheshire East district, one of which is located in the study area for the A6 to Manchester Airport Relief Road. This includes an area along the A6 Market Street in Disley, which runs from the Market Street / Buxton Old Road crossroads in the west to the junction with Redhouse Lane in the east.

3.84 Greater Manchester has one AQMA covering the whole area, but with specific designations in proximity to the proposed scheme at:

- Manchester South;
- Stockport Hazel Grove;
- Stockport Shaw Heath;
- Trafford; and
- Trafford A56.

3.85 According to the Air Quality Action Plan road transport is the most significant source of pollution across Greater Manchester for nitrogen oxides and PM10, contributing 68% and 55% of total emissions in 2003 respectively.

3.86 In line with national trends, emissions of nitrogen dioxide and particulate matter are expected to decrease over the next two decades in the study as the operating fleet becomes cleaner and more efficient. However, areas of high levels of nitrogen dioxide concentrates collate closely with areas of high vehicle delay. The same can be said of greenhouse gases, including carbon emissions, which will increase in areas of high congestion. Future interventions such as the 'plugged-in places' pilot scheme across Greater Manchester, and Manchester Airport's Ground Surface Access Plan will alleviate the problems to some degree, but more needs to be done by shifting vehicles away from the congested local routes on to more suitable strategic routes such as would be provided by the A6 to Manchester Airport Relief Road.

Impact of not changing

3.87 Without the A6 to Manchester Airport Relief Road scheme, the patterns shown in the previous section will be exacerbated and the area will be severely restricted in its ability to generate jobs and economic growth. Specific details on the future year traffic impacts are provided in the model and appraisal forecasting reports in ***Appendix B***. The key impacts are as follow:

- Increasing traffic volumes on the A6 and the A34 as well as on other local and strategic routes in the area will lead to increased congestion and delay to traffic. Forecasts suggest underlying growth in traffic demand of approximately 19% by 2026;
- A substantial increase in journey times on local and strategic routes, having negative impacts for business, leisure and commuter traffic;
- Worsening environmental conditions along, and adjacent to, key routes, with implications for the health of the local population (due to poorer air quality) and for flora and fauna across south Greater Manchester and Cheshire East;
- Failure to realise the huge potential employment and economic growth opportunities at Airport City and along the South Manchester corridor;
- In the longer term, as businesses and individuals choose to locate in more attractive locations, there is the real potential for stagnation and decline among the local population and employment centres across the area.

Objectives

Specific objectives for the A6 to Manchester Airport Relief Road scheme

3.88 The scheme objectives have been defined to address directly the problems discussed earlier in this chapter. They align closely with the business strategies for the scheme promoters and for Central Government – most obviously in terms of the Government's vision for transport as set out in its National Infrastructure Plan.

The high-level objectives of the A6 to Manchester Airport Relief Road scheme are:

- **Increase employment and generate economic growth:** provide efficient surface access and improved connectivity to, from and between Manchester Airport, local, town and district centres, and key areas of development and regeneration (e.g. Manchester Airport Enterprise Zone);
- **Boost business integration and productivity:** improve the efficiency and reliability of the highway network, reduce the conflict between local and strategic traffic, and provide an improved route for freight and business travel;
- **Promote fairness through job creation and the regeneration of local communities:** reduce severance and improve accessibility to, from and between key centres of economic and social activity;
- **Reduce the impact of traffic congestion** on local businesses and communities;
- **Improve the safety of road users, pedestrians and cyclists:** reduce the volume of through-traffic from residential areas and retail centres; and
- **Support lower carbon travel:** reallocate road space and seek other opportunities to provide improved facilities for pedestrians, cyclists and public transport.

3.89 The high-level objectives are under-pinned by a set of specific, measurable second tier objectives as described below.

Increase employment and generate economic growth:

- reduce journey times to/from Manchester Airport and the Enterprise Zone from the following locations: Wythenshawe, Stockport town centre, Cheadle, Cheadle Hulme, Hazel Grove, Bramhall, and Poynton
- reduce journey times to/from Handforth Dean from the following locations: Wythenshawe, Cheadle, Cheadle Hulme, Hazel Grove, and Bramhall

Boost business integration and productivity:

- reduce journey times and improve reliability on the following north/south routes: A6 (Hazel Grove to M60), A5149 (A5102 to A560)
- reduce journey times and improve reliability on the following east / west routes: A560 (Stockport town centre to A5103), A5143, Etchells Road / Finney Lane

Promote fairness through job creation and the regeneration of local communities:

- reduce traffic volumes and severance on the following key routes through local centres: A6 through Hazel Grove, A5102 through Bramhall, Finney Lane through Heald Green

Reduce the impact of traffic congestion:

- Improve air quality in the local centres of Bramhall, Hazel Grove, Cheadle Hulme and Heald Green

Improve the safety of road users, pedestrians and cyclists:

- reduce traffic volumes and severance on the following key routes through local centres: A6 through Hazel Grove, A5102 through Bramhall, Finney Lane through Heald Green
- reduce the number of road traffic accidents on the above roads through the local centres

Support lower carbon travel:.

- Improve public transport accessibility (reduced journey times for buses) and increase bus usage between Stockport town centre and Manchester Airport
- Improve facilities for and usage by cyclists and pedestrians between Hazel Grove and Manchester Airport
- Improve pedestrian and cyclist facilities and usage on local roads relieved of heavy traffic

Measures for success

3.90 Successful delivery against the scheme objectives will be monitored as part of the post-opening scheme evaluation, further details of which are discussed later in this business case (Chapter 7: The Management Case) and as part of the Outline Benefits Realisation Plan (Appendix J).

3.91 The first scheme objective relates to increased employment and economic growth across south Manchester over the long term. As such this objective is not directly measureable in the short term in relation to the scheme. Over the longer term this objective will be influenced by a wide range of external factors and thus again, it will not be possible to directly measure against this objective. This is part of a GM wide approach and GM will continue to monitor employment and economic growth as a whole.

3.92 For all other objectives, a programme of monitoring will be put in place during scheme construction and for three years post scheme opening. Whilst a detailed monitoring plan has not yet been agreed, it is envisaged that it will include examination of before and after conditions in relation to the following:

- Traffic congestion / delay
- Forecast traffic flows
- Journey time reliability
- Severance
- Accessibility
- Road safety
- Use of pedestrian and cyclist facilities
- Public transport usage and reliability

Scope

3.93 A detailed scheme description is provided in Chapter 2. Briefly, the scheme will deliver:

- The Relief Road, which is a 10 kilometres long dual 2-lane carriageway running broadly east-west from the A6 near Hazel Grove (south east from Stockport) to Manchester Airport and the link road to the M56. It includes thirteen new and improved junctions and four railway crossings. It also incorporates a further 4 kilometres of existing A555 dual carriageway to the south of Bramhall; This business case relates to the scheme sections between the A6 at Hazel Grove and the Ringway Road / Ringway Road West junction with an improved Ringway Road West at Manchester Airport. The remaining western sections of the scheme, namely Ringway Road West Highway Improvement Works and the Terminal 2 Eastern Link Road are being delivered in advance of the main scheme.
- Provision of a segregated cycle/pedestrian route adjacent to the new road and the existing length of the A555, providing a new orbital link for the Strategic Cycle / Pedestrian Network;

- A package of complementary measures in accordance with the SEMMMS Strategy that will maximise the scope of benefits by making the most efficient use of road space where there are forecast reductions in car traffic. These measures will prevent available road space from simply filling up with more cars; and
- A package of mitigation measures will contribute to overall value for money by limiting any negative impacts resulting from the scheme, including environmental and construction engineering mitigation to minimise the effect of the road on local communities and surrounding habitats.

3.94 The scheme does not incorporate a Poynton Bypass nor a north/south bypass of the A6 that were included in the original SEMMMS Strategy. However, the junction at the Bramhall Oil Terminal would facilitate a connection with a future Poynton Bypass and the new Junction with the A6 will similarly facilitate a connection with a future A6 Bypass.

3.95 In terms of the scheme objectives, the Relief Road will deliver:

- Strategic connectivity and efficient surface access to Manchester Airport, an international gateway and hub of economic activity and employment in its own right – aligning directly with strategies for growth locally, sub-nationally and nationally, and complementing the Government's, Greater Manchester's and Manchester Airport's objective of creating up to 20,000 new jobs at the Manchester Airport Enterprise Zone;
- Provision of an improved route for freight and business traffic, linking Derbyshire, Staffordshire and Cheshire to Greater Manchester and beyond (e.g. to Port Salford and the Port of Liverpool) – as a result, the scheme will generate productivity gains of up to £2.5 billion (GVA) and up to 5,450 new jobs as a result of reduced journey times, closer business integration and agglomeration;
- Transport economic efficiency benefits due primarily to journey time savings of over £800 million over a 60-year appraisal period;
- Reduced traffic congestion through local and district centres, which will
  - Improve the conditions in which local businesses can thrive, aiding regeneration along the south Manchester corridor,
  - improve air quality for the local population,
  - reduce the threat of accidents on the road,
  - reduce the proportion of the population affected by noise,
  - free up local routes, and radial routes into Manchester, that are used by public transport, leading to a potential improvement in public transport journey times and giving the local population greater access to education, employment and leisure facilities;
- Improved facilities for pedestrians and cyclists via the introduction of new dedicated routes alongside the new scheme, contributing to Greater Manchester targets for reduced carbon emissions from transport.

Constraints

3.96 A number of potential constraints exist for the scheme and these have been dealt with throughout scheme development.

- Crossing of the WCML Railway – Progress and ongoing meetings with Network Rail. Network Rail regionally has considered all the Relief Road reports/recommendations for crossings/structures involving Network Rail and the project team are awaiting confirmation that the reports have been submitted to Panel. The possessions and programming re Network Rail issues and proposals has been included in the overall delivery programme and risk register for the scheme.

- Construction of Metrolink to Manchester Airport. Close working between the project team, TfGM and the Metrolink delivery teams has ensured that this constraint has been overcome. A single combined contract has been awarded for the construction of the Metrolink line, incorporating an underpass at Ringway Road West, and the western section of the scheme up to Shadowmoss Road. This will ensure seamless delivery of both the Metrolink and Highway works in this area and deliver significant cost and traffic delay savings.
- Environmental constraints are being addressed by the environmental consultants – a full set of draft environmental mitigation measures/plans are being developed and consultation has progressed with Vulnerable Road User Groups and environmental groups. The current design proposals have been revised to reflect the environmental constraints identified through this consultation process. The environmental and ecological surveys have been completed which further informed the constraints and subsequently the current design proposals. The public consultation exercise will further inform the environmental constraints.
- Financial constraints have been addressed through the development of an innovative funding mechanism alongside the Government's substantial contribution.
- Deliverability / Buildability. The project team has taken advice from a contractor during scheme development to provide reassurance that there are no technical, technological or other 'buildability' issues that could affect the scheme. No such issues have been identified.
- There is a long term public and Elected Member expectation that the whole of the Scheme including the Poynton and A6 bypasses will be delivered. The scheme therefore needs to be able to demonstrate it is a first phase that others can tie into.
- A low cost alternative has been assessed and this delivers a similar economic return to the preferred option. However, there is a political constraint on the delivery of the Low Cost Alternative.
- The Low Cost Alternative will constrain the ability to construct in the future the Poynton Relief Road or the A6 to M60 section as either of these schemes will require the single carriageway sections of the Low Cost Alternative to be upgraded to a dual carriageway standard. This Low Cost Alternative is politically unacceptable to Cheshire East and Stockport councils as these authorities maintain that there is a need over the next few years to develop and implement the remaining elements of the road scheme proposals for the overall SEMMMS strategy, namely Poynton Relief Road and the A6 to M60 section.

Inter-dependencies

Interdependencies in project delivery and risk

3.97 A comprehensive list of risks has been prepared as part of The Management Case ***(Section 7)***. The delivery of the A6 to Manchester Airport Relief Road scheme is dependent on these risks either not arising or being sufficiently mitigated so that scheme delivery remains unaffected. A total of 120 risks have been identified. The list is exhaustive and in some cases there are certain risks for which the likelihood of their occurring, or their impact, is so low that the scheme cannot be defined as truly dependent upon their negation. For the purposes of this section of the business case, therefore, it is sufficient to summarise the key areas of risk / dependency, with more detailed supporting information presented in Section 7 and as part of Appendix F.5.

3.98 The key inter-dependencies can be summarised as:

- Strategic issues: for example, changes in Government transport policy, or external 'shocks', such as another fuel crisis;
- Appraisal: changes in appraisal guidance, or in gaining formal 'sign-off' from DfT economists may delay scheme delivery;
- Costs: changes in the costs of raw materials may affect the outturn costs of the scheme, although this should be adequately covered within the allowance for risk and optimism bias;

- Environmental: should future surveys identify new habitats of wildlife, or if environmental conditions unexpectedly worsen over time;
- Consultation: there is the potential for delays to delivery as a result of issues raised during consultation;
- Design; and
- Statutory: for example, through issues raised during public enquiry, or when going through other statutory processes and seeking approvals for scheme development/construction.

3.99 The development of a detailed risk log, and the time already devoted to mitigating some of these risks (e.g. through detailed modelling, appraisal and design work, early stakeholder and public consultation, and environmental surveys), means the risk to scheme delivery is relatively low. The project team will, however, continue to monitor these risks / inter-dependencies throughout scheme development to ensure the smooth delivery against the programme.

Interdependencies with public transport schemes

3.100 In addition to the above, there are also interdependencies at the macro level with other schemes, in particular with the public transport network. This includes the heavy rail network, where the scheme requires rail possessions and ongoing liaison with Network Rail to construct rail crossings on the Buxton Line – this has already been factored into the programme for scheme delivery.

3.101 There is also a substantial inter-dependency with the Metrolink Airport Extension (MAE). Careful consideration has been given to phasing the construction of the scheme to integrate construction of the Ringway Road Highway Improvement Works (RRHIW) with the MAE. Integrated delivery of the RRHIW and MAE incorporates a dual-carriageway section between Shadowmoss Road and the T1 roundabout at Manchester Airport; an underpass at the RB2 roundabout to allow the Metrolink to pass under the dual-carriageway; and replacement of the RB2 roundabout with a signal-controlled junction arrangement that will also include Aviator Way.

3.102 The governance, planning and statutory arrangements are already in place to provide integrated delivery of the RRHIW element of the scheme with the MAE works, and the benefits are substantial:

- A net benefit of £25 million by reducing scheme delivery costs and avoiding lost Metrolink revenue, compared to the scenario where the two schemes are delivered separately;
- Avoiding duplicate construction delay to approximately 24,000 vehicles per day along Ringway Road West, resulting in monetised savings estimated at £3m;
- Introduction of an underpass to mitigate the disruption/delays to all traffic that would otherwise occur due to the at-grade Metrolink crossing at Ringway Road West, resulting in journey time savings to road traffic of £2 million. [Journey time savings to Metrolink users would be in addition to this.]
- Removing the need for contractor working within a constrained site, between the railway embankment and live Metrolink line, which would command premium rates;
- Avoiding the need for reduced running speeds on the Metrolink line as a result of contractor working close to the running line during highway construction works;
- Early realisation of transport and wider economic benefits as a result improved transport connectivity to Manchester Airport;
- Certainty of delivery within timescales as the Metrolink and Metrolink Utilities contractors are already on site;
- The opportunity to use Aviator Way as a traffic diversion route during the construction works, thereby reducing delay to traffic – this opportunity would not be available once Metrolink is operational;

- Alignment with the Government's approach to delivering major transport schemes by adopting innovative approaches to maximise benefits at least cost.

3.103 Potential risks from delivering an integrated solution have been identified and addressed. The impact on delivery of the other elements of the scheme are expected to be minimal, due primarily to the fact that the main delivery bodies for the MAE (Manchester Airport, Manchester City Council and TfGM) are also key stakeholders of the A6 to Manchester Airport Relief Road scheme: Manchester Airport, Manchester City Council and TfGM are represented on the Chief Executive Steering Group.

Stakeholders

3.104 There are a large number of stakeholders with an interest in the scheme and there is potential for conflict between stakeholder groups over the provision of individual elements, its impact and even whether a road is the appropriate solution. The consultation plan seeks to identify such issues and minimise conflicts where appropriate. The detailed consultations being undertaken as part of the scheme development, Environmental Assessment and Transport Assessment with key stakeholder groups as part of the on-going design process also seeks to minimise conflict.

3.105 The groups of stakeholders being consulted as part of the scheme development are summarised below, with a full list provided in Appendix K.

- Adjacent local authorities;
- Car driver organisations;
- Chambers of commerce;
- Community Councils;
- National Government organisations (DfT, HA, EA, etc);
- District Centre Partnerships and Local Trader Organisations;
- Emergency services;
- Freight operators / organisations;
- Greater Manchester Transport Fund / Greater Manchester Combined Authoritie;
- Transport for Greater Manchester;
- Householders affected by the scheme;
- Land agents / owners / tenants;
- Local businesses and user groups e.g. local car drivers, cyclists, disability groups;
- Local, national and EU politicians;
- Manchester Airport Group;
- Local and national media groups;
- Tourism bodies;
- Farmer and landowner groups / associations;
- Parish Councils;
- Public transport operators;
- Schools and colleges;
- Rights of Way users;
- The public.

Options

Development of the preferred Scheme option

3.106 The scheme option described in this business case is the culmination of a large amount of analysis, review and revision over a number of years. The problems of congestion and poor connectivity to Manchester Airport were assessed as part of the SEMMMS study in 2000/01. The study considered both highway and public transport interventions, and ultimately decided upon a new highway scheme – the original SEMMMS Relief Road – that connected the M60 north of Stockport to the M56 at Manchester Airport.

3.107 The promoting local authorities remain committed to the full scheme but are, following the Government's advice, to deliver the scheme in phases. The current A6 to Manchester Airport Relief Road proposal is the first phase of the full scheme.

Why a highway scheme is the only option

3.108 The original SEMMMS study developed and tested six separate strategy options in order to arrive at a preferred strategy of interventions. The six strategy options consisted of a mix of Road, Heavy Rail, Light Rail and Quality Bus interventions along with non-infrastructure options to address the transport problems of the study area. This assessment led to the development of a recommended strategy that incorporated a substantial public transport investment in new infrastructure and services and also the construction of all three remitted road schemes but to a lower standard of provision. In addition to the infrastructure interventions proposed, the strategy included recommendations for road space reallocation, transport change measures and urban regeneration proposals.

3.109 A number of public transport only options were considered but were rejected because of the reasons described below:

- Heavy and light rail, and guided bus options were all ruled out on cost grounds given the new infrastructure required to operate along the corridor. These options would cater only for a small proportion of the traffic given that they could serve only a limited number of the end-to-end journeys.
- Bus-based options on the existing highway network were considered unrealistic, since they would not be able to offer the journey time savings to generate a sufficient level of mode shift to produce a viable business case (bus services have been withdrawn from operation in the past due to the large level of subsidy required to maintain them). This meant that:
  - the problem of congestion in town and district centres would not be resolved,
  - journey times may improve slightly if there is reasonable mode shift, but they will be insufficient to provide the step-change required to generate economic growth and employment
  - other problems, such as poor air quality and noise, could potentially be exacerbated.
- Bus-based options also failed to address the need for improved freight connectivity to, from and across the Greater Manchester, south Manchester and Manchester Airport areas.

3.110 Over the last ten years since the completion of the SEMMMS study, approximately £63 million has been spent on SEMMMS projects including Quality Bus Corridors, accessibility Improvements to Bus Stops and transport interchanges, the provision of yellow buses as well as Road space reallocation involving the creation of on street cycle facilities and improvements to the pedestrian network.

3.111 Having assessed a wide range of public transport interventions, the SEMMMS study recognised that many of the serious traffic congestion problems would only be addressed through the construction of the remitted road schemes. The proposed A6 to Manchester Airport scheme has thus been developed following an extensive examination of alternative options and is only one element of an integrated package of investment.

3.112 **Appendix L** includes a Technical Note that assesses in detail the continuing justification of a Highway Scheme as the solution to the transport and travel problems in the study area. The analyses demonstrate a significant increase in traffic volumes on north-south routes in the corridor reflecting congestion on east-west routes which is forcing many drivers to choose a longer journey along north-south roads and the M60 in order to complete an east-west journey. The overall conclusion from the analyses presented in this section is that a public transport only alternative could not:

- realistically cater for the very dispersed orbital movements in the SEMMMS Scheme corridor
- materially improve the level of congestion on the local road network due to the very limited reduction in traffic that could be achieved by any public transport scheme
- improve public transport accessibility to all areas of the corridor due to the very congested road network.

3.113 All the assessments led to the conclusion that a new piece of highway infrastructure, providing direct access to Manchester Airport from the congested A6 will provide substantial journey time savings that allow businesses and employers to reach markets and jobs in the Enterprise Zone.

Why the scheme is the best available highway option

3.114 Analysis of the preferred option alongside alternative highway scenarios confirms that the dual 2-lane road is the most appropriate carriageway standard for the A6 to Manchester Airport Relief Road scheme. The alternative scenarios tested in preparing this business case are described in a separate technical note, included as ***Appendix L***.

4. The Economic Case

Introduction

Overview

4.1 This chapter presents ***The Economic Case*** for the A6 to Manchester Airport Relief Road scheme. It confirms the value for money for all options appraised, considering both monetised and non-monetised impacts in terms of their economic, environmental, social and distributional impacts.

A robust modelling and appraisal framework has been developed to assess the impact of the scheme. The scheme is expected to lead to substantial benefits through improvements to journey times and from the wider economic impacts this is likely to have as a result. Across a 60-year project lifetime, the scheme will generate:

- Travel time savings valued at up to £825 million, with total transport economic efficiency benefits of £858 million;
- Increased economic output (GVA) of up to £2,492 million over the 60-year appraisal period; and
- An additional 5,450 jobs.
- High value for money, with a benefit-cost ratio of 5.06
- Improved accessibility and integration for the local communities along the length of the scheme; and
- Minimal adverse environmental impacts, due to the benefits generated through congestion relief relative to the Do-Minimum scenario, and also as a result of mitigation measures in place to offset any adverse impacts.

Outline approach to assessing value for money

4.2 Scheme value for money has been assessed within a WebTAG-compliant framework, comprising the following:

- Transport modelling
  - A land use, highway (SATURN) and public transport (TRIPS) modelling suite, developed using up-to-date observed traffic data and calibrated/validated in accordance with Highways Agency and Department for Transport guidance
- Benefits appraisal
  - A detailed assessment of monetised economic benefits using TUBA, in accordance with WebTAG
- Derivation of scheme costs
  - Scheme costs calculated externally by Corderoy, using their in-house data base of over 70 ECI and DBFO contracts
  - An independent validation of scheme costs by EC Harris (see ***Appendix O***)
  - Incorporation of scheme costs to TUBA, in accordance with WebTAG
- Scheme assessment and supporting analysis
  - Assessment of monetised and non-monetised impacts in terms of the environment, safety, economy, accessibility and integration

  - Supporting analysis to demonstrate impacts in terms of distribution and equity, affordability and financial sustainability, and practicality and public acceptability

- Collation of the Appraisal Summary Table (AST), Transport Economic Efficiency (TEE) Table and tables for supporting analysis
- A continuous process of challenge and review of the value for money assessment
  - Transport models developed by MVA and Transport for Greater Manchester, with review and challenge by Atkins
  - Scheme costs independently reviewed by EC Harris, and subject to internal challenge, review and value management exercises based in-house expertise across the three scheme promoters, with supporting analysis provided by specialists from URS

4.3 Further details on all aspects of the value for money assessment are provided in the sections below.

Compliance with DfT requirements for *The Economic Case*

4.4 The DfT's guidance document, *'The Transport Business Case: Economic Case'*, outlines the areas that should be covered as part of the MSBC documentation. ***Table* 4.1** shows where the information on these areas can be found in this document.

Table 4.1 – Compliance with DfT requirements for the Economic Case

Sub-Section	DfT requirements	Location in this document
Introduction	Outline approach to assessing value for money.	Section 4.1 – 4.3 (above)
Options appraised	A list of options (set out in The Strategic Case) that have been appraised.	Section 3 – The Strategic Case Section 4.5 – 4.10 Appendix B & L
Assumptions	Set out any assumptions (in addition to those required by WebTAG) supporting the analysis.	Section 4.11 – 4.33
Sensitivity and risk profile	*Set out how changes in different variables affect the Net Present Value / Net Present Cost. The risk profile should show how likely it is that these changes will happen.*	Section 4.34
Appraisal Summary Table	Produced in accordance with WebTAG	Section 4.35 – 4.39 Table 4.3
Value for Money statement	Produced in accordance with VfM guidance	Section 4.40 – 4.195 Appendix C (Appraisal Worksheets)

Options appraised

4.5 The evolution of the A6 to Manchester Airport Relief Road scheme – and the wide range of options considered in arriving at the current scheme option – was presented in detail as part of ***The Strategic Case*** (see the sections on 'external drivers for change' and 'options'). The option included in this business case is the result of a number of years of analysis and consultation, resulting in a scheme that will deliver substantial benefits at the same time as being affordable and maximising value for money. The technical notes in ***Appendix A*** and ***Appendix L*** provide further details on how the scheme has evolved.

4.6 Most of the options have been appraised in terms of their impact on scheme costs, public acceptability, or deliverability. The final schemes included in this business case, therefore, are:

- The 'Do-Minimum', which includes committed transport schemes and development proposals across the study area including the western most sections of the original A6 to Manchester Airport scheme namely the Ringway Road West dualling between Shadowmoss Road and the Manchester Airport roundabout, and the new Terminal 2 Eastern Link Road;
- The 'Do-Something' (Scheme Option), which appraises the impact of the A6 to Manchester Airport Relief Road scheme on top of the 'Do-Minimum'; and

4.7 The schemes are defined in more detail in the Forecasting Report, included at ***Appendix B***, including details of background growth and committed transport schemes included in the forecasts.

4.8 Additional future year options have also been developed as part of scenario and sensitivity tests aimed at confirming the robustness of the modelling framework and the overall economic case. This includes scenario tests aimed to establish the impact of changes in the underlying level and distribution of demand, with a particular focus on traffic forecasts for Manchester Airport. The optimistic and pessimistic scenarios assess the impact on the economic case resulting from higher and lower levels of underlying traffic respectively.

4.9 Other scenario tests have been assessed to confirm that the scheme represents the optimum design and of appropriate highway standard. This includes low cost alternatives that examine the impact on the economic case of mixed single, and dual, carriageway design standards, and alternative junction design options.

4.10 Sensitivity tests on costs have also been included in the appraisal, to confirm the robustness of the economic case to fluctuations in scheme capital costs.

Assumptions

Overview

4.11 A standard approach to the assessment of costs and benefits relating to the scheme has been adopted, in accordance with DfT guidance. At the heart of the appraisal framework lays the Appraisal Summary Table (AST), which summarises all the impacts of the scheme against five areas: environment, safety, economy, accessibility and integration.

4.12 This section describes the assumptions behind the modelling and appraisal framework, with references to the appropriate documents in appendices for further details. The outputs from the appraisal framework have then been used to complete the appraisal, including the AST and all complementary worksheets for each of the five areas described above.

Traffic modelling

4.13 A robust approach to scheme assessment has been undertaken, using a variable demand modelling framework originally developed for the Greater Manchester Transport Innovation Fund (TIF) work, but updated specifically for the A6 to Manchester Airport Relief Road scheme. The modelling suite was developed jointly by Transport for Greater Manchester (TfGM) and the MVA Consultancy. Additional modelling input and a formal reviewing role was provided by Atkins.

4.14 The model captures origin-destination trip and cost data across the extent of the UK, with detailed simulation modelling across Greater Manchester, Cheshire and the surrounding environs.

4.15 Models were created to represent three time periods:

- Morning peak (0700-1000);
- Inter-peak average hour (1000-1600); and
- Evening peak hour (1600-1900).

4.16 The model developed for GMTIF work had a base year of 2007. The A6 to Manchester Airport Relief Road model has been updated with a base year of 2009. The model was calibrated and

validated in accordance with DfT criteria using observed traffic count and journey time data collected in neutral months throughout 2009. Full details of the data used to develop, calibrate and validate the base year transport model are presented in the ***Data Collection and Traffic Surveys Report (Appendix B.1)***.

4.17 All modelled time periods pass the calibration and validation criteria and are deemed to provide a good representation of observed traffic conditions across the study area. Full details of the calibration and validation methodology and outputs are provided in the ***Assignment Model Validation Report (Appendix B.2)***. Full details of the demand model are provided in the ***Demand Model Report (Appendix B.4)***.

4.18 Model forecasts were prepared for two future years: 2017 and 2032. The transport network and public transport services have been updated to reflect schemes under construction and committed transport options anticipated to be in place by 2017 and 2032 respectively.

4.19 Future year forecast models were produced for the following scenarios:

- A Do-Minimum (DM), which contains all committed developments and committed transport schemes (highway and public transport) across the study area to 2032; and
- A Do-Something Option (DS), which includes all developments and schemes from the DM, plus the A6 to Manchester Airport Relief Road scheme.

4.20 The demand model was run for the DM and DS scenarios, to enable any variation in traffic due to the scheme (induced traffic) to be reflected in the appraisal.

4.21 Further details of the development of the future year forecast models, and the impact of the DS relative to the DM, are presented in the ***Model Forecasting Report (Appendix B.5)***.

Economic appraisal

4.22 Full details of the calculation of monetised benefits are shown in ***Appendix B.5***. This section provides a summary of the method. Economic benefits of the scheme have been quantified using the DfT's Transport User Benefit Appraisal (TUBA v1.8) software.

4.23 Outputs from the SATURN[11] traffic models were provided, giving details of demand, journey times, trip distances and charges or fares applicable to those trips. These were generated as matrices with average figures for each origin-destination pair and were provided for both modelled years, 2017 and 2032, and for three time periods, AM, inter-peak and PM in each year.

4.24 Annualisation factors, calculated using traffic count data commissioned specifically for use in this study, were used to convert hourly/daily benefits to annual benefits, based on the assumption of benefits being evenly accrued for 253 working days a year. Benefits were also calculated for Saturdays, based on the inter-peak model, as flows were similar for these periods. Traffic flows on Sundays were at a significantly lower level than those in any of the modelled periods and so no benefits for these days have been assumed.

4.25 Further details of technical specifications applied in the calculation of scheme benefits, such as the treatment of new modes and the interpolation of benefits between modelled years, are discussed in ***Appendix B.5***.

4.26 Using the above methodology, benefits were calculated to show time benefits for highway and public transport users. Benefits were disaggregated by user type, with separate figures for business and non-business users.

4.27 Benefits reported included time savings, reductions in vehicle operating costs, savings in charges, such as public transport fares, changes in revenue to private operators and local government and reductions in carbon emissions.

[11] **S**imulation and **A**ssignment of **T**raffic in **U**rban **R**oad **N**etworks (Institute for Transport Studies, The University of Leeds)

4.28 These benefits were all monetised so that, based on values of time, the benefits of time savings could be added to the already monetised benefits of reduced operating costs and savings on fares. This allowed all benefit types to be combined to give a Present Value of Benefit (PVB).

Scheme Costs

4.29 Scheme costs are used alongside scheme benefits to produce an overall benefit-cost ratio. A robust approach to the estimation of scheme costs has been undertaken using specialist advice from Corderoy, with an independent review of costs by EC Harris, and a review of buildability by Balfour Beatty undertaken in 2011. The costs have also been subject to value management exercises involving specialists from SMBC, URS and Atkins. The estimation of costs is described in detail in ***Chapter 5 (The Financial Case)***, although a breakdown of the base costs, allowance for risk and optimism bias is described below.

4.30 The total capital cost of the scheme, including all land, preparation and supervision costs but excluding any future inflation, is £165.80 million at Q2 2010 prices. An allowance of £30.12m for future inflation on construction and land prices has been made[12], along with a quantified estimate for known risks (including inflation) amounting to £34.45m, which produces a base cost of valued at £ 230.36million.

4.31 The recommended level of optimism bias for highway schemes at Programme Entry is 44%. There is an opportunity for the A6 to Manchester Airport Relief Road scheme to proceed directly to Conditional Approval, based on the advanced stage of project development and design, the value management exercises and risk management undertaken to date. There is, therefore, a strong case for reducing the level of optimism bias applied to scheme costs. A calculation of mitigation factors around Optimism Bias has been undertaken in accordance with WebTAG and a scheme specific figure of 27% has been derived which has been independently verified by EC Harris on behalf of TfGM. For the purposes of the economic assessment however, the full level of 44% optimism bias has been adopted. The scheme specific figure of 27% Optimism Bias has been used to identify the funding requirement.

4.32 Optimism bias has been applied to the preparation, supervision, construction and land costs as well as to the allowance for risk prior to any adjustment for future inflation. The total adjustment for optimism bias applied in the appraisal is £101.36 million.

4.33 The total capital cost used in the economic appraisal amounts to £283.8 million. This value has been input to TUBA to reflect the allocation of expenditure between Local and Central Government. In addition, we have included an allowance of £15.2 million for the increase in future maintenance costs associated with the new road as well as a cost profile for Street Lighting costs and renewals over the scheme assessment period., The total costs once converted to 2002 prices and values using the default rates included in TUBA, produce a PVC of investment of £173.9 million.

Sensitivity and Risk Profile

4.34 Sensitivity tests have been undertaken to confirm the robustness of the business case and reflect potential risks around scheme costs and benefits. Further details on the specification for each test are provided as part of the 'Uncertainty Log', included within ***Appendix B***. Details of the Low Cost Alternative scheme are provided in ***Appendix L***.

4.35 The sensitivity tests, and their impact on the business case, are summarised in Table 4.2 below. Details of the economic assessment of the three sensitivity test scenarios are provided within the Economic Assessment Report included within ***Appendix B***.

Table 4.2 – Sensitivity and risk profile: impact on the business case

[12] The difference between land / construction sector inflation and economy-wide inflation has been applied to scheme costs for the purposes of economic appraisal. This is different to the inflation that is applied for the calculation of scheme capital costs as part of The Financial Case, which include absolute inflation (i.e. including RPI).

Appraisal specification	Impact	Risk / Likelihood	Impact on the Business Case
Optimistic	Scheme Benefits	Low / Low	PVC: £173.9m NPV: £801.3m BCR: 5.61
Pessimistic	Scheme Benefits	Low / Low	PVC: £173.9m NPV: £696.7m BCR: 5.01

4.36 A Low Cost Alternative option was appraised based on a previous version of the model runs and this provided a similar but lower BCR to the preferred option. The Low Cost option is considered not acceptable politically and is therefore not deliverable. As such the Low Cost Alternative option has not been re-appraised as part of this latest scheme appraisal.

4.37 The Appraisal Summary Table (AST) is designed to provide decision takers with a concise overview of impacts across the board. The results of the assessment of the A6 to Manchester Airport Relief Road against the five objectives of Central Government and the supporting sub-objectives are presented in Table 4.3 - the Appraisal Summary Table.

4.38 The A6 to Manchester Airport Relief Road fully supports the objectives of Central Government, reflecting the development, support and recommendations for individual scheme components over several decades.

4.39 The scheme provides good value for money and it will help to resolve a range of transport related problems. Many of the adverse impacts can be resolved or mitigated at the detailed design stage.

Table 4.3 – Appraisal Summary Table (AST) for the Preferred Option

Appraisal Summary Table | **Date produced:** 26 Oct 2012 | **Contact:** Name: Jim McMahon; Organisation: SMBC; Role: Project Director

Name of scheme:	A6 to Manchester Airport Relief Road
Description of scheme:	A new 10-km 2-lane dual-carriageway linking the A6 to Manchester Airport, providing strategic connectivity and relieving congestion on local routes and through town and district centres. The scheme also includes a segregated cycle/pedestrian route to promote mode shift from car to more sustainable modes.

Impacts		Summary of key impacts	Assessment: Quantitative	Qualitative	Monetary £000(NPV)	Distributional 7-pt scale/ vulnerable grp
Economy	Business users & transport providers	Substantial journey time savings for business/freight users: £146m for personal business users and £157m for freight due to the improved connectivity and journey times to markets in major centres of Stockport, Manchester Airport, Trafford, Cheshire and Manchester.	Value of journey time changes(£000): £427,596 Net journey time changes (£000): 0 to 2min £165,009; 2 to 5min £98,266; > 5min £164,321	Large Beneficial	£427,596	Moderate Beneficial
	Reliability impact on Business users		Not assessed	Large Beneficial	Not assessed	
	Regeneration		Not assessed	Not assessed	n/a	
	Wider Impacts	The scheme will generate benefits through agglomeration, labour market impacts and increased productivity. Approximately 45% of these benefits will arise in Stockport, 35% in Cheshire East and 20% in other parts of Greater Manchester.	GVA of up to £1,249 million and up to 2,098 new jobs created.	Large Beneficial	£1,249,000	
Environmental	Noise	The proposed scheme is expected to lead to increases and decreases in noise levels across the study area. There are a total 19,488 dwellings within the study area. In the opening year (2015) 14,274 of these are expected to experience an increase in noise levels (2,099 above 5db) , 5,115 a decrease and 1099 would experience no change.	Population annoyed in DM: 3420 Population annoyed in DS: 4151 Net noise annoyance change in 15th year: 731	Moderate Adverse	-£17,094	Slight Adverse
	Air Quality	The scheme is anticipated to lead to an improvement in air quality (exposure to NO2 and PM10 concentrations) overall. The scheme leads to an increase in annual mean PM10 concentrations at 20m from the road centre of at least 1µg/m3. The scheme does not lead to an increase in annual mean NO2 concentrations at 20m from the road centre of at least 2µg/m3 and where concentrations are above the AQS NO2 objective of 40µg/m^3. The scheme is anticipated to affect air quality within an AQMA. Overall 1003 properties within the AQMA experience worsened air quality and 4872 properties experience improved air quality. The scheme is anticipated to affect air quality within an AQMA. Overall 3899 properties within the AQMA experience worsened air quality and 11465 properties experience improved air quality. 507 properties experience exceedance of the annual mean NO2 EU Limit Value; 10 properties are removed from exceedance as a result of the proposed scheme. No properties experience exceedance of the annual mean PM10 EU Limit Value and no exceedances are removed as a result of the proposed scheme.	Number of properties with an improvement (PM_{10}): 16,787 Number of properties with no change (PM10): 148,430 Number of properties with a deterioration (PM10): 10,147 Number of properties with an improvement (NO2): 38,323 Number of properties with no change (NO2): 109,520 Number of properties with a deterioration (NO2): 27,521 Overall Appraisal Score NO2: -10,166µg/m3; PM10: -52µg/m3.	Beneficial		Large Beneficial
	Greenhouse gases	The proposed scheme is predicted to lead to an increase in carbon emissions over 60 year of approximately 10,300 tonnes	Change in non-traded carbon over 60y (CO2e): 10,308 Change in traded carbon over 60y (CO2e):	Neutral	-£1,077	
	Landscape	Landscape features are considered typical of the wider locality and display importance at the local level. Corridor landscape is generally ordinary to moderate quality with some areas considered moderate to good quality at the detailed level. Fragmented agricultural landscape with existing features of woodland and linear belts of trees demonstrating a capacity to accommodate change in combination with a robust mitigation strategy.	n/a	Slight Adverse	n/a	
	Townscape	Minor modification to the fabric of the existing townscape to deliver any traffic improvement measures in nearby towns /villages would not result in a significant change to the way in which local townscape is perceived. Detailed assessment /worksheet not required.	n/a	Neutral	n/a	
	Heritage of Historic resources	Sites of significance within study corridor (including 50m buffer zone) comprise earthworks, buildings, historic building complexes, structures and accumulated deposits. The potential exists for below-ground archaeological remains in areas where access has not yet been granted to undertake intrusive archaeological surveys. The level of impact (moderate adverse) is specifically a consequence of the impact on Norbury Mill, a site of regional importance, with the overall level of impact otherwise being slight adverse.	n/a	Moderate (slight) Adverse	n/a	
	Biodiversity	Ecology features present include Happy Valley Local Nature Reserve (LNR), Ancient Woodland (Mill Hill Farm and Norbury Brook Wood), Broadleaved woodland, Semi-improved grassland, ponds, Running Water, Hedgerows, Badgers, Bats, Otter, Hedgehog, Brown hare, Great crested newt, Common toad, Breeding Birds and Kingfisher. Japanese knotweed and Himalayan Balsam are also present. The construction and operation of the scheme could potentially impact on these features / resources. However the assessment has concluded that, with the inclusion of the proposed design and mitigation measures impacts would be no greater than moderate at specific locations and would be slight adverse overall.	n/a	Moderate (slight) Adverse	n/a	
	Water Environment	Water Environment features present include the Oxhey, Threaphurst, Norbury, Poynton, Lady, Spath, Gatley and Baguley Brooks, numerous small ponds, three distinct groundwater bodies: the Manchester and East Cheshire (M&EC) Carboniferous Aquifers, the M&EC Permo-Triassic Aquifers, the Dane and Weaver Quaternary Sand and Gravel Aquifers, and an SPZ3. These features are typical of the wider locality and are important at a local level. The construction and operation of the scheme could impact on these features. However the assessment has concluded that, with the inclusion of the proposed design and mitigation measures, impacts would be no greater than slight overall.	n/a	Slight Adverse	n/a	
Social	Commuting and Other users	Substantial improvement in journey times through town and district centres and on local roads relieved by the new route.	Value of journey time changes(£): £452,495 Net journey time changes (£): 0 to 2min £185,469; 2 to 5min £120,902; > 5min £146,124	Large Beneficial	£452,495	Moderate Beneficial
	Reliability impact on Commuting and Other users	Reduction in traffic through town and district centres along the South Manchester corridor will improve journey time reliability for the large volume of traffic commuting between these towns and to/from the larger employment centres in Stockport, Manchester and Cheshire East.		Moderate Beneficial	n/a	
	Physical activity	A combined, dedicated footpath and cycleway is proposed to run through the entire section, with purpose built crossing facilities which would be integrated with the existing public rights of way network. Provision of this feature as a key component of the proposed scheme would provide further opportunity to improve physical fitness by expanding the existing non-motorised user facilities.	No quantitative informtion available	Beneficial	n/a	
	Journey quality	Provision of dedicated cycle lanes and crossings, with clear signage and traveller facilities would be offered. There would be improvements to existing perceptions of the scheme corridor, with the proposal offering improvements to existing views east of Manchester International Airport through introduction of landscaping proposals in the western section of the scheme. The proposal offers some new viewing opportunities where none currently exists between the A555 and the A6, although the majority of the alignment is enclosed within cutting. There would be limited change in views around the A34 junction and in the vicinity of the airport; however traveller stress would generally		Large Beneficial	n/a	
	Accidents	The scheme will reduce the number of accidents overall, but this will be offset by an increase in severity of accidents at higher speeds, producing a net monetary benefit,		Slight Beneficial	£16,000	Moderate Beneficial
	Security	Minimal impact	n/a	Neutral	n/a	Slight Beneficial
	Access to services	Substantial improvement giving access to Manchester Airport, the Enterprise Zone and connections to other parts of the UK via train and bus from the airport.	n/a	Moderate Beneficial	n/a	Slight Beneficial
	Affordability					n/a
	Severance	Improved conditions for pedestrians following transfer of traffic from local routes to new route, particularly where large a proportion of vehicles removed are HGVs	n/a	Moderate Beneficial	n/a	Slight Beneficial
	Option values	Improved accessibility to Manchester Airport for business/leisure travellers in the future. In the longer term, there is the potential for bus operators to recommence the services that were deemed operationally unviable due to the lack of competitive journe	Not assessed	Slight Beneficial	Not assessed	
Public Accounts	Cost to Broad Transport Budget			n/a	£173,882	
	Indirect Tax Revenues			n/a	-£6,956	

Value for Money Statement

Cost Benefit Analysis Outputs

Outputs for the Preferred Option

4.40 Key outputs from the economic appraisal of the Preferred Option are displayed in ***Table* 4.4**.

4.41 These values include both the direct benefits of the transport scheme itself and the transport related development benefits that result from the scheme. Benefits of reductions in accident numbers are also included.

4.42 Economic benefits excluded from this table include increases in land values, non-transport related external benefits, improvements to reliability and wider economic benefits.

4.43 Values shown are for the full 60 year appraisal period and are presented in 2002 prices discounted to 2002.

Table 4.4 – Key Economic Outputs for the Preferred Option (£000, 2002 prices and values)

Economic Summary Statistic	Benefit
Present Value of Benefits (PVB)	£879,699
Present Value of Costs (PVC)[13]	£173,882
Net Present Value (NPV)	£705,817
Benefit to Cost Ratio (BCR)	5.06

4.44 The BCR of 5.06 is substantially in excess of the BCR value of 2.0 which represents high value for money (VFM) according to the DfT's categorisation, although it must be considered alongside other, non-monetised appraisal criteria contained in the AST.

4.45 The reported BCR excludes other potential benefits that are not incorporated within the modelling for this scheme. There are potential additional economic benefits to public transport and through increased cycling; both being made possible through the construction of this scheme. These potential benefits are discussed in more detail later in this chapter.

Scheme Appraisal

Overview

4.46 This section compares the proposed scheme to the Do-Minimum against the DfT's Appraisal framework, as summarised in the AST (***Table 4.3*** above), which is structured around the core Government objectives for economic, environment and society.

4.47 The three objectives are represented by a further 24 sub-objectives, requiring qualitative and quantitative analysis. Historically, the appraisal also requires further Supporting Analysis as follows:

- Distribution and Equity;
- Affordability and Financial Sustainability; and
- Practicality and Public Acceptability.

4.48 In terms of Distribution and Equity, however, this has been replaced by a more comprehensive analysis based on the Government's Social and Distributional Impacts (SDI) guidance. Further details on this are provided later in this chapter.

[13] Costs include Risk and Optimism Bias at 44%.

4.49 For quantitative impacts, standard monetary values are provided but where impacts cannot be monetised an indication of the size of the impact and whether it is beneficial or adverse is provided.

4.50 As specified by WebTAG, worksheets for each sub-objective have been completed where required - these are presented in ***Appendix C*** and brought together in the SDI analysis, which is reported separately in ***Appendix M***.

Assessment of environment impacts

4.51 The environmental criteria have been assessed in accordance with current WebTAG guidance. A summary of key conclusions for each environmental sub objective is given below. All worksheets for the proposed scheme are presented in ***Appendix C***, with key text in the Appraisal Summary Table (AST), above. This includes consultation with the three statutory consultees Natural England, English Heritage and the Environment Agency (for responses see ***Appendix D***).

4.52 The appraisal has been based on the Design Freeze 5 (DF5) model. This includes the appraisal of noise and air quality which has been based on traffic data forecasts for Base year, Do-Minimum (DM) and Do-Something (DS) scenarios. The appraisal exercise has been based on the current layouts using the established mitigation approaches and principles for the proposed scheme.

Noise

4.53 An appraisal of the noise impacts has been undertaken in accordance with TAG Unit 3.3.2 focused on the proposed scheme and along the A6 and M60 corridors. The study area covered approximately 51.5 square kilometres and included 19,488 properties. Calculations have been carried out in accordance with the Calculation of Road Traffic Noise (CRTN) using NoiseMap Road Noise SE software. The calculations for the Do-Minimum and Do-Something scenarios have been carried out based on a forecast year of 2032, 15 years after the scheme opening.

4.54 Based on annoyance response curves, a measure of the population estimated to be annoyed by traffic related noise has been made. The results of this analysis are set out in ***Table* 4.5** below:

Table 4.5 – Forecast Noise Impacts

Noise Level	Estimated Population exposed - do-minimum	Estimated population exposed - do-something	Annoyance Response Function - % highly bothered by noise	Estimated Population Annoyed
Road Traffic Noise $L_{eq,18\ hour}$ (dB)				
<45	9287	4906	0.00%	0
45-48	11217	7663	3.91%	300
48-51	9907	11278	5.51%	622
51-54	5334	9147	7.72%	706
54-57	3042	4239	10.70%	454
57-60	2584	3040	14.65%	445
60-63	1850	2287	19.74%	451
63-66	1258	1584	26.05%	413
66-69	743	932	33.53%	313
69-72	366	458	41.94%	192
72-75	255	260	50.85%	132
75-78	87	135	59.70%	80
78-81	61	64	67.96%	43
81+	0	0	72.98%	0
Estimated Population Annoyed by road traffic			**4151**	

4.55 Very noisy areas will become quieter as traffic is reduced on the adjacent roads. In the opening year (2017) 14,274 of the 19,488 properties in the study area are expected to experience an increase in noise levels (2,099 above 5db), 5,115 a decrease and 1,099 would experience no change.

4.56 In the year 2032, there will be 731 more people in the study area who are annoyed by noise in the do-something scenario (i.e. with the scheme compared to without the scheme). In 2032, 219 more people will be exposed to noise levels of 63 dB(A) and above.

4.57 In terms of noise impact, the overall appraisal is **Moderate Adverse**.

Local Air Quality

4.58 The Local Air Quality sub-objective appraises changes in respect of potential air quality impacts generated as part of the proposals, examining likely changes in nitrogen dioxide (**NO_2**) and fine particulate levels (**PM_{10}**). **The appraisal** has been carried out in accordance with 'TAG Unit 3.3.3: The Local Air Quality Sub-objective'.

4.59 Calculations have been carried in accordance with the methodology presented in the DMRB 11.3.1 to identify the change in exposure at properties in the opening year (2017) as a result of the proposed scheme. A detailed dispersion model, ADMS Road 2.3, was used to calculate predicted concentrations. The number of properties on each link has been calculated using Address Layer 2 Data provided by the local authorities.

4.60 For each link, the difference between the DM and the DS scenario was calculated. The findings of this exercise are summarised below.

4.61 **PM10 Appraisal scores -** The proposed scheme is anticipated to lead to an improvement in air quality (exposure to NO_2 and PM_{10} concentrations) overall. The number of properties with an improvement in PM_{10} levels is 16,787. The number of properties with no change in PM_{10} levels is 148,430. The number of properties with deterioration in PM_{10} levels is 10,147.

4.62 **NOx Appraisal scores -** The number of properties with an improvement in NO_2 levels is 38,323. The number of properties with no change in NO_2 levels is 109,520. The number of properties with deterioration in NO2 levels is 27,521.

4.63 In relation to regional emissions the proposed scheme is predicted to lead to an increase in carbon emissions over 60 year of approximately 10,308 tonnes.

4.64 In terms of local air quality, the overall appraisal is **Beneficial**.

Greenhouse Gases

4.65 The Greenhouse Gases (GHGs) sub-objective appraisal has been undertaken in accordance with the methodology described in TAG Unit 3.3.5, which was updated in April 2011.

4.66 GHGs are taken to be carbon dioxide equivalent emissions as carbon dioxide is considered the most important greenhouse gas and is therefore used as a key indicator of the influence on transport projects. Emissions have been calculated for DM and DS scheme opening year, design year (2030) and over a 60 year period following opening. A monetary value for changes in GHG emissions resulting from the scheme is then calculated based on the estimated abatement costs per tonne of carbon dioxide equivalent.

4.67 The appraisal considers GHGs produced by changes in traffic flows, speed and traffic composition associated with the scheme. GHGs produced during construction or embedded within materials are excluded from the appraisal in line with the published WebTAG guidance.

4.68 In accordance with the latest guidance, carbon emissions have been calculated across a full year (8,760 hours) rather than just that proportion of the year covered by the appraisal of TEE benefits. On this basis, the appraisal has determined that there is a net increase in carbon emissions resulting in cost to the scheme of £1.08 m over a 60 year period.

4.69 In terms of Greenhouse Gases, the overall appraisal is **Neutral**.

4.70 The assessment of the change in carbon emissions is on the basis only of the data included in the transport models. It does not take account of the potential of other measures and opportunities brought about by the scheme that would have a positive impact on carbon reduction. As such, the reported slight increase in carbon emissions and its impact is considered to represent a worst case scenario. A brief commentary is provided below on the other measures and opportunities available through the implementation of the new relief road that would reduce carbon emissions.

4.71 Before looking at these other measures, it is worth putting the small predicted increase in carbon emissions into context of the wider network emissions. The assessed increase in carbon emissions is 10,308 tonnes over the 60 year scheme assessment period. The small increase in carbon results largely from the slight increase in the overall number of vehicular trips on the highway network and the associated increase in total vehicle kilometres travelled. The increase in carbon emissions represents a negligible increase of 0.02% over the do minimum situation. Thus, in the context of total network travel within the study area, the predicted increase in carbon emissions as a result of the scheme can be seen to be negligible.

4.72 Despite the negligible increase in carbon emissions modelled through the assessment, it is worth considering other positive impacts of the relief road in relation to carbon emissions. These relate specifically to two issues: a) expected mode shift to cycling; and b) potential mode shift to bus. Both of these are examined below.

4.73 The proposed new relief road includes a segregated cycle route providing a new orbital link for the Strategic Cycle / Pedestrian Network. This new orbital link will be fully integrated with the existing local cycle and pedestrian network to maximise access to the new route. This high-quality new facility will be attractive to existing and potential new cycle users. It could lead to a significant increase in new cycling trips along the route corridor and have beneficial impacts in terms of mode shift from car. As this new cycle route is not explicitly included in the transport models, no account has been taken of the potential mode-shift benefits or the contribution that this could provide to reducing the carbon impact of the scheme.

4.74 The commentary on Public Transport Benefits later in this chapter describes the real opportunity provided by the relief road for new bus services to be introduced along the route and the corridor in general. As these services are subject to private sector commercial considerations they cannot be included within the do-something transport models and therefore their potential contribution to further mode shift from car is not captured in the assessment. Any such new bus services will reduce car based trips along the scheme corridor and will directly contribute to reducing vehicle based carbon emissions and further reduce the scheme's impact on generating Greenhouse Gases.

4.75 Taking the contribution of both the improved opportunities for cycling and the potential for improved bus services, we have estimated the impact upon carbon emissions. Using conservative figures of 0.1% mode shift to cycle along the new road and the equivalent of about a 1% of relief road traffic changing mode from car to bus across the study area, more than mitigates the small modelled increase in carbon emission resulting from the implementation of the relief road proposal.

4.76 Finally, there is a need to consider the carbon impacts of the relief road in the wider context of the overall SEMMMS strategy. The proposed A6 to Manchester Airport Relief Road is one of the final elements of the original SEMMMS strategy that included a wide range of other measures such as public transport improvements and enhancement to pedestrian and cycle facilities. Over the last ten years since the completion of the SEMMMS study, approximately £63 million has been spent on SEMMMS projects including Quality Bus Corridors, accessibility Improvements to Bus Stops and transport interchanges, the provision of yellow buses as well as road space reallocation involving the creation of on street cycle facilities and improvements to the pedestrian network.

4.77 One of the SEMMMS projects was the QBC project involving an investment of £23 million in improving bus and cycle facilities along eleven main corridors plus a network of routes serving Manchester Airport. In total, fifty separate projects have been delivered that have resulted in

increased bus mode share, and increased use of cycling as a means of travel. An example of the impact of the QBC measures can be taken from the Stockport Town Centre Monitoring Report[14]. This report shows that against a b ackdrop of a 15 % reduction in total trips entering the town centre (between 1997 and 2009) there was an 11% increase in the number of trips by bus but a near 40% increase in the number of cyclists. This clearly demonstrates the beneficial impact of the other SEMMMS schemes in achieving modal shift and in reducing carbon emissions from transport.

4.78 Not only has there been a shift from car to bus, the introduction of new hybrid Yellow School buses means that the travel by bus in these cases is much more environmentally friendly as a result of the previous SEMMMS investment. The Yellow Buses are well used and have resulted in a significant shift from car trips to these 'environmentally friendly' buses across the study area. This demonstrates that the previously implemented SEMMMS projects have resulted in a significant shift from car to more sustainable modes and thus delivered significant reductions in greenhouse gas emissions.

4.79 Overall, the original SEMMMS package was at the time assessed as being 'carbon neutral'. The evidence above demonstrates that with the completion of the new relief road the SEMMMS package actually results in an o verall reduction in travel related carbon emissions within the SEMMMS area. In terms of the formal appraisal, our assessment is that the scheme has a **Neutral** impact on Greenhouse Gases**.**

Landscape

4.80 Landscape has been assessed using WebTAG 3.3.1 and WebTAG 3.3.7. The study corridor for the proposed scheme encompasses a mosaic of urban fringe, rural and ur ban generally of typically local value and with specific focal points of local importance, for example Norbury Brook. The proposed scheme corridor landscape is generally poor to good quality with some areas moderate to good quality at the local level.

4.81 Areas of particular adverse impacts on the existing landscape character are generally associated with the wooded brook valleys and rural fringe areas associated with the Norbury Brook and south eastern and southern areas of Stockport.

4.82 Norbury Brook, particularly the section between Norbury Hollow and Macclesfield Road, would be substantially and permanently affected by the proposed scheme.

4.83 The potential impacts of the scheme will be substantially reduced through a comprehensive approach to mitigation. For sections of the proposed scheme opportunities exist for the rehabilitation of currently 'degraded landscapes' such as the western end a djacent to the Styal Road Junction/Ringway Road Area by the provision of a strong unified landscape framework along the corridor, networked to existing landscape features and attributes.

Visual Impact

4.84 Throughout the study area the visual effects were assessed as moderate adverse to large adverse. Effective mitigation would serve to reduce impacts in the long term. Overall, within the study area, there are elements of residual large adverse impacts, principally in localised areas around junctions, associated with watercourses and valleys and at elevated road / railway crossings.

4.85 The overall appraisal score for the proposed scheme in relation to landscape and visual impact is **slight adverse**.

Townscape

4.86 A townscape appraisal is not considered appropriate as the minor modifications to the fabric of the existing townscape to deliver any traffic improvement measures in nearby towns /villages would not result in a significant change to the way in which local townscape is perceived.

[14] Appendix to Stockport Town Centre and Integrated Transport Monitoring Report 2009, GMTU Report 1596, September 2010.

Heritage of Historic Resources

4.87 The impact on Historic Resources has been assessed using WebTAG 3.3.1 and WebTAG 3.3.9. The A6 to Manchester Airport Relief Road could affect a number of known archaeological sites and areas identified as of archaeological potential. The most significant of these is Norbury Mill. No known remains of national importance are identified in the study corridor meriting preservation in situ.

4.88 No Scheduled Ancient Monuments would be affected by the A6 to Manchester Airport Relief Road, and no impacts have been identified for the Styal Conservation Area or the Syddal Park Conservation Area.

4.89 There would be an impact on a Grade II Listed Building (generator house at Barlowfold) The impacts on this Listed Building would be negative. The proposals would impact on a number of buildings included on the local list maintained by Stockport Council. The proposed scheme would also impact on a number of Important Hedgerows identified under archaeological and historical criteria (ref. Hedgerow Regulations 1997).

4.90 Impacts can be mitigated by a combination of methods, including further survey work and excavation of remains, photography, measured plans, sample analysis, recording site in plan and section and by detailed design of the scheme to avoid or reduce impact on the historic resource.

4.91 An archaeological evaluation (trial trenching) was undertaken, which uncovered remains of local and regional importance.

4.92 The overall impact appraisal score for the Heritage of Historic Resources appraisal, of **moderate adverse**. This level of impact is specifically a consequence of the impact on Norbury Mill, a site of regional importance, with the overall level of impact otherwise being **slight adverse**.

Biodiversity

4.93 The Biodiversity appraisal has been undertaken in accordance with the methodology described in WebTAG Units 3.3.10 and 3.3.6 provides the basis for the biodiversity appraisal. In addition to ecology, the biodiversity appraisal takes into account earth heritage (geological) interests.

4.94 The biodiversity appraisal has shown the scheme would affect a number of important features and habitats including bat roosts, ancient woodland, and great crested newt ponds.

4.95 The proposed scheme does not directly or indirectly impact upon any international or nationally designated sites of biodiversity importance (e.g. Special Protection Areas or Sites of Special Scientific Interest).

4.96 Overall the scheme would have a slight to moderate adverse effect on biodiversity. The loss of a small area of ancient woodland would have a large adverse effect. It should be noted however that only a very small area recorded as ancient woodland at Norbury Brook would be subject to a direct impact.

4.97 The overall assessment score of **moderate adverse** is specifically a consequence of the impact on the running water at Norbury Brook and the species rich hedgerows, with the overall level of impact otherwise being **slight adverse.**

Water Environment

4.98 The Water Environment appraisal has been undertaken in accordance with the methodology described in WebTAG Units 3.3.11 and 3.3.6.

4.99 The proposed scheme will involve the construction of a single river bridge, seven road drainage outfalls and realignment of short sections of two watercourses, potentially impacting on the water quality and geomorphology of watercourses ranging from small field drains to small rivers. The majority of the watercourses are designated cyprinid rivers and have WFD classifications ranging from 'Good' to Bad'. The scheme crosses and passes close to two areas of floodplain, associated with the Lady/Norbury/Poynton Brooks and the Spath Brook. The scheme also crosses one primary aquifer and two secondary aquifers. Ten road cuttings are proposed, which may impact on the groundwater levels in the underlying aquifers. The proposed design measures and

construction mitigation will minimise impacts such that they are no more than slight at specific locations and are neutral overall. The discrete slight impacts are generally well dispersed throughout the proposed scheme corridor and the catchments are sufficiently large to absorb such impacts without risk to the overall WFD status of the watercourses and aquifers. Similarly the safeguarding of flood capacity and flow regimes associated with flood events along the individual reaches of watercourses would preclude the potential for cumulative impacts and effects.

4.100 The inclusion of robust mitigation based on the design principals of the 2007 scheme indicates that overall the appraisal of impacts to the water environment are **neutral.**

Physical Fitness

4.101 The impact on Physical Fitness has been assessed using WebTAG 3.3.1 and WebTAG 3.3.12 In general the scheme has considerable potential for environmental improvement in terms of integrated public access within newly created landscape areas. Specifically, a combined, dedicated footpath and cycleway is proposed to run through the entire section, with purpose built crossing facilities which would be integrated with the existing public rights of way network. Provision of this feature as a key component of the proposed scheme would provide further opportunity to improve physical fitness by expanding the existing non-motorised user facilities.

4.102 The overall appraisal score for scheme is **beneficial.**

Journey Ambience

4.103 Provision of dedicated cycle lanes and crossings, with clear signage and traveller facilities would be offered. There would be improvements to existing perceptions of the scheme corridor, with the proposal offering improvements to existing views east of Manchester International Airport through the introduction of landscaping proposals in the western section of the scheme. The proposal offers some new viewing opportunities where none currently exists between the A555 and the A6, although the majority of the alignment is enclosed within cutting. There would be limited change in views around the A34 junction and in the vicinity of the airport; however traveller stress would generally be improved due to designing in accordance with latest standards.

4.104 The overall appraisal score for the scheme is **large beneficial.**

Assessment of safety impacts

4.105 The Safety objective is split into two sub-objectives, Accidents and Security, both of which have been assessed.

Accidents

4.106 The results of the accident analysis for the preferred scheme are presented in **Table *4.6***. For comparison, the number of accidents and casualties and the overall accident cost is summarised for two model years and for the whole 60-year appraisal period.

4.107 The A6 to Manchester Airport Relief Road will reduce by 1,032 the number of accidents across the 60-year appraisal period. Whilst the scheme results in fewer accidents, the higher vehicle speeds, mainly as a result of the new relief road is predicted to result in a higher level of accident severity. This results in the following casualty split:

- 13 additional fatalities;
- 56 additional ‘serious’ casualties; and
- 1,387 fewer ‘slight’ casualties;

4.108 In monetised terms, this produces a benefit of £16 million over the 60-year appraisal period. These modelled accident savings are in addition to the significant reduction in road accidents achieved through the implementation of previous SEMMMS strategy projects across the study area.

Table 4.6 – Accident cost and benefit for A6 to Manchester Airport Relief Road

Do – Minimum			
	2017	2032	Total 60 year Appraisal Period
Number of Personal Injury Accidents	2,560	2,873	169,888
Casualties Fatal	26	30	1,768
Serious	292	330	19,518
Slight	3,320	3,726	220,325
Accident Costs (£000s)	149	129	6,666
Do–Something			
	2017	2032	Total 60 year Appraisal Period
Number of Personal Injury Accidents	2,540	2,856	168,856
Casualties Fatal	27	30	1,781
Serious	292	331	19,574
Slight	3,293	3,704	218,938
Accident Costs (£000s)	149	129	6,650
Benefits (Do-Something – Do-Minimum)			
	2017	2032	Total 60 year Appraisal Period
Number of Personal Injury Accidents	20	17	1032
Casualties Fatal	-1	0	-13
Serious	0	-1	-56
Slight	27	22	1,387
Accident Benefit (£m, 2002 prices & values)	0	0	16

Security

4.109 The combination of safe controlled crossing points (including bridges), safety barriers, and pedestrian deterrent paving and planting will combine to provide a more controlled constrained series of points, both visually and physical, where potential for pedestrian vehicle conflicts and opportunities for incidents may be anticipated.

4.110 This will be supported by a fully integrated hard and soft landscape design strategy which will clearly demarcate and separate pedestrians, cyclists and road users, developed in accordance with current 'best practice' guidance on urban landscape design, and fully compliant with current highway design standards. The integrated approach to highway and environmental mitigation design will also address issues such as:

- Minimisation of concealed areas and open visibility at laybys; and
- Over bridges will be designed for pedestrian, cyclist and equestrian use, in accordance with relevant standards and best practice.

4.111 In addition, landscaping will be chosen so that clear sight lines exist to all areas and there are no concealed areas and laybys will be clearly visible from a distance.

4.112 In comparison with existing routes through Stockport, Hazel Grove, Wythenshawe and Poynton, the level of delay at signals and junctions is expected to be reduced, thus minimising opportunities for smash and grab incidents at junctions.

Assessment of economic impacts

Transport Economic Efficiency

4.113 Economic impacts from the proposed scheme are measured in terms of monetised benefits and costs, based on changes in travel times, vehicle operating costs, user charges and fares. The benefits to users and transport providers are presented in the Transport Economic Efficiency (TEE) table. The TEE table for the A6 to Manchester Airport Relief Road Scheme is shown in **Table 4.7** (all presented in units of £000s at 2002 prices and values).

4.114 The scheme generates substantial travel time savings for transport users, amounting to £825 million in monetised benefits and contributing to a total present value of TEE benefits of £858 million. The time savings are experienced by all road users and are split almost equally between business and non-business users. The analysis indicates a loss to public transport operators of £15 million. Further commentary on the benefits of the schemem to public transport is discussed later in this chapter.

Table 4.7 – Economic Efficiency of the Transport System (TEE) for the Preferred Scheme

Table 1: Transport Economic Efficiency Benefits

Consumers - Commuting	**ALL MODES**		**ROAD**	**BUS & COACH**	**RAIL**	**OTHER**
User Benefits	**TOTAL**		**Private Cars & LGVs**	**Passengers**	**Passengers**	
Travel Time	166504		169183	-2679		
Vehicle Operating Costs	4310		4310			
User Charges	259		0	259		
During Construction & Maintenance	0		0			
NET CONSUMER BENEFITS (COMMUTING)	171073	(1a)	173493	-2420	0	0

Consumers - Other Users	**ALL MODES**		**ROAD**	**BUS & COACH**	**RAIL**	**OTHER**
User Benefits	**TOTAL**		**Private Cars & LGVs**	**Passengers**	**Passengers**	
Travel Time	278498		283614	-5116		
Vehicle Operating Costs	-4616		-4616			
User Charges	363		0	363		
During Construction & Maintenance	0		0			
NET CONSUMER BENEFITS (OTHERS)	274245	(1b)	278998	-4753	0	0

Business								
User Benefits			**Personal**	**Freight**	**Passengers**	**Passengers**	**Freight**	
Travel Time	379864		199392	180354	118			
Vehicle Operating Costs	47845		8212	39633				
User Charges	21		0	0	21			
During Construction & Maintenance	0		0	0				
Subtotal	427730	(2)	207604	219987	139	0	0	0

Private Sector Provider Impacts				**Passengers**	**Passengers**	
Revenue	-15228			-15228		
Operating Costs	0					
Investment Costs	0					
Grant/Subsidy	0					
Subtotal	-15228	(3)	0	-15228	0	0

Other Business Impacts						
Developer Contributions	0	(4)				
NET BUSINESS IMPACT	412502	(5) = (2) + (3) + (4)				

TOTAL		
Present Value of Transport Economic Efficiency Benefits	857820	(6) = (1a) + (1b) + (5)

Notes: **Benefits** appear as **positive** numbers, while **costs** appear as **negative** numbers

4.115 ***Table* 4.8** presents the Public Accounts for the A6 to Manchester Airport Relief Road.

4.116 The total capital cost used in the economic appraisal amounts to £283.5 million. This value has been input to TUBA to reflect the allocation of expenditure between Local and C entral Government. In addition, we have included an allowance for an increase in future maintenance costs associated with the new road as well as a cost profile for Street Lighting costs and renewals., The total costs once converted to 2002 prices and v alues using the default rates included in TUBA, produce a PVC of investment of £173.9 million.

Table 4.8 – Public Accounts for the Preferred Scheme

Table 2: Public Accounts

	ALL MODES TOTAL		ROAD INFRASTRUCT	BUS and COACH	RAIL	OTHER
Local Government Funding						
Revenue	0		0			
Operating Costs	780		780			
Investment Costs	39254		39254			
Developer and Other Contributions	0		0			
Grant/Subsidy Payments	0		0			
NET IMPACT	40034	*(7)*	40034			
Central Government Funding: Transport						
Revenue	0					
Operating costs	0					
Investment Costs	133848		133848			
Developer and Other Contributions	0					
Grant/Subsidy Payments	0					
NET IMPACT	133848	*(8)*				
Central Government Funding: Non-Transport						
Indirect Tax Revenues	-6956	*(9)*	-4404	-2552		
TOTALS						
Broad Transport Budget	173882	*(10) = (7) + (8)*				
Wider Public Finances	-6956	*(11) = (9)*				

Notes: Costs appear as positive numbers, w hile revenues and 'Developer and Other Contributions' appear as negative numbers.
All entries are discounted present values in 2002 prices and values.

4.117 The scheme investment costs, when converted to 2002 prices and values, amount to £175 million, although there is an increase in indirect tax revenues of £7.0 million that will improve the wider public finances.

4.118 *Table 4.9* summarises all the project costs and benefits which can be presented in monetised form. The scheme delivers a B enefit to Cost Ratio (BCR) of 5.06. In addition, we have also calculated the scheme BCR using the derived scheme specific Optimism Bias of 27%. The impact of this is to reduce the scheme PVC and this gives a BCR of 5.70

Table 4.9 – Analysis of Monetised Costs and Benefits (£000s) for the Preferred Option

Table 3: Analysis of Monetised Costs and Benefits

Noise		*(12)*
Local Air Quality		*(13)*
Greenhouse Gases	-1077	*(14)*
Journey Ambience		*(15)*
Accidents	16000	*(16)*
Economic Efficiency: Consumer Users (Commuting)	171073	*(1a)*
Economic Efficiency: Consumer Users (Other)	274245	*(1b)*
Economic Efficiency: Business Users and Providers	412502	*(5)*
Wider Public Finances (Indirect Taxation Revenues)	-6956	*- (11) - sign changed from PA table, as PA table represents costs, not benefits*
Option Values		*(17)*
Present Value of Benefits (see notes) (PVB)	879699	*(PVB) = (12) + (13) + (14) + (15) + (16) + (1a) + (1b) + (5) + (17) - (11)*
Broad Transport Budget	173882	*(10)*
Present Value of Costs (see notes) (PVC)	173882	*(PVC) = (10)*
OVERALL IMPACTS		
Net Present Value (NPV)	705817	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	5.06	BCR=PVB/PVC

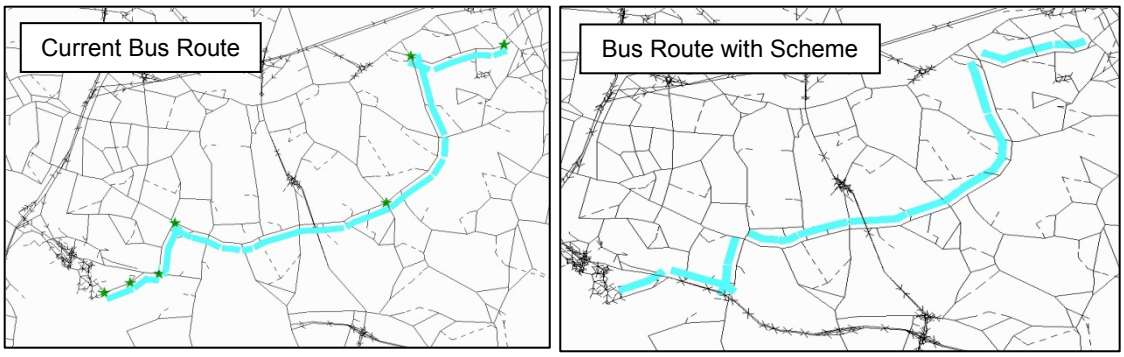
Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Public Transport Benefits

4.119 An analysis of benefits to PT (Bus) users / operators was undertaken using TUBA with the input taken from the Variable Demand Model. This analysis assumes that the current bus services remain and that no new services are developed to use the new Relief Road or additional bus frequency to take advantage of improved travel conditions for buses. The results incorporated in the TEE Table above, indicate a small PT disbenefit largely as a result of loss of fare box revenue due to mode shift from bus to car. The TUBA results are subject to model noise from the Highway SATURN Model and should therefore be interpreted as indicating that the PT user time impacts will be small and within the margins of error of the highway modelling.

4.120 Whilst the TUBA analysis indicates a disbenefit to buses through mode shift to car, the reality however is, that the completion of the relief road will relieve existing east-west routes from congestion which in turn will provide journey time benefits for buses using those routes. The VDM model predicts that this improvement in journey time will lead to a mode shift from bus to car. In reality, this is considered to be unlikely since those currently using the bus will achieve a journey time saving with the scheme in place and whilst this is also true for the car user, bus journey times are slower than car journey times in both scenarios and so there is little likelihood of travellers changing mode of travel in favour of the car when bus journey times are improving. In addition, the new road will provide an opportunity for new bus routes to be developed to complement those that currently operate in the corridor. In both cases, the improvements in bus journey times will deliver PT benefits that would be in addition to those benefits captured in the TEE Table.

4.121 As an example of benefits to bus users, we have looked at the current bus services X69 and 369. Both these services run between Stockport town centre and Manchester Airport and would directly benefit from construction of the Relief Road. The two diagrams below show the current bus route for these services along with a proposed route following the opening of the Relief Road. Because of the changed local road configuration with the scheme, the Do Something bus route is approximately 230m longer than the current route.



4.122 The DM and DS journey times have been extracted from the traffic models and are shown below in Table 4.10. The data shows that the journey time saving for this bus route is between 6% and 23% with the new Relief Road in place, representing a reduction in journey time of between one minute in the inter-peak period and up to seven minutes in the AM peak period. This analysis demonstrates that the Relief Road will, in reality, deliver significant benefits to public transport users in the scheme corridor.

Table 4.10 – Bus Journey Time Savings

	AM				IP				PM			
	2017		2032		2017		2032		2017		2032	
	DM	DS	DM	DS	DM	DS	DM	DS	DM	DS	DM	DS
Westbound												
Time (secs)	1940	1492	2110	1666	1400	1238	1482	1296	1796	1492	1925	1586
Time (mins)	32.3	24.9	35.2	27.8	23.3	20.6	24.7	21.6	29.9	24.9	32.1	26.4
Time Saving		23.1%		21.0%		11.6%		12.6%		16.9%		17.6%
Eastbound												
Time (secs)	1824	1572	2154	1695	1314	1233	1386	1284	1682	1467	1921	1588
Time (mins)	30.4	26.2	35.9	28.3	21.9	20.6	23.1	21.4	28.0	24.5	32.0	26.5
Time Saving		13.8%		21.3%		6.2%		7.4%		12.8%		17.3%

4.123 As mentioned above, the relief road will open up the prospect of new bus services along the corridor utilising the new road. As no specific new services are currently planned, no account has been taken of these potential services within the transport models or in scheme appraisal. There is however a real possibility that bus operators would seek to capitalise upon this new route corridor and operate commercial services between the town centres and the Airport. Typical bus services could include the following:

- Stockport town centre to Manchester Airport (via Hazel Grove and Bramhall). Currently a park and ride site at Hazel Grove is being promoted by one of the bus operators.
- Stockport town centre to Wilmslow and Handforth
- Macclesfield to Manchester Airport (via Poynton)

4.124 Any such new bus services would add to the economic benefit to public transport, reduce travel by private car and contribute to reducing the carbon impact of the new relief road. This will off-set the reported public transport disbenefit and also directly address one of the scheme's second tier objectives, which is to:

Support lower carbon travel:

- Improve public transport accessibility (reduced journey times for buses) and increase bus usage between Stockport town centre and Manchester Airport

4.125 Finally, there is a need to consider the public transport impacts of the relief road in the wider context of the overall SEMMMS strategy. As recorded above, the proposed A6 to Manchester Airport Relief Road is one of the final elements of the original SEMMMS strategy that included a wide range of other measures such as public transport improvements and enhancement to pedestrian and cycle facilities. It has been shown that these projects delivered a significant shift from car to bus and thus it can be demonstrated that the overall SEMMMS strategy, with the completion of the relief road will deliver significant public transport benefits.

Benefits to Cyclists

4.126 It has been demonstrated above that previously implemented SEMMMS projects have led to a very significant increase in cycling and benefits to cyclists. The completion of the proposed relief road will significantly add to the cycle infrastructure within the study area and deliver substantial benefits to cyclists and potential cyclists that cannot be measured through the traditional transport modelling approach used for scheme assessment. Below, we describe the proposed cycle infrastructure and the potential benefits that this will deliver to cyclists.

4.127 The proposed new relief road includes a segregated cycle route providing a new orbital link for the Strategic Cycle / Pedestrian Network. This new orbital link will be fully integrated with the existing local cycle and pedestrian network to maximise access to the new route. This high-quality new facility will be attractive to existing and potential new cycle users. It could lead to a significant increase in new cycling trips along the route corridor and have beneficial impacts in terms of mode shift from car as well as associated health benefits. This new cycle route is not explicitly included in the transport models and therefore no direct account has been taken of the potential mode-shift benefits or the contribution that this could provide to reducing the carbon impact of the scheme. The segregated cycle route will provide a safe and convenient environment for cyclists and will improve road safety for cyclists leading to direct safety benefits through reduced vehicle / cycle collisions.

4.128 A new cycle lane is provided along the entire length of the scheme at a cost of approximately £1.42 million (Q2, 2010) converting to a PVC of approximately £1.26 million. Research undertaken by Sustrans[15] shows that cycle schemes typically generate a benefit to cost ratio of 20:1. Using this average value, the PVB of the cycle route would be around £25 million. Adding this to the reported scheme benefits would result in an enhanced BCR of 5.20. A significant proportion of the benefits attributable to cycle schemes are realised in terms of savings to the health services. However, the benefits reported by Sustrans exclude environmental benefits resulting from reduced pollution and CO_2 emissions.

4.129 Further, more recent research by the London School of Economics[16] shows that there are real productivity benefits from improved health due to cycling which are realised in reduced absenteeism from work; these benefits would be additional to those reported by Sustrans. The additional safety benefits brought about by the segregated pedestrian / cycle route will deliver economic benefits from reduced road traffic accidents involving cyclists and these benefits are also in addition to those reported above.

4.130 The above demonstrates that the proposed relief road, incorporating a segregated cycle lane along its entire length will deliver significant benefits to cyclists, encourage more people to cycle rather than use the car for their journeys and will provide economic, safety, environmental and health benefits in addition to those reported through the formal scheme assessment process.

---

15 http://www.sustrans.org.uk/assets/files/general/Economic%20appraisal%20of%20local%20walking%20and%20cycling%20routes%20-%20summary.pdf

16 http://corporate.sky.com/documents/pdf/publications/the_british_cycling_economy

Development Benefits

4.131 An assessment of wider economic impacts that will be made possible by the A6 to Manchester Airport Relief Road scheme is presented later in this section. The assessment focuses on the employment and economic output (GVA) benefits that have been calculated using the model / appraisal framework in conjunction with standard DfT guidance on wider economic impacts. Many of these benefits will arise along the south Manchester corridor, based on the development in particular of the major employment sites at Airport City, Handforth Dean and Hazel Grove.

Reliability

4.132 This sub-objective summarises the Scheme's impact on the objective to improve journey time reliability for transport users.

4.133 One of the major factors affecting journey time variability on the highway network is the level of congestion which in turn is a function of the ratio of traffic volume on a road to its maximum throughput. As the traffic flow reaches the maximum throughput of the road, there are likely to be wide variations in individual vehicular speeds. At these unstable flow levels any minor incident or increase in demand is likely to result in the flow `breaking down' with a consequential loss in maximum throughput, thus causing considerable delays until a point is reached at which the high flow levels can be re-established.

4.134 TAG unit 3.5.7 sets out the methodology to be used for assessing reliability benefits arising from a new highway scheme. The two main approaches are either to use the INCA software to assess the economic benefits associated with network reliability improvements as a result of a new road scheme; or using a stress based approach as a proxy for the change in reliability.

4.135 We have not undertaken an INCA analysis and the stress based approach is not appropriate for an urban area. The stress based approach relies on the use of Congestion Reference Flows which are only appropriate for links on rural roads where there is little or no interaction from junctions. For this study, the routes relieved by the proposed scheme are all urban roads where the junctions are the main cause of congestion rather than the link capacity. In such an instance, a link stress based approach is not appropriate and would not provide a realistic view of the reliability impacts of the new road.

4.136 TAG unit 3.5.7 states that experience has shown that schemes which reduce congestion, by reducing the journey time spent queuing, also reduce the variability of journey times. The road scheme provides a new direct route for many journeys that are currently taking place on congested east-west routes and it also included the improvement of a number of existing junctions within the scheme corridor. The effect of the scheme on queuing and delay is demonstrated in Table 4.11 below.

Table 4.11 – Change in Total Network Queues and Delay (Hrs)

	Do Minimum		Do Something		Change (DM - DS)	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
2017						
Queues	10775	10400	10602	10231	173	169
					2%	2%
Over-capacity Queues	2588	1761	2308	1699	279	62
					11%	4%
Delay	2601	2641	2494	2494	107	147
					4%	6%
2032						
Queues	14969	14301	14664	14040	305	262
					2%	2%
Over-capacity Queues	6296	4556	5464	4004	832	552
					13%	12%
Delay	4060	3980	4023	3946	37	34
					1%	1%

4.137 Table 4.1 shows that the scheme will have a significant impact on reducing peak hour queues and delays in the opening year. In particular, the relief road will provide a significant reduction in over-capacity queues and this in turn will improve journey time reliability along the routes that experience this improvement in congestion. On the basis of this analysis it is concluded that the Relief Road will provide a **moderate beneficial** impact in terms of journey time reliability.

It is concluded that **the A6 to Manchester Airport Relief Road will improve the overall journey time reliability throughout the adjacent area**. The overall assessment is deemed to be **moderate beneficial**.

Wider Economic Impacts

4.138 Transport is one of a number of factors that affects business location decisions and the competitiveness of places. The transport network makes possible journeys to different kinds of economic opportunities and determines the ease or difficulty of accessing these opportunities.

4.139 The A6 to Manchester Airport Relief Road scheme will generate substantial wider economic impacts. Alternative approaches to the derivation of the wider economic impacts have been used. At the core of the approaches is the DfT's guidance on wider economic impacts, contained in WebTAG Unit 3.5.14. Additional analysis has then been undertaken using econometric techniques developed by TfGM that allows Greater Manchester (GM) to prioritise investment on the basis of maximum net impact on GM's GVA per £ of whole life cost. This analysis looks to ensure that all the benefits from connectivity are captured, including increased international connectivity provided by improved connections to Manchester Airport.

4.140 The core method investigates how changes in the connectivity to businesses and labour offered by different locations as transport supply changes could potentially affect GVA. GVA is equal to employment multiplied by labour productivity. The approach is therefore based on estimating the impact of connectivity enhancements on:

- The change in the distribution and levels of employment within Greater Manchester and Cheshire East based on changes in access to different markets; and
- The change in productivity levels based on changes in travel costs.

4.141 Employment and GVA impacts have been measured for the specific forecast years of 2017 and 2032, using the TfGM economic model and then extrapolated across the 60-year appraisal period and converted to 2002 prices and values. The aim is to provide consistency with the transport economic efficiency benefits generated through the model and appraisal framework.

Changes in productivity

4.142 Changes in levels of productivity were derived from business time savings, taken from transport modelling outputs. The approach used follows standard DfT appraisal guidance. The following factors were included in the productivity impact assessment:

- Business time savings;
- Agglomeration economies; and
- Increased output from imperfect competition.

4.143 Agglomeration economies and additional output from imperfect competition are both estimated as a proportion of business time savings (approximately 37% and 5-10% of business time savings respectively). These percentages were derived from assumptions informed by DfT guidance and previous TIF economic modelling work.

The productivity benefits from the A6 to Manchester Airport Relief Road scheme have been estimated at up to £168 million (GVA) over the 60-year appraisal period (2002 prices and values). These benefits are net of time savings already implicitly assumed within the transport economic efficiency tables relating to business user benefits.

Relating connectivity to economic growth

4.144 The relationship between employment density and connectivity was assessed using econometric techniques and other evidence for business location decision making. The analysis was undertaken separately for retail and non-retail businesses.

4.145 Following a number of econometric tests undertaken for different market segments, an equation representing the best fit relationship between connectivity and employment was produced. This function was then used to forecast potential employment change by:

- Applying elasticities derived from the equation to the change in connectivity brought about by different transport interventions to estimate unconstrained changes in employment density;
- Estimating unconstrained employment changes for each model zone from employment densities obtained; and
- Constraining these to reflect redistribution rather than creation of economic activity

Considering relative connectivity and business mobility

4.146 Business location decisions will be affected by the relative change in connectivity, leading to a redistribution of existing businesses towards areas benefiting from higher connectivity improvements compared to other areas. Applying standard equations to forecast employment will tend to produce unconstrained employment forecasts that do not allow for this redistribution.

4.147 In order to estimate the change in employment within the Greater Manchester and Cheshire East areas arising from attracting footloose companies to the region, an assessment of business mobility between locations was undertaken. Unfortunately, suitable dynamic studies of business mobility and relocation decisions do not exist. Instead, the geographical distribution of businesses was analysed and assumptions made that businesses could take advantage of changes in the connectivity offered by different locations if they were 'footloose'. Footloose businesses were deemed to be those that were not tied to serving a local market, but that served an inter-regional or international market while businesses serving local markets (grocery shops, hair dressers etc.) will tend to be geographically tied to them.

4.148 At the GM City Region level, the analysis showed that some 28% of jobs could be considered to be mobile at this level of geography. If applied at a higher (pan-regional) level of geography we find that only around 14% of jobs are mobile at the level of the Northern Way (the area comprising the North East, North West and Yorkshire and the Humber). Consequently, as the geographic area considered increases, a smaller share of the employment benefits are net at this level of geography and more are likely to be redistributed within this area.

4.149 The GVA impacts of changes in employment location can lead to further impacts on productivity through changing the geographic pattern of economic activity through two mechanisms:

- First, businesses in different locations will have different productivity levels so businesses that relocate may see a change in productivity; and
- Second, changes in the pattern of activity could either intensify agglomeration impacts by concentrating business activity or dissipate agglomeration benefits as business locations become more dispersed. Radial public transport schemes tend to concentrate business activity and support further productivity benefits while orbital schemes tend to disperse it and so lead to dis-agglomeration.

4.150 The first of these has been taken into account in the employment model which captures the different productivity levels in different model zones. The second impact has not been captured in the analysis.

Economic growth, congestion and feedback effects

4.151 One of the consequences of the change in economic activity is likely to be changes in levels of congestion and crowding across the transport network. This would feed back into different travel conditions and have a second round effect which changes the benefits of the initial connectivity change considered.

4.152 To allow for this, the assessment looks at the impact that marginal changes in employment have on congestion and crowding and hence on generalised journey times. The analysis shows that each 1,000 additional jobs in Greater Manchester created congestion externalities in the city region that effectively crowded out up to 200 jobs. This feedback effect tended to dampen the modelled employment results by around 20% - an effect that is implicitly included in the standard DfT approach to wider economic impacts. Correcting for this feedback effect leads to a DECREASE in scheme's employment AND GVA impacts. The scale of this congestion feedback effect has been increased from 20% to 30% for areas that do not have a well established public transport network capable of absorbing additional economic activity generated by the scheme. Further details of this analysis are contained in Appendix N.

Increased international connectivity through Manchester Airport

4.153 The modelling and results outlined above do not treat the Manchester Airport zone in the model as a 'special case' - they assume that Manchester Airport is simply an employment site that does not have the additional international connectivity properties that an airport clearly has.

4.154 Given that the A6 to Manchester Airport Relief Road scheme substantially improves connectivity to the airport, a separate assessment was undertaken into the potential additional employment and GVA that could result from businesses in Greater Manchester and Cheshire East being better connected to international markets.

4.155 The methodology is based on the identification of four additional 'world zones' – Europe, Middle East, North America and Asia – along with generalised costs of travel to each of these zones and an international travel decay curve based upon ONS 2009 Travel Trends. This was then factored into the employment and GVA model.

This high-level analysis suggests that the additional impact of international connectivity due to the A6 to Manchester Airport Relief Road scheme would be up to a potential **730 jobs at the end of the 60 year appraisal period**, **with a potential GVA benefit of up to £341.8 million over the full 60-year appraisal period** (2002 prices and values).

Summary of the wider economic impacts

Table 4.12 presents a summary of the outputs from the wider impacts analysis. Depending on the approach adopted for the calculation of different elements of the wider impacts, the **total economic output (GVA) generated by the scheme could be up to £2,492 million** over the 60 year appraisal period (2002 prices). It could also create up to **5,450 additional jobs in the Greater Manchester and Cheshire East areas** by the end of the 60 year appraisal period. Approach 1 relates to the standard DfT methodology whilst Approach 2 incorporates the wider labour market impacts and international connectivity.

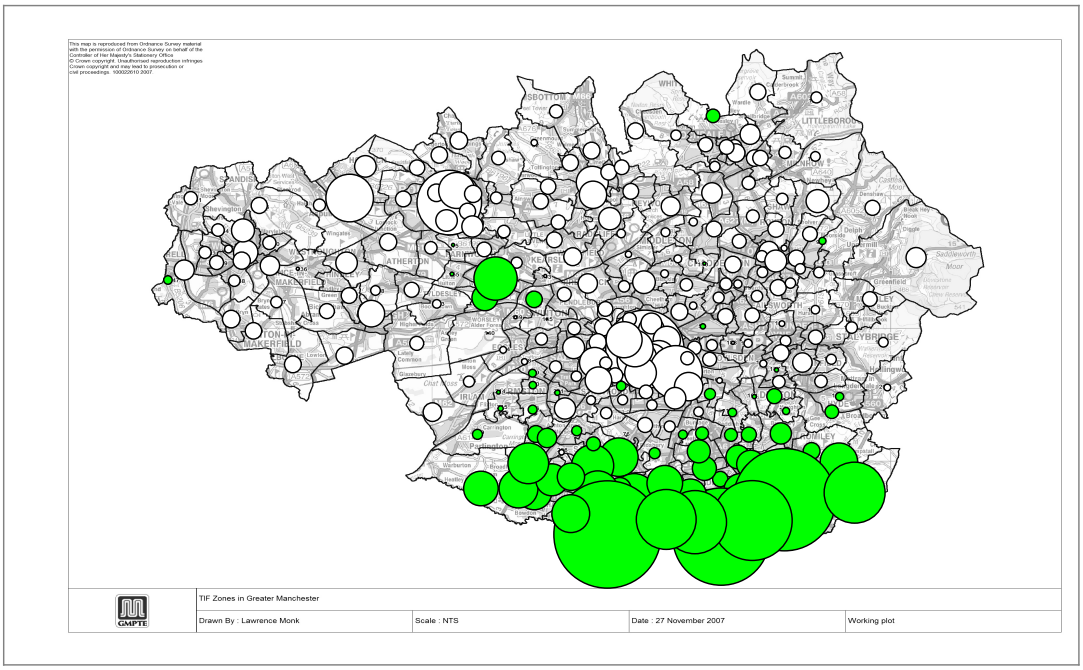
Table 4.12 – Summary of potential wider impacts generated by the scheme (£000, 2002 prices and values)

Wider Impact	Approach 1	Approach 2*
Productivity Benefits		
Agglomeration	130,000	132,211
Imperfect Competition	17,000	35,732
Business User Benefits	340,000	-
Total	487,000	167,944
Labour Market Impacts		
GVA	5,000	1,982,201
Jobs	10	4,720
International Connectivity		
GVA	-	341,771
Jobs	-	730
Total Wider Impact		
GVA	492,000	2,491,916
Jobs	10	5,450

*Note – The employment and GVA impacts have been adjusted for the traditional DfT productivity impacts.

4.156 ***Figure* 4.1** confirms that the wider impacts will be distributed along the length of the south Manchester corridor. Further details of the employment and GVA analysis is contained in **Appendix N**.

Figure 4.1 – Distribution of potential wider economic impacts



Assessment of accessibility impacts

4.157 The Accessibility Objective is covered by three sub-objectives:

- Option values;
- Severance; and
- Access to the transport system.

Option Values

4.158 Option values, described in WebTAG 3.6.1 refer to the benefit that people experience from the knowledge that a further transport option is available, even if they do not intend to use the new mode on a regular basis.

4.159 The Option Values sub-objective considers option values if the strategies or plans, which are being appraised, include measures that will substantially change the availability of transport services within the study area (e.g. the opening or closure of a rail service, or the introduction or withdrawal of weekend buses serving a particular rural area).

4.160 The improved cycling and pedestrian facilities – in particular, the segregated cycleway along the route of the A6 to Manchester Airport Relief Road and improved links to it from existing cycle/pedestrian routes – provides a substantial improvement in infrastructure for non-automated modes. The segregated route will provide a much safer option and make it a real alternative for those people who currently avoid cycling/walking due to concerns about the safety of doing so.

4.161 As with the other accessibility sub-objectives, it is worth noting that the A6 to Manchester Airport Relief Road is an integral part of the accepted SEMMMS Strategy and the building of the road facilitates other elements of the Strategy to be implemented. In particular, there is an excellent opportunity to introduce new public transport services along the corridor due to the improved journey times that bus operators can take advantage of.

4.162 At this stage however, there is no information available about how the commercial bus operators may seek to enhance the services they provide following completion of the New Relief Road. The assessment of the options value sub-objective has been considered to be **slight positive**, in view of the improved provision of pedestrian and cycle network.

Severance

4.163 The methodology detailed in The Severance Sub-Objective (TAG Unit 3.6.2) and Design Manual for Roads and Bridges Volume 11 Section 3 has been used for assessing severance. The severance sub-objective concerns those who use non-motorised modes of transport – especially pedestrians. Cyclists and equestrians are less susceptible to severance as they can travel more quickly than people on foot, although there may still be significant impacts on these groups.

4.164 The scheme design will seek to minimise severance and disruption by maintaining and improving existing rights of way. A process of consultation with local groups will ensure that the interests of walkers, cyclists, and equestrians are taken into consideration in the detailed design. As well as provision of new and enhanced non-vehicular routes, complementary measures will reduce severance on routes outside the new road corridor. A number of footbridges and underpasses will ensure that lengthy diversion routes are minimised.

4.165 Crossings will be provided on footpaths, either at grade or bridge/subway, on line or diverted to suitable crossing points.

4.166 Pedestrians and cyclists on existing local routes will benefit from the transfer of motorised traffic from existing routes to the new route. This will be experienced along the full extent of the scheme, with levels of traffic on local routes being up to 19% less than forecast without the scheme.

4.167 The overall impact on pedestrians and other non-motorised transport users will be **slight beneficial.**

Access to the Transport System

4.168 Journey time, frequency and reliability are improved as a result of the scheme giving better access to an improved transport system, better access to the town centre for jobs and leisure, improved accessibility for mobility impaired due to new modern buses and there will be safer more secure facilities. However these types of access improvements are not considered as part of the scoring for this sub-objective.

4.169 This sub-objective uses the approach set out in The Access to the Transport System Sub-Objective (TAG Unit 3.6.3). Access to the transport system is measured by a relatively simple methodology outlined in TAG Unit 3.6.3, based on changes in access by resident population to public transport services. Since there are no real changes to public transport at this stage, this measure is not applicable.

4.170 As noted under the option value sub-objective, there is an opportunity to reroute existing services and improve service penetration and thus access to the transport system – particularly where services may previously have been deemed commercially unviable due to poor journey times.

4.171 At this stage however, there is no information available about how the commercial bus operators may seek to enhance the services they provide following completion of the New Relief Road. Therefore the assessment of this sub objective has been considered to be **neutral**.

Assessment of integration impacts

4.172 There are three Integration sub-objectives which are assessed in turn below:

- Transport Interchange;
- Land Use Policy; and
- Other Government Policy.

Transport Interchange

4.173 The Transport Interchange assessment has been undertaken in accordance with WebTAG 3.7.1. The major highway scheme does not explicitly include transport interchange and improvements to interchanges are dependent on the future plans of the private sector operators in the area.

4.174 However the implementation of the A6 to Manchester Airport Relief Road supports the promotion of a number of transport interchange projects such as the opportunity for a rail park and ride site at Simpsons Corner on the A6 and a bus based park and ride site in Hazel Grove. In addition the

scheme provides a significant improvement to road access to the Manchester Airport, which is a major transport interchange in its own right – including bus, coach and rail transport terminals - providing efficient links to central Manchester and beyond. The reduction in traffic resulting from the scheme in the vicinity of Stockport town centre will also enhance opportunities for improved transport interchange.

4.175 At this stage, the assessment of this sub objective has been considered to be **slight beneficial**.

Land Use Policy

4.176 In line with WebTAG 3.7.2 an assessment has been undertaken to determine the extent to which the schemes are integrated with land use policies.

4.177 The A6 to Manchester Airport Relief Road is considered neutral towards national policies and guidance. The A6 to Manchester Airport Relief Road corridor has been endorsed in all the current strategic planning documents, in particular the Regional Planning Guidance for the North West (RPG13). The protected corridor (the preferred route) has been safeguarded within the Green Belt and has long been recognised within the statutory planning process at local level. The detailed status of the protected corridor has therefore been taken into account when establishing the boundaries of proposed development land, hence most designations relate well to the corridor.

4.178 The proposal would impact on a number of policies, both beneficially and adversely, at the local level. Considerable beneficial effects have been noted in terms of integration and accessibility. The preferred route is generally regarded beneficial towards policies relating to Economy.

4.179 Regarding policies relating to Environment, the preferred route would be neutral, due to the counter-balance of some individual policies which would be both beneficially and adversely impacted upon.

4.180 The integration of Land Use with Transport is the key objective running through policy making from strategic to local level. The preferred route passes around urban areas containing a complexity of mixed uses and across numerous existing roads, tracks and areas of woodland. The complexity of the preferred route would suggest scope for detailed scheme refinement in order to best meet established policy guidance.

4.181 From the Land Use Policy appraisal, an overall assessment score of **neutral** has been derived from available data for the preferred route.

Supporting analysis

4.182 As identified within WebTAG Unit 2.5, three additional issues are relevant to the choice of strategy or plan but do not fit easily within the AST, reflecting a more focussed view of the implications of the proposed strategy or plan for particular groups of users, non-users, operators and public sector authorities. These are:

- Affordability and Financial Sustainability
- Distribution and Equity;
- Practicality and Public Acceptance; and
- Contribution to 10 year plan.

Affordability and Financial Sustainability

4.183 Table 4.11 presents the Affordability and Financial Sustainability for the scheme. This confirms the £165 million contribution from Central Government, but with this being offset to some extent by the increase in indirect tax revenues following scheme opening. Local contributions of over £65 million are also shown. The profile of expenditure is subject to final confirmation, and can be amended to reflect a preference on the part of the DfT for earlier expenditure i.e. to increase the Central Government contribution in the short term, and push the Local Government contribution closer to scheme opening.

Table 4.13 – Affordability and Financial Sustainability – Sheet 1 of 3

Affordability and Financial Sustainability

Costs	TOTAL (undiscounted)		Breakdown by organisation/budget (£m, outturn)		
			Local Government Contribution	Central Government Contribution	Private Sector Contributions
Profile of investment expenditure					
2012/13	4.4		4.40		
2013/14	12.81		12.81		
2014/15	56.32		20.28	36.04	
2015/16	78.52		26.84	51.68	
2016/17	52.65			52.65	
2017/18	24.63			24.63	
2018/19	1.04		1.04		
Impact on Local Government					
Local Government Contribution	65.37	(1)	65.37		
Developer Contributions		(2)			
Grant from Central Government		(3)			
Grant to Private Sector		(4)			
Cost to Local Government net of contributions	**65.37**	(5)=(1)+(4)-(2)-(3)	**65.37**		
Impact on Central Government					
Central Government Contribution	165.00	(6)		165.00	
Developer Contributions		7)			
Grant to Local Government		(8)			
Grant to Private Sector		(9)			
Indirect Tax Revenues	6.96	(10)		6.96	
Cost to Central Government net of contributions	**158.04**	(11)=(6)+(8)+(9)-(7)-(10)		**158.04**	
Impact on the Private Sector					
Private Sector Contribution		(12)			
Grants from Local Government		(13)			
Grants from Central Government		(14)			
Change in operator revenues	-15.23	(15)			-15.23
Change in operator costs		(16)			
Private Sector Net Impact	**15.23**	(17)=(12)-(15)+(16)-(13)-(14)			**15.23**

Distribution and Equity Analysis

4.184 This supporting analysis shows the distribution of the overall impacts summarised in the AST, thereby enabling a judgement to be made about the fairness of the impacts across those affected by the strategy or plan. The following aspects have been assessed for their distributional impact:

- Benefits – distribution of benefits to different users; and
- Socio-demographic review – distribution of impacts on different groups in society.

4.185 The South East Manchester Area is a very diverse area with some of the most affluent and deprived communities in the North West included in its area.

4.186 The road scheme will improve access to centres of employment including Manchester Airport – a key employment generator with a large predicted growth in the number of jobs in the next 10 – 15 years.

4.187 The road scheme will also remove unnecessary traffic from existing local, district and town centres providing a more attractive environment, improved reliability for public transport and enhanced employment opportunities.

4.188 The scheme will provide an orbital route around the area linking many employment areas, including new regeneration opportunities at Manchester Airport, Hazel Grove and Handforth Dean, providing opportunities for new bus routes and a new high quality cycle route. Improved access from across the borough will be one of the many local benefits of this scheme.

4.189 The existing traffic congestion on key routes encourages rat running through residential areas including those in some of the most deprived wards. This rat running creates localised air pollution and safety issues which will be improved by the removal of this traffic.

4.190 The SEMMMS Strategy identified that a number of areas within South East Manchester were affected by congestion at peak and off-peak times. The associated public consultation which was weighted to correct for over representation of certain groups confirmed this analysis. Over 80% of the weighted sample thought congestion was quite bad, very bad or at a critical level.

4.191 More detailed analysis of Social and Distributional impacts is presented in the SDI report included in Appendix M.

Practicality and Public Acceptability

4.192 This scheme has a long history with a corridor identified for a number of years as being in need of improved connectivity. The level of public acceptance remains very strong and the environmental impact will be mitigated where needed. The scheme promoters continue to work with key stakeholders to ensure that they continue to support the scheme. Members of the public have access to the scheme website, where they can comment on any aspect of the scheme. Further consultation is currently being undertaken over the period October 2012 to January 2013.

4.193 The scheme has been developed, and has evolved, in direct accordance with local, sub-regional and national policies.

4.194 The original SEMMMS strategy was the subject of wide-ranging consultation including the Steering Group, the wider reference groups and public consultation.

4.195 The final SEMMMS Strategy was consulted upon and received a high level of supportas did the public consultation on the SEMMMS Relief Road in 2003/03.

5. The Financial Case

Introduction

Overview

5.1 This chapter presents ***The Financial Case*** for the A6 to Manchester Airport Relief Road scheme. It concentrates on the affordability of the proposal, its funding arrangements and technical accounting issues. The total outturn costs and expenditure profile are presented, along with an assessment of the impact of the proposed deal on the Department's budgets and accounts.

Compliance with DfT requirements for *The Financial Case*

5.2 The DfT's guidance document, *'The Transport Business Case: Financial Case'*, outlines the areas that should be covered as part of the MSBC documentation. ***Table 5.1*** shows where the information on these areas can be found in this document.

Table 5.1 – Compliance with DfT requirements for *The Financial Case*

Sub-Section	DfT requirements	Location in this document
Introduction	Outline the approach taken to assess affordability	Section 5.3
Costs	Provide details of: • Expected whole life costs • When they will occur • Breakdown and profile of costs by those parties on whom they fall • Any risk allowance that may be needed (in the event of things going wrong)	Section 5.6 Table 5.5 Table 5.6 Section 5.16 & Table 5.4
Budget / Funding cover	Provide analysis of the budget / funding cover for the project. Set out, if relevant, details of other funding sources (e.g. third party contributions, fees)	Section 5.27
Accounting implications	*Describe expected impact on organisation's balance sheet.*	*Covered in other sub-sections*

Outline approach

5.3 The cost of implementing the scheme and incremental costs of maintaining and operating it have been estimated in accordance with *WebTAG unit 3.5.9: The Treatment of Costs*. The costs have been subject to value engineering, critical assessment both internally and externally, and independent verification by Balfour Beatty (based on Design Freeze 4 in January 2011) and EC Harris.

5.4 The overall approach, which is presented in more detail in the remainder of this chapter, can be summarised as follows:

- Derivation of un-inflated base costs, amounting to £165.80 million ***(sections 5.6 – 5.9)***;
- An independent review of costs, to ensure robustness of approach and accuracy of the cost estimates ***(sections 5.10 – 5.11)***;
- Derivation of appropriate inflation assumptions, resulting in an allowance for inflation on base costs of £30.12 million, and a total inflation uplift (i.e. once applied to risk) of £35.45 million ***(sections 5.12 – 5.15 and Appendix G.2)***;
- Appropriate allowance for risk, resulting in a quantified risk estimate (excluding inflation) of £29.24 million ***(sections 5.16 – 5.19)***;

- An estimate of DfT eligible preparatory costs, currently estimated at £4.36 million outturn ***(sections 5.22 – 5.23)***;
- Development of the funding package that will deliver the scheme, which includes contributions from local authorities amounting to £65.37million ***(sections 5.27 – 5.30)***;
- Estimation of the ongoing revenue liability in relation to maintenance and operation costs ***(section 5.24)***; and
- Confirmation of Section 151 Officer Sign Off, currently in the form of a Loc al Authority Memorandum of Understanding in lieu of the formal Section 151 Officer sign off ***(sections 5.25 – 5.26)***.

5.5 The cost estimate is based upon a funding package that assumes scheme opening in 2017.

Costs

Derivation of base costs

5.6 Detailed cost estimates for the total scheme, including the preparation costs, the design, supervision and construction of the road, and associated complementary and environmental mitigation costs, have been prepared and independently scrutinised.

5.7 Corderoy was commissioned to undertake an independent cost estimate for the construction of the scheme. The rates used in the estimate have been predominantly derived from the Corderoy in-house database of approximately seventy Early Contractor Involvement (ECI) and DBFO contracts. Allowances for the cost of land, environmental mitigation, complementary measures and Statutory Undertakers' costs have been determined separately. All rates were for a price base of Q2 2007, which have since been uplifted to Q2 2010. The principal quantities that are included in the estimate are summarised below, with further detail provided in ***Appendix E***. The cost estimate has been subject to an independent review by EC Harris on behalf of TfGM.

5.8 ***Table* 5.2** provides a summarised breakdown of the un-inflated base cost estimate, which excludes allowances for inflation, risk and optimism bias, for the latest scheme design. A detailed breakdown, giving costs for all elements of scheme construction, is provided in ***Appendix E***, with a description of each element provided in ***section 5.9***.

Table 5.2 – Breakdown of Costs

Cost Item	Cost (£, Q2 2010 prices)
Preparation costs	£3,952,341
Construction costs	£107,439,602
Employer's cost post-award @ 3%	£3,623,130
Land costs	£35,177,005
Environmental mitigation	£872,000
Network rail costs	£1,913,876
Statutory undertaker's diversions	£8,099,384
Complementary and mitigation measures	£4,360,000
Total Base Cost (excluding inflation, risk and optimism bias)	**£165,437,338**

5.9 Base cost estimates of the scheme are broken down as follows:

- **Preparation costs of £3.95 million**.
- **Preliminaries (£29.44 million):** an estimate for preliminaries has been made that is 25% of the scheme's net construction cost, which had been confirmed by Balfour Beatty as a reasonable estimate.
- **Site Clearance (£0.44 million):** The area of the site has been measured from the scheme design drawings including the area of the new cycle track adjacent to the existing A555 section of the scheme. The demolition of two buildings on the Manchester Section has been included in this estimate.
- **Fencing (£0.75 million):** The length of boundary fence has been measured from the design drawings. This includes a new fence adjacent to the cycle track on the existing A555 section of the scheme. Allowance for environmental noise barriers has been made for an area of new carriageway near adjacent properties.
- **Safety Fencing (£0.67 million):** A concrete safety fence was taken for the full length of the central reserve of the new road with additional safety barrier where street furniture is proposed, such as lighting columns and road signs. Open box beam has been allowed to all slip roads and an allowance of 10% of the scheme length has been allowed for safety fences in the verges.
- **Drainage and Service Ducts (£7.42 million):** The cost of the drainage and service ducts is based on the preliminary drainage design with an addition for the culverts identified on the structures schedule. The elements of drainage that have to be taken into account include culverts, pipes, manholes, gullies, brook diversions, balancing ponds and associated headwalls and control structures where required. Advice has been obtained from the Environment Agency regarding acceptable drainage solutions that have been incorporated into the design.
- **Earthworks (£14.37 million):** The earthworks quantities have been obtained from the three dimensional geometric model for the scheme. Long drainage outfalls have been identified and these have been included. The earthworks quantities allow for the latest vertical alignment and preferred junction options. The design has optimised the balance of cut and fill materials. Disposal of unacceptable and contaminated materials has been taken into account. A review of the existing site investigation data was undertaken as part of the earthworks assessment to ensure its accuracy.
- **Pavements (£13.29 million):** The areas of pavement construction have been measured from design drawings and cross sections. This has included the cost of the foundation layer, road pavement, footways, cycleway, central reserve/islands, verges and kerbs. The estimated costs for the realignment / reconstruction and associated works to the side roads directly affected by the scheme, plus the tie-ins to the existing A555, are also included.
- **Kerbs and footways (£4.22 million).** This has included the cost of footways, cycleway, central reserve/islands, hardened verges and kerbs.
- **Traffic Signs and Road Markings (£2.18 million):** An estimate of the cost of the traffic signs and road markings has been undertaken based on the latest scheme drawings. This includes proposed traffic signals and toucan crossings.
- **Road Lighting (£0.56 million) and Electrical Works (£0.60 million):** Lighting is included on the sections of the main line where considered necessary, including junctions, slip roads and side roads. Lighting provision will be kept to a minimum in line with current recommendations from design standards. The lighting estimate includes for cabling and feeder pillars.
- **Communications (£0.11 million):** An allowance has been included for detector loops and/or emergency telephones.

- **Structures (£28.00 million):** The retaining walls and bridges have been taken from the design drawings and structures schedule. Bridges have been priced according to type (over-bridge or under-bridge). Allowances have been added for piling where it has been identified. Further allowances have also been made for the additional costs likely to be incurred on bridges over or under railways. These allow for, inter alia, the costs of railway possessions, railway protection works, lower productivity when working in possessions and use of Bailey Bridges to allow through-haulage of materials. An allowance has been included for Hazel Grove Rail Bridge being installed under the railway. The design and cost estimate for the railway bridge structures will be kept under review as the design and agreements with Network Rail progress. Estimates of stream crossing culverts are also included.
- **Accommodation Works and Works for Statutory Bodies (£1.42 million):** An allowance for any necessary accommodation works for landowners has been made. This has also included a general allowance for general civil engineering works in connection with works for Statutory Bodies (e.g. protection slabs and minor ductwork). Specific allowances for diversionary works are detailed below.
- **Landscape and ecology (£3.97 million):** An allowance for landscape and ecology works has been made.
- ***Details of Additions to the Nett Measured Works Totals - Overheads, "Add-ons" and "Mark-up" (£8.87million – already subsumed within the costs above):*** *In the Corderoy Report, the percentages that have been added to the Nett Measured Works Totals are for allowances that would formerly have been included in the Preliminaries section of an estimate. The percentages have been derived from the ECI contracts that form part of Corderoy's database and are expressed separately rather than amalgamated, as it is considered that they are much more informative in this form of presentation. The addition of these percentages leads to the Nett Works Total and, once the "Mark-Up" has been added, to the works total. The £8.87 million of additions is subsumed within each of the cost items described above.*
- **Environmental Mitigation Measures (£0.87 million):** The proposed scheme includes environmental mitigation measures to minimise the effect of the road on the local communities, and surrounding natural habitat. The Environmental Statement will address all mitigation requirements for the scheme. An initial assessment for the estimate has been undertaken at this stage. Two separate allowances are included in Corderoy's estimate, one for landscape and ecology based upon the length of the scheme and another for specific environmental mitigation measures.
- **Scheme Specific Adjustments (£5.86 million):** This section deals with anticipated employer's costs prior to and after award of the construction contract (£3.62 million) and an allowance for Network Rail costs (£1.91 million), excluding those specifically in connection with railway structures, which are included in the estimated cost of the bridges concerned.
- **Statutory Undertakers (£8.10 million):** The Statutory Undertakers were consulted on the scheme proposals and have provided Stage C4 estimates. The estimates provided by the Statutory Undertakers have been used in the base scheme estimate.
- **Complementary and Mitigation Measures (£4.36 million):** The design and cost estimate of the complementary and mitigation measures to be constructed as part of the scheme is based on the latest traffic model forecasts, highlighting the priority areas for intervention.
- **Land Acquisition and Compensation (£35.18 million):** The valuation of all private and commercial land, including compensation and risk has been undertaken by LSH based on previous experience and knowledge of the local area.

Independent Surveyor's Report

5.10 In January 2011, Balfour Beatty was commissioned to undertake a review of the buildability aspects of the scheme, and to independently review Corderoy's assumptions relating to quantities, rates and prices. These were compared to similar schemes recently constructed by

Balfour Beatty. The use of actual costs of current schemes – particularly those in the local area, such as for the recently constructed Alderley Edge Bypass – ensures a robust approach to the development and review of scheme costs. Balfour Beatty's report is provided in ***Appendix H***.

5.11 The review of costs was undertaken in January 2011, based on earlier designs. Recommendations by Balfour Beatty on potential cost savings were included as part of the latest value engineering exercise (described in ***sections 3.106 – 3.108***), resulting in the final set of costs described in this chapter and presented in detail in ***Appendix E***. Further reviews of cost estimates are included in the programme for later stages of scheme development to ensure any changes to scheme costs are ratified independently.

Inflation Assumptions

Construction cost inflation

5.12 A technical note on the inflation assumptions adopted for the purposes of deriving outturn costs is provided in ***Appendix G***.

5.13 The indexation has been based on the Guidance set out in WebTAG and has been independently verified by EC Harris.

The total uplift for inflation on construction costs amounts to £25.45m, which has been added to the un-inflated costs to produce the 'base' construction cost (excluding land costs) of £156.07m[17]

Land cost inflation

5.14 As no specific figure for land price inflation is available, we have examined the House Price Index for Stockport between May 2007 and September 2011 to gain a view in relation to potential land price inflation.

5.15 From Q2, 2007 house price inflation peaked at Q2, 2008 and then declined to a low in Q1, 2009. It has since risen at a slow rate until the present day. Going forward, we have assumed a small 0.5% increase over the next 12 months and then rising to around 3.7% pa by Q3, 2013 and then continuing at this level until the scheme opening year.

The total uplift for inflation on land costs amounts to £4.67m, which has been added to the un-inflated land costs to produce the 'base' land cost of £39.85m.

Overall the above inflation assumptions add a total of £30.12m to the un-inflated base cost to produce **a final 'base' cost of £195.92m.** Allowance for inflation on base costs is summarised in **Table 5.3.**

[17] Inflation has been applied to all costs presented in Table 5.2.

Table 5.3 – Inflation uplift and the impact on base scheme costs

Cost Element	Cost (£, outturn)
Un-inflated construction costs*	£130,625,084
Construction inflation uplift	£25,447,092
Base (inflated) construction costs	*£156,072,176*
Un-inflated land costs	£35,177,005
Land inflation uplift	£4,670,098
Base (inflated) land costs	*£39,847,103*
Total base cost (including inflation)	**£195,919,278**

*Note that construction costs here include total costs excluding land i.e. all preparatory and supervision costs

Allowance for Risk

5.16 A risk register specifically for the A6 to Manchester Airport Relief Road has been prepared and is used to obtain a Quantified Risk Assessment (QRA).

5.17 Based on the two separate Risk Registers provided, one for Project Risks and the other for Land Risks, Corderoy firstly undertook a review of the individual risks and corresponding input data and, secondly, modelled the data using @Risk to obtain the QRA, the quantified value of the overall risk.

5.18 The results of the @Risk Modelling are set out in the table below:

Table 5.4 – Quantified Risk Assessment

Risk Type	Value of Risk (Q2 2010 prices)	
Project Risks	-	£19,629,578
Land Risks	£9,610,225	-
Combined Total	£29,239,803	

5.19 Since these risks occur in the future years, inflation has also been added to the value of the risk. The total amount of inflation added to the QRA of £29.24m is £5.20m.

Added to the base cost derived above, this produces a **risk-adjusted outturn cost of £230.36m**.

Quantified Cost Estimate

5.20 The following table sets out the Quantified Cost Estimate (QCE), which includes risk and inflation, and shows the years in which the costs are incurred.

Table 5.5 – Quantified Cost Estimate (£m, outturn)

Cost element	Year cost are incurred							Total
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
Preparation	2.16	1.59	0.61					**4.36**
Land Acquisition	2.24	3.10	16.89	1.41	1.47	24.63	1.04	**50.78**
Main Works		8.12	38.82	77.10	51.18			**175.22**
Total	**4.40**	**12.81**	**56.32**	**78.52**	**52.65**	**24.63**	**1.04**	**230.36**

5.21 Note that for the economic appraisal, presented in The Value for Money Case (Section 4), the costs presented are discounted to 2002 values and optimism bias is added in accordance with DfT guidelines.

Details of eligible preparatory costs

5.22 The preparation costs include the work required to complete the major scheme business case, the planning application and planning and statutory process, the funding approval process and procurement of the scheme. The preparation costs are being funded from a variety of sources including local authority capital and revenue programmes, the Greater Manchester Transport Fund (GMTF) and DfT funding. To date, Stockport and Cheshire East Councils have provided £1.18m funding from their 2009/10 capital programmes. The three authorities have also expended considerable costs in developing the Relief Road scheme from 2002 to 2008.

5.23 The estimate of eligible preparatory costs is based on costs incurred from 2011/12 onwards and amounts to £4.36 million.

Ongoing Revenue Liability

5.24 The main construction contract will include landscape and ecology aftercare period plus a period for defects correction. However, operation and maintenance liabilities will fall to the three local authorities. These latter costs have not been included in the cost estimate as they will be become part of the maintenance and operations costs for the principal road networks of each authority who will normally receive an additional Revenue Support Grant in respect of the additional road length within each authority boundary.

Section 151 Officer Sign-Off

5.25 In March 2012 a “Deal for Manchester” was announced and the Government’s Budget statement identified the ‘Earn Back’ model which will provide the Combined Authority with the mechanism needed to supplement the DfT grant of £165m and enable the Scheme to be fully funded. Detailed discussions are continuing with Government officials in respect of the detailed arrangements for the Earn Back model which will be the subject of a further report to the Combined Authority over the next few months.

5.26 In accordance with DfT guidance, the cost estimates and funding contribution for the scheme will require sign-off from the relevant Section 151 Officer(s). The Combined Authority is committed to funding the remaining £125 million subject to the final agreement of the Earn Back Model with Central Government. In support of the business case submission Stockport Council’s Corporate

Director, Corporate and Support Services, in his role as Section 151 officer, will sign off, on behalf of the three promoting authorities, the estimated costs of the Scheme. In addition, the Treasurer of the Combined Authority, in his role as Section 151 officer, will set out how the Combined Authority intends to meet the balance of the funding (i.e. the costs not covered by the DfT grant). This will be subject to the considerations outlined above.

Budgets / Funding cover

Funding Package

5.27 Funding for the A6 to Manchester Airport Relief Road scheme was confirmed (in principle, and subject to satisfactory completion of a business case) by the Chancellor of the Exchequer in his recent Autumn Statement and in the National Infrastructure Plan 2011.

5.28 This follows earlier funding approval by the Central Government and, in May 2009, the Leaders of the Association of Greater Manchester Authorities (AGMA) agreed to create a Greater Manchester Transport Fund of over £1.5 billion to fund key projects, which included a contribution towards the A6 to Manchester Airport Relief Road Scheme[18].

5.29 There has, therefore, been a recent commitment to the scheme at a national and sub-national level. On this basis, and demonstrating the scheme promoters' commitment to delivering the scheme, an innovative funding package is being prepared, comprising the following:

- £165 million ring-fenced contribution to the scheme from DfT, in recognition of the scheme's wider (i.e. beyond Greater Manchester) benefits; and
- £125 million in local contributions through the Greater Manchester Transport Fund.

Phasing of the total funding package

5.30 ***Table* 5.6** shows the total cost estimate and the funding sources for each year, broken down by funding organisation.

Table 5.6 – Funding package

Organisation	Year that costs are incurred							Total
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
DfT			36.04	51.68	52.65	24.63		**165.00**
Local Contributions[19]	4.40	12.81	20.28	26.84			1.04	**65.37**
Total	**4.40**	**12.81**	**56.32**	**78.52**	**52.65**	**24.63**	**1.04**	**230.36**

[18] The GMTF identified 7 "specific schemes that have direct benefit to the city", including: Metrolink: Chorlton to East Didsbury; Metrolink: Airport; Metrolink: 2nd City Crossing; Cross-city bus package; Park and Ride at Metrolink stops and rail stations; Leigh-Salford-Manchester Busway; and The SEMMMS package.

[19] Including the value of any 'gifted' land

6. The Commercial Case

Introduction

Overview

6.1 This chapter describes ***The Commercial Case*** for the A6 to Manchester Airport Relief Road Scheme. It provides evidence on the commercial viability of the scheme and the procurement strategy that will be used to engage the market. It describes the financial implications of the proposed procurement strategy, including evidence of risk allocation and transfer, contract (and implementation) timescales, as well as details of the capability and skills of the team delivering the project and any personnel implications arising from the proposal. It also presents information relating to the integrated delivery of the Ringway Road Highway Improvement Works (RRHIW) element of the scheme with the planned Metrolink Airport Extension (MAE), and how this benefits the overall delivery of the scheme(s).

6.2 The information included in this chapter forms part of the overall management plan for the scheme. The management plan is described in more detail in the Project Initiation Documents, which are included as appendices to this MSBC. The Procurement Strategy is attached as ***Appendix F.7***.

Compliance with DfT requirements for *The Commercial Case*

6.3 The DfT's guidance document, *'The Transport Business Case: The Commercial Case'*, outlines the areas that should be covered as part of the MSBC documentation. ***Table 6.1*** shows where the information on these areas can be found in this document.

Outline approach

6.4 The commercial case has been developed following the outline approach below:

- Set the procurement objectives, outcomes and constraints;
- Identify potential procurement / purchasing options;
- Assess the procurement options in terms of pros and cons, as a rationale for selecting the preferred sourcing option;
- Confirm the preferred payment mechanism and pricing framework;
- Assess how different types of risk might be apportioned / shared, with risks allocated to the party best placed to manage them.

6.5 At this stage of business case development, the commercial case has been developed at a strategic level. Details on contract length, human resource issues and contract management will be finalised and updated subject to approval to proceed with the development of the business case.

Table 6.1 – Compliance with DfT requirements for the Commercial Case

Sub-Section	DfT requirements	Location in this document
Introduction	Outline the approach taken to assess commercial viability.	Section 6.4
Output-based specification	Summarise the requirement in terms of outcomes and outputs, supplemented by full specification as annex.	Section 6.6
Procurement strategy	Detail procurement / purchasing options.	Section 6.10
Sourcing options	Explain the options for sources of provision of services to meet the business need e.g. partnerships, framework, existing supplier arrangements, with rationale for selecting preferred sourcing option.	*n/a*
Payment mechanisms	Set out the proposed payment mechanisms that will be negotiated with the providers e.g. linked to performance and availability, providing incentives for alternative revenue streams.	*n/a*
Pricing framework and charging mechanisms	To include incentives, deductions and performance targets.	Section 6.25
Risk allocation and transfer	Present an assessment of how the types of risk might be apportioned or shared, with risks allocated to the part best placed to manage them subject to achieving value for money.	Section 6.26
Contract length	Set out scenarios for contract length (with rationale) and proposed key contractual clauses	Section 6.28
Human resource issues	Personnel / people management / TU implications, including TUPE	*n/a*
Contract management	Provide a high level view of implementation timescales. Detail additional support for in-service management during roll-out / closure. Set out arrangements for management contract through project / service delivery	Section 6.30

Output Based Specification

6.6 The commercial case is based on a number of strategic objectives and outcomes, against which alternative procurement options / scenarios are assessed:

- Achieve cost certainty, or certainty that the scheme can be delivered within the available funding constraints;
- Minimise further preparation costs with respect to scheme design;
- Obtain contractor experience and input to the design and construction programme to ensure the implementation programme is robust and achievable; and
- Obtain contractor input to risk management and appraisals, including mitigation measures, to capitalise at an early stage on opportunities to reduce construction risk and improve out-turn certainty.

6.7 The objectives have been split into those where the procurement strategy *must* deliver ('primary objectives') and those that it would be beneficial for the chosen procurement strategy to deliver ('secondary objectives').

6.8 The primary objectives underpinning The Commercial Case and which the preferred procurement strategy must deliver are:

- Deliver the scheme within the available funding;
- Ensure all scheme promoters commit to the project in full;
- Ensure Best Value is delivered;
- Ensure that appropriate quality is delivered;
- Offer an affordable whole life cost solution; and
- Reduce risks to a level that is As Low As Reasonably Practicable (ALARP).

6.9 The secondary objectives underpinning The Commercial Case and which it would be beneficial for the preferred procurement **strategy to deliver are**:

- Engage the contractor in early-stage planning and development of the scheme;
- Provide contractor input to the design, risk assessment and delivery programme;
- Engage the contractor in the planning public inquiry in respect of construction techniques, disruption and subsequent mitigation measures during the works; and
- Provide the scheme promoter(s) with affordable opportunities for change throughout the project life-cycle.

Procurement Strategy

Procurement options

6.10 The following procurement routes have been considered:

- Traditional design, procurement, construction, separate maintenance;
- Design and Build (D&B) construction, separate maintenance;
- Early Contractor Involvement (ECI), separate maintenance; and
- Private Finance Initiative (PFI) Funding, Design Build Operate and Maintain (DBOM).

6.11 ***Table 6.2*** summarises the options, presenting the pros and cons of each procurement route. Further details are presented in the Procurement Strategy Plan in ***Appendix F.7***.

6.12 For the first three options described above, the scale of additional work involved in the maintenance and operation of the A6 to Manchester Airport Relief Road would be small compared to the existing road networks and offer little on its own in terms of scales of economy. It is therefore recommended that following the completion of the construction contract, operation and maintenance would revert to the local authorities.

Table 6.2 – Procurement options

Procurement Type	Description	Risk Transfer	Pros	Cons
Traditional	Client completes a full detailed design followed by tendering for a Contractor, who is passed the design to construct. The form of Contract is usually the ICE or similar	Risk resulting from design is carried by the Client.	• Allows for competitive tender. • Comparable in programme terms with D&B. • High client control over specification and quality.	• Poor record on cost certainty – generally accepted that outturn cost will be 30% higher than tendered price. • Majority of the Risk is carried by the client.
Design & Build with Consultant Contractor commission for advice throughout the design development phase	Client submits for tender the design developed during the statutory processes and passes it to the Contractor to tender the detailed design and construction. By employing a contractor through the design stage, the scheme benefits from continuous appraisal of buildability and value engineering options.	Risk from detailed design is carried by the Contractor. The client develops a detailed knowledge of risk, enabling a more informed negotiation of risk transfer at tender stage.	• Allows for competitive tender. • Comparable in programme terms with traditional. • Target cost contract allows for high degree of cost certainty and potential cost savings. • Design solutions are likely to be directed towards specific Contractor methods aiding buildability and potential for value engineering.	• Requires well developed works information to ensure client control over specification and quality.
Early Contractor Involvement	Contractor appointed prior to preliminary design stage, helping to ensure that the design taken into the statutory processes is as efficient and buildable as possible. Allows for early supplier engagement on a partnering basis. This form allows for the incorporation of the supplier skills and knowledge within the early stages of design.	All design risk carried by the Contractor. Risk register developed in partnership with supplier. Opportunity to share risk to most appropriate party.	• Contractor is better placed to manage risk, having been involved from an early stage in the design process. • ECI benefits projects with complex engineering challenges like this scheme which includes multiple interfaces with Network Rail crossings and Metrolink allowing the Contractor to address key risks earlier. • Contractor involvement pre-planning inquiry would permit robust evidence to be presented regarding concerns of construction impact on the local environment and communities	• Although rates would be market tested, the target cost for the main construction works negotiated rather than competitively tendered. • Requires some certainty of scheme funding prior to the commencement of preliminary design and statutory processes.
PFI DBOM	A Concession contract is awarded with the Concessionaire paid a service fee for delivery of operational and maintenance services for a duration of typically less than 22 years (procurement Regulations). In this instance the fee or unitary charge reflects the cost of the provision of the infrastructure through private finance (or largely private finance) plus the operating, maintenance costs and profit.	All risk is carried by the PFI Operator	• Total cost of the scheme including maintenance and operation is effectively spread over the whole lifecycle of the project. • Long term interest in maintenance helps ensure quality driven approach to the design and construction of the scheme.	• Increased time of procurement process will lead to significantly later start date of construction and therefore potential for increased cost to completion.

6.13 For PFI, a PFI Project Scope and Qualitative Value for Money Appraisal Report was prepared and submitted to DfT in 2007/08. Subsequently, the DfT requested that a quantitative assessment be undertaken, which was submitted to DfT in June 2010. Since then, PFI has been discounted as a potential option by the scheme promoters, based on further detailed appraisal of the alternative procurement routes and the fact that PFI is unlikely to offer value for money relative to the preferred option.

Preferred procurement route

6.14 **The preferred procurement route for the delivery of the A6 to Manchester Airport Relief Road is a Professional Services Contract (PSC) arrangement for immediate needs, followed by a Staged ECI arrangement for taking the scheme forward.**

- Period to publication of draft Orders: PSC agreement
- Period from draft Orders to end of Public Inquiry Stage 1 ECI
- Period from end of Inquiry to end of construction Stage 2 ECI

6.15 Using the staged ECI procurement strategy would meet the desired timescales. It would also provide a quality design to take the scheme through the statutory processes, and would lead to both time and cost efficiencies as a result of the competitive tender process for appointment of an ECI Contractor.

6.16 Tenders for the ECI contract would be invited in early 2013 in time to appoint the contractor to support the Public Inquiry. Stage 2 would be instructed under a Target Cost arrangement. This form of contract is less adversarial than a lump sum form and incentivises the project team to work together to deliver the scheme.

6.17 A Contractor was appointed (PSC) to advise on cost, buildability and programme. They had a smaller role within the statutory processes advising on any additional options or alternative designs that may arise as a result of these processes. Carrying out this role has not placed them in any preferential position to take the scheme forward and conversely will not preclude them from tendering, as all reports prepared will be available to all tenderers.

6.18 The Project Team will prepare the necessary prequalification and tender documents for this appointment and manage the tender process on behalf of the Project Board.

6.19 Following construction of the scheme, operation and maintenance of the scheme will be taken over by the local authorities except for defects and landscape aftercare commitments retained by the Contractor for a pre-defined period after opening.

6.20 In reaching a conclusion on the preferred procurement route, the Project Team has been advised by highway engineering consultants and the Civil Engineering Contractors association (CECA).

6.21 It is noted that the above provides the general approach to procurement for the scheme as a whole, although the RRHIW has been procured and is being delivered as part of the MAE procurement route. This will ensure the early delivery of benefits (and avoidance of certain potential disbenefits) as set out in Chapter 1 (Introduction) and Chapter 3 (The Strategic Case). The governance, planning and statutory arrangements are already in place to provide integrated delivery of the RRHIW element of the scheme with the MAE works, and potential risks to delivery have been identified and addressed where possible.

Consideration of alternative funding mechanisms: Delivery through a public private partnership (PPP) arrangement

6.22 In addition to delivery of the scheme through a traditional funding route, and in line with the Department for Transport's (DfT) requirements for Major Scheme Business Cases with a value of more than £40 million, the scheme promoters have also considered delivery of the scheme using the Private Finance Initiative (PFI). Two main scenarios were assessed: the first for the construction, operation and maintenance of the new relief road only; and the second scenario for the operation and maintenance of a further 60km of the existing Principle Route Network (PRN) within the three promoting authority boundaries; existing roads that are similar in nature to the

proposed new road. The reason for the second scenario was concern over the viability of operating just the new road and whether this would deliver value for money in terms of unit rate cost.

6.23 Work undertaken in summer 2010 assessed the value for money of the two PFI scheme options to ensure that if PFI was selected by the Government as the preferred funding mechanism, that this would still offer value for money to the promoting authorities. The work assessed 15, 25 and 30 year concession periods and took account of the current market conditions with respect to the cost of private finance, risk transfer and the economic conditions. A comparison with the delivery of the same scheme options via the more traditional public sector operation and maintenance route was also undertaken using the H M Treasury Value for Money model, by constructing a Public Sector Comparator (PSC) for each case. This assessed the value for money of PFI, in addition to comparing the two alternative forms of PFI against each other.

6.24 The assessment of both forms of PFI produced positive results, but the overall value for money was not deemed sufficient to pursue as a credible alternative to the preferred procurement route. Assessment of PFI with direct tolling was also ruled out as the road is not considered suitable; the primary reason for this is that there a significant number of entrances and exits from the route and a significant number of trips are likely to be local. In addition, until such time as a wider strategic charging scheme is in place, there would always be alternative route options available that don't attract a toll cost.

Pricing Framework and Charging Mechanisms

6.25 Although subject to review during the procurement stage it is recommended that the Contractor be appointed under the New Engineering Contract (NEC) 3, Engineering and Construction Contract (ECC) Option C with activity schedule. This contract offers an incentive to the contractor to deliver the project to a target cost with any saving or cost overrun shared between the promoters and the Contractor. The percentage split of this "Pain/Gain" relationship would be determined during the procurement process. Using this tried and tested standard form of contract will benefit the promoter by avoiding the cost and time of forming and negotiating a bespoke contract. Also, tender comparisons are simplified since the risk allocation is the same for each party.

Risk Allocation and Transfer

6.26 Throughout the development stage of the scheme risks have been identified, recorded and actively managed. Where appropriate, risk owners have been allocated and tasked with eliminating risks, where possible, or identifying mitigation measures for residual risks. The same ethos will be taken through to the delivery stage of the scheme. Through the involvement of a contractor as a sub-consultant during the development stage, the promoting team have developed the risk register to collate and cost, as accurately as possibly construction related risk. This process will inform a more competitive tendering process.

6.27 The promoters will seek to attribute project risk to the party that can demonstrate value for money in managing that risk. Certain risk including land risks, design development risks and risk associated with the Public Inquiry will be borne by the promoter since they are either too complex to be transferred or the timing precludes the procurement of the main works.

Contract Length

6.28 The scheme is currently expected to procure the Principal Contractor under an NEC ECC contract using a staged ECI procurement route.

6.29 As described above, the integrated RRHIW and MAE works will be delivered using the existing Metrolink contracts, enabling early delivery of this element of the Ringway Road element of the scheme.

Contract Management

6.30 The following high level timescales are currently anticipated:

- Pre-planning / Public Consultation: autumn 2012 – spring 2013
- Submission of Planning Application: summer 2013
- ECI Contractor Appointed: autumn/winter 2013
- Public Inquiry: spring 2014
- Inspectors Report and Secretary of State Decision: summer 2014
- Commence on Site: winter 2014
- Road Open: summer 2017

6.31 A standard contract such as the NEC3 ECC will be used, ensuring that the contractual / commercial arrangement will be well defined. This form of contract is well understood throughout the supply chain and relies on a pre-defined risk register to allocate and manage anticipated risk. During contract negotiations, risk will be allocated to the party best able to manage it the most cost effective way.

6.32 The NEC3 ECC contract has a specified change management procedure that will be followed to allow for the occurrence of any unforeseen risk.

Summary

6.33 The strategic objectives of the A6 to Manchester Airport Relief Road and those factors that influence the chosen procurement route are identified as:

- Certainty that the scheme can be delivered within the available funding.
- The ability to tie up contractual commitment with the point at which all promoting authorities are prepared to and are able to commit to the project, in full.

6.34 The preferred procurement strategy for the delivery of the A6 to Manchester Airport Relief Road is a Professional Services Contract (PSC) arrangement for immediate needs, followed by a Staged ECI arrangement for taking the scheme forward.

- Period to publication of draft Orders: PSC agreement
- Period from draft Orders to end of Public Inquiry Stage 1 ECI
- Period from end of Inquiry to end of construction Stage 2 ECI

6.35 Using the staged ECI procurement strategy would meet the desired timescales. It would also provide a quality design to take the scheme through the statutory processes, and would lead to both time and cost efficiencies as a result of the competitive tender process for appointment of an ECI Contractor.

6.36 Alternative approaches have been investigated – based around alternative procurement routes – but these have been discounted on the basis of risks around cost and/or delivery.

7. The Management Case

Introduction

Overview

7.1 This chapter describes how the A6 to Manchester Airport Relief Road scheme will be managed and delivered. In accordance with DfT requirements, it presents details of project planning, governance structure, risk management, communications and stakeholder management, benefits realisation and assurance.

7.2 The information in this chapter is drawn primarily from the Project Initiation Documents (PIDs), which set out the processes and procedures for the project development and delivery. The PIDs also support information presented in ***The Financial Case (Chapter 5)*** and ***The Commercial Case (Chapter 6)***. The following PIDs are included as appendices to this document:

- ***Appendix F.1***: Project Initiation Document
- ***Appendix F.2***: Management Plan;
- ***Appendix F.3***: Financial Management Strategy Plan;
- ***Appendix F.4***: Programme Management Plan;
- ***Appendix F.5***: Risk Management Plan;
- ***Appendix F.6***: Quality Plan;
- ***Appendix F.7***: Procurement Strategy; and
- ***Appendix F*.8** Communications Strategy.

7.3 In addition to the PIDs, a separate document presents details on stakeholder management and communications for the scheme. This is attached as ***Appendix F.8***.

7.4 The methodology used to define the process and procedures necessary to manage this project as detailed in the Project Initiation Documents is based on the PRINCE2 methodology promoted by the Office of Government Commerce (OGC). As this is a major highway project the methodology of the Project Control Framework (PCF), developed and used by the Highways Agency and based upon PRINCE2, will also be adopted as appropriate.

Compliance with DfT requirements for *The Management Case*

7.5 The DfT's guidance document, *'The Transport Business Case: Management Case'*, outlines the areas that should be covered as part of the MSBC documentation. **Table 7.1** shows where the information on these areas can be found in this document.

Table 7.1 – Compliance with DfT requirements for the Management Case

Sub-Section	DfT requirements	Location in this document
Introduction	Outline the approach taken to assess if the proposal is deliverable.	Section 7.1
Evidence of similar projects	If possible, provide evidence of similar projects that have been successful, to support the recommended project approach. If no similar projects are available for comparison, outline the basis of assumptions for delivery of this project e.g. comparison with industry averages for this kind of work.	Section 7.6
Programme / Project dependencies	Set out deliverables and decisions that are provided / received from other projects.	Section 7.11
Governance, organisational structure & roles	Describe key roles, lines of accountability and how they are resourced.	Section 7.12 Figure 7.1 Appendix F.2
Programme / Project plan	Plan with key milestones and progress, including critical path.	Section 7.28 Table 7.2 Appendix F.4
Assurance & approvals plan	Plan with key assurance and approval milestones.	Section 7.30 Table 7.3 Appendix F.6
Communications & stakeholder management	Develop communications strategy for the project.	Section 7.53 Appendix F.8
Programme / Project reporting	Describe reporting arrangements.	Section 7.79
Implementation of work streams	Summary of key work streams for executing the work.	n/a
Key issues for implementation	Issues likely to affect delivery and implementation.	Section 7.83 Table 7.4
Contract management	Outline arrangements for continuity between those involved in developing the contract and those who will subsequently manage it.	Section 7.84 Appendix F.1
Risk management strategy	Arrangements for risk management and its effectiveness so far.	Section 7.92 Appendix F.5
Benefits realisation plan	Set out approach to managing realisation of benefits.	Section 7.98 Appendix J
Monitoring and evaluation	Summarise outline arrangements for monitoring and evaluating the intervention.	Section 7.102
Contingency plan	Summarise outline arrangements for contingency management such as fallback plans if service implementation is delayed.	This is covered in the sections on risk management
Options	Summarise overall approach for project management at this stage of project.	Section 7.121

Evidence of similar projects

7.6 The promoters for this scheme have extensive relevant experience of delivering projects similar to the A6 to Manchester Airport Relief Road scheme, including major highway infrastructure schemes, local junction improvements, and sustainable transport measures – all of which are core elements of the A6 to Manchester Airport scheme proposals.

7.7 Appendix A describes the schemes that have already been delivered by SMBC as part of the wider SEMMMS strategy since 2001, including schemes aimed at improving public transport accessibility and reliability, and to improve conditions for pedestrians and cyclists. The A6 to Manchester Airport Relief Road scheme is a core element of the wider strategy, alongside which the continued development of 'softer' measures will be required.

7.8 In terms of major transport infrastructure schemes, Cheshire East Council delivered the Alderley Edge Bypass, a £52.0 million highway scheme aimed at providing congestion relief and improved connectivity for commuter and business travel. Likewise, the A34 / A555 scheme, delivered jointly by SMBC and Cheshire County Council, provides an example of the partnership working required to successfully deliver major highway infrastructure.

7.9 Most important, given the source of local transport funds for the A6 to Manchester Airport Relief Road scheme, the Greater Manchester Combined Authority[20] has, through the Greater Manchester Transport Fund, demonstrated the governance, leadership and delivery mechanisms to provide major transport infrastructure in the past – and with substantial investment in infrastructure planned for the coming 5 years.

7.10 The examples of historic and planned infrastructure, along with the proven funding and governance mechanisms for delivery, provide confidence that the A6 to Manchester Airport Relief Road scheme will be delivered on time and within budget.

Programme / Project dependencies

7.11 The scheme programme is dependent on the following:

- Planning Permission granted on behalf of all three local authorities;
- Successful public inquiry to acquire land under the highways act;
- Timely procurement of a capable supplier;
- Political backing and funding from each of the identified funding streams;
- Successful liaison with the local communities ensuring they are included in regular updates throughout the schemes development;
- Rail Possessions: In order to construct the rail crossings required successful liaison with Network Rail will be required. For the rail over road bridge on the Buxton line, the scheme may require two Christmas possessions. The programme currently allows for this.
- Successful integration of the RRHIW with the Metrolink Airport Extension works.

[20] Including the organisations the GMCA was set up to replace i.e. GMITA and AGMA

Governance, organisational structure & roles

Governance Structure

7.12 The three authorities of Cheshire East Council, Manchester City Council and Stockport Metropolitan Borough Council are jointly developing the A6 to Manchester Airport Relief Road. The structure of governance for the scheme enables the three councils to work jointly to oversee the scheme's delivery. The governance structure operates at a number of levels including:

- Chief Executives Steering Group;
- Project Board;
- Project Delivery Team; and
- Project Development and Design Team.

7.13 Full governance details can be seen in the Management Plan in ***Appendix F.2*** and a summary is provided below.

7.14 The **Senior Responsible Owner (SRO)** responsible for the delivery of the project is Eamonn Boylan (the Chief Executive of Stockport Metropolitan Borough Council). In his role as SRO Eamonn Boylan is supported by qualified named individuals from of the scheme's main stakeholders, all contributing to an efficient and assured project governance structure.

7.15 The Project Board fully endorses the nomination of Jim McMahon as Project Director, based on his skills and ability and availability to lead the delivery of the scheme within the agreed timescales.

7.16 The project is overseen by a **steering group** known as the **Chief Executive Steering Group**, comprising the Chief Executives of Manchester City Council, Stockport Metropolitan Borough Council, Transport for Greater Manchester and representation from Manchester Airport Group. The Chief Executive Steering Group will provide a direct link to the necessary authority required to allow the scheme to progress at a number of key stages in the project lifecycle. The Chief Executive Steering Group will be responsible for approving major changes to the delivery programme and constituent/fundamental elements of the project delivery including budget and consultations. The remit of the Chief Executive Steering Group is to:

- Provide strategic guidance to the project and its delivery;
- Obtain approval from respective Executives for submission to the respective planning authorities for formal planning application;
- Obtain approval from respective Executive for submission to the DfT for:
  - Programme Entry (Major Scheme Business Case – DfT approval in principle that the scheme is acceptable);
  - Conditional Approval (To approve funding prior to commencement of procurement of contractor for construction);
  - Final Approval (To approve funding prior to commencement of construction);
- To approve the final scheme layout plans on behalf of the three local authorities.
- To provide direction and guidance to the Project Board and ensure effective governance of the project;
- To work with the Project Board to create a suitable mandate for financial control that will satisfy the requirements of all funding parties; and
- Advise the Executives of progress and any revisions to the scheme (with particular respect to local issues) and any publicity (e.g. exhibitions, publication of information and public inquiry).

7.17 The **Project Board** meets monthly. The Project Board will be chaired by the SRO, who takes executive responsibility for decisions relating to the project. Members of the Project Board hold senior executive functions within Stockport Council, Cheshire East Council and Manchester City Council. Specific major highways advice is provided as required by URS Technical Director and experienced major highways project leader, David Hughes. Key elements of the Project Board's remit (presented in full in The Management Plan in ***Appendix F.2***) are to:

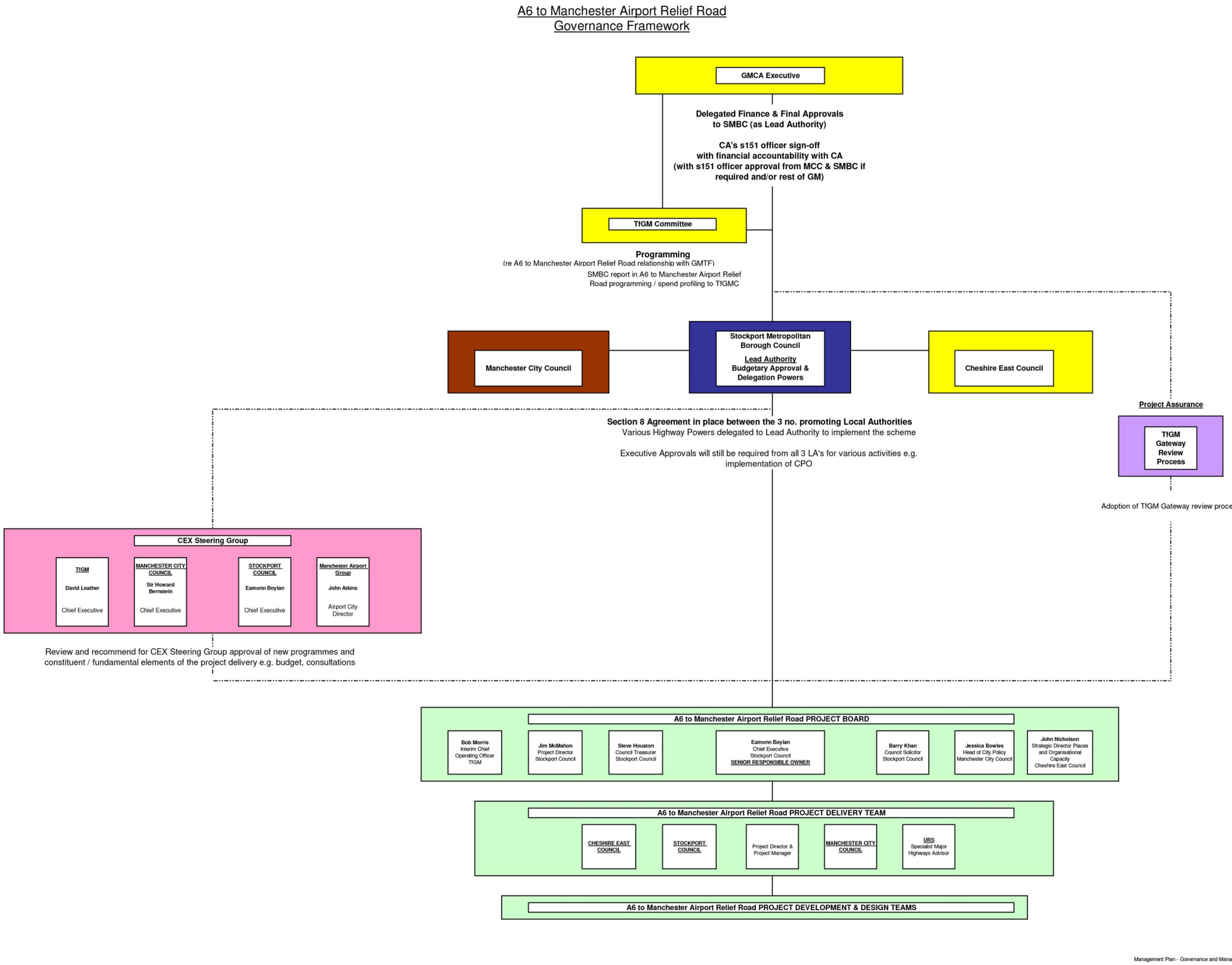
- Be responsible for the setting of the strategic direction of the project in line with the end-user requirements and authority provided by the Greater Manchester Combined Authority (GMCA);
- Be accountable for the achievement of the project objectives and the delivery of scheme benefits;
- Obtain and provide the SRO with stakeholder / technical input to decisions affecting the project;
- Assist the SRO in decision-making and on-going progress of the project, including authorising commencement of phases in the project, changes and completion of each phase;
- Agree all major plans;
- Approve all budgets and tolerances for time, quality and cost along with reporting and monitoring requirements; and
- Report to the GMCA as appropriate on the progress of the project
- Have overall responsibility for managing risk on the project.

7.18 The **Project Delivery Team** (PDT) is responsible for resolving all project issues that require cross sponsor agreement but do not have a strategic impact on the scheme. The PDT will be led by the Project Director. The PDT will consist of representatives from each of the leading local authorities and will meet each month to consider the monthly Progress Report and will consider all project aspects, including design decisions, cost programme and risk.

7.19 The **Project Development and Design Team** consists of a significant number of specialist skilled staff, which includes full-time staff employed by the partners and specialist consultants providing advice on transport, environmental, design and engineering issues relating to the scheme proposals. The role of the Project Development and Design Team is to deliver the scheme in line with instructions provided by the Project Manager. The Development and Design Team consists of a number of work-stream managers who are responsible for delivering work packages ranging from highway design to the delivery of the MSBC. The Project Manager is responsible for identifying packages of work and agreeing with the Financial Manager the appropriate budget for each individual work package.

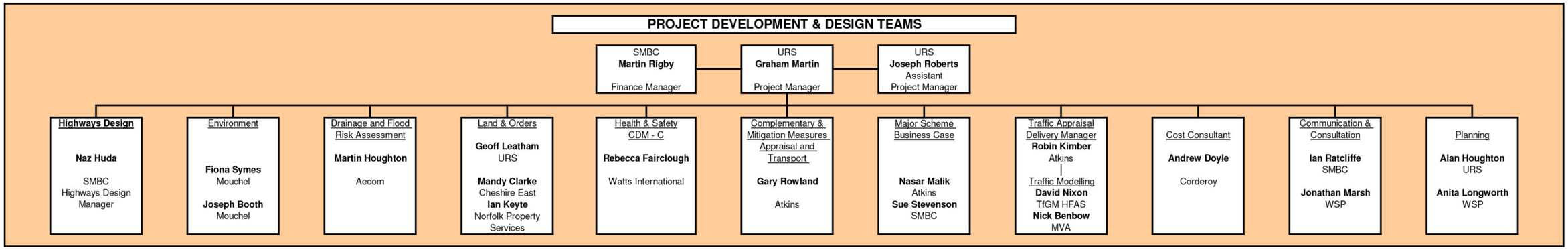
7.20 The management structure described above has been determined following consultation with several major consultants with major highway scheme experience. The detailed Organisation Chart in ***Figure*** 7.1 shows the positions and named people responsible for each area. Additional detail is presented in the Management Plan in ***Appendix F.2***.

Figure 7.1 – Scheme Organisation Chart



Management Plan - Governance and Management PlanChart_Oct 12 v7

Project Development and Design Teams



Resources

7.21 The resources required to manage and deliver the scheme are in place. The Project Development and Design Team is described above and in more detail in section 3.6 of the Management Plan (***Appendix F.2***).

7.22 The Project Development and Design Team will be managed and led by the Project Manager. The programme identifies the tasks to be under taken and the PIDs identify the key roles, responsibilities and skills required to undertake them.

7.23 The Project Development and Design Team is made up of both staff from the local authorities and external consultants providing specific expertise, resource and skills where necessary. With such a range of resources available, it is confirmed that there are sufficient staff of the appropriate skills to deliver the Scheme.

7.24 Following approval of the MSBC and publication of the planning application, draft Orders and Environmental Statement, a smaller team will be required to take the project through the Statutory Process leading to the Public Inquiry and making of Orders. Subsequent to this, a specific team will be identified to prepare for Conditional and Full Approval and the procurement of the main construction contract.

7.25 The procurement of the scheme is described in ***Chapter 6 (The Commercial Case)***. Other than the traditional form of procurement, the main contractor would be responsible for the detailed design and construction. This will represent the largest part of the resource required for delivery, although it will still be necessary to identify the resources necessary to provide an adequate level of commercial and technical support. This will be determined by the Project Board at the appropriate time.

Governance Evolution

7.26 The governance structure described above will remain in place throughout the development and delivery of the scheme. The roles of various members of the Project Management Team will span only part of the overall development and delivery process, or be more critical through particular time periods, depending on their scope. For example, the management roles of planning and procurement and on site supervision are discreet stages in the project lifecycle and differ from the other roles that require continuity throughout all stages.

7.27 It is envisaged that following award of the main construction contract, the Contractor's director would join the Project Board to help oversee delivery of the scheme.

Project plan

7.28 The Programme Management Plan (***Appendix F.4***) describes the procedures followed for creating and maintaining the Programme to deliver the A6 to Manchester Airport Relief Road scheme. The Programme is sufficiently flexible such that the impact of the current project performance is reflected in future scheduled work, enabling Programme adjustments to be made should the outcome indicate problems ahead. It is the aim of the Programme to provide full visibility of the current and future situation with respect to performance and will be used in conjunction with the Risk Management Plan to predict the potential impacts identified.

Project Plan

7.29 Table 7.2 sets out key milestones associated with the delivery of the project.

Table 7.2 – Key Project Milestones

Milestone	Date
'Programme Entry' Submission	Autumn 2012
Programme Entry Granted	Autumn 2012
Tender Documents Issued	Spring 2013
Publication of Planning Application	Summer 2013
Tenders Returned	Summer 2013
Publication of Draft Orders	Summer 2013
ECI Contractor Appointed	Autumn 2013
Public Inquiry	Spring 2014
Approval of Orders	Autumn 2014
DfT Final Approval	Autumn/Winter 2014
Construction Contract Award	Autumn/Winter 2014
Main Construction Works Commence	Winter 2014/2015
Road Opens	Summer 2017
Post-Scheme Opening Evaluation	2018 / 2022

Assurance & approvals plan

7.30 Project assurance is, in the main, the responsibility of the Project Board. As set out within the Management Plan, the Project Board are responsible for reviewing and agreeing all project procedures and processes as set out within the PIDs.

7.31 Although it is the responsibility of each Project Delivery Team manager to ensure the quality of individual work packages, the Project Board will review and approve the content of each project deliverable. This role will be supported by the Project Manager and the Core Manager Team.

7.32 The scheme will be managed in set stages as set out below:

- Stage 1: Option Identification
- Stage 2: Options Selection
- Stage 3: Preliminary Design
- Stage 4: Statutory Procedures and Powers
- Stage 5: Construction Preparation
- Stage 6: Construction
- Stage 7: Handover and Closeout

7.33 The scheme is currently in Stage 3. The stage gateway procedures were introduced during this stage and as such, the first stage gateway review will take place at the end of this stage following the submission of the business case.

7.34 These stages along with the key activities that will be undertaken during each stage are covered in Appendix B of the Quality Plan in the Project Control Framework. This mirrors the Highways Agency's industry recognised Project Control Framework and clearly defines the stage gateway project process.

7.35 During each project stage specific products are produced by the Project Development and Design Team. The Product Checklist sets out the key products the scheme will deliver during each stage and is located in Appendix C of the Quality Plan.

7.36 A key assurance role undertaken by the Project Board is signing off the completion of each project stage and giving approval to start the following stage.

7.37 The Project Board has significant depth of expertise and experience on major highway scheme qualifying this body to perform its duties with regards Project Assurance. External advice is provided to the Project Board through the inclusion of David Hughes as a Major Highways Advisor. As a Project Leader of several successful major highways schemes; David Hughes is able to provide both technical and managerial advice as required

7.38 In addition to the assurance provided by the Project Board, the Stage Gateway Review process will be utilised to provide external assurance and assistance to the SRO. A Stage 0 Gateway review was undertaken in November 2005. From Spring 2012, the Gateway review process is based on the Transport for Greater Manchester project assurance model which is fully compliant with OGC guidance. A Stage 3a Gateway Review has been completed. The scheme achieved an overall score of 2 (range 1 to 4) which means that some minor issues were found but it is recommended that the scheme proceed to the next stage. ***Table*** 7.3 lists the planned dates for future Gateway reviews.

Table 7.3 – Summary of the Gateway Review Programme

Gateway Reviews	Date
Gate 0 - Strategic Review	November 2005
Gate 3a - Full Business Case	Summer 2012
Gate 3b - Full Business Case (Post Statutory Powers)	Winter 2013/14
Gate 4 – Contract Award	Winter 2014/15
Gate 5 – Operational Handover	Summer 2017
Gate 6 – Close Out	Spring 2020

Project Control and Approvals Process

7.39 The project control and approval process will be in accordance with the Quality Plan contained in ***Appendix F.6***. Approval of key deliverables at key stages of the project is set out in section 3 of the Management Plan. The Project Director and Project Manager are responsible for ensuring that such approvals are obtained.

7.40 The Quality Plan establishes processes and procedures in accordance with ISO 9001 quality management systems. For environmental and safety management systems the project will be implemented in accordance with ISO 14000 and OHSAS 18001. This will ensure that all aspects of project development and implementation focus on best practice, in line with the promoting authorities' own objectives and standards. All Project Development and Design Team staff will adopt the project controls, processes and reporting set out in this document irrespective of the authority for which they work.

7.41 In terms of design and project implementation, the intention is to adopt the Highways Agency's Design Manual for Roads and Bridges along with the Manual of Contract Documents for Highway Works. This will ensure that the project achieves the standards expected and supported by the DfT.

Quality Acceptance Criteria

7.42 Detailed quality acceptance criteria are developed in the Quality Plan for the project in ***Appendix F.6***. The responsibility for establishing this will rest with the Project Manager. Specific procedures have been established for checking, independent reviews and approval.

7.43 Each work-stream will be responsible for the quality control of their individual deliverables and under the requirements of the ISO 9001:2000 accreditation, each work stream will be required to carry out internal and be subject to external auditing to maintain their accredited status.

7.44 In line with accepted practice the scheme will progress in clearly defined stages. During each stage, a set of key project deliverables in the form of products has been identified. A scheme Product Checklist is located within Appendix E of the Quality Plan which sets out the acceptance criteria for each product. At the end of each project stage a full review is carried out to ensure that the scheme has made sufficient progress to move to the next stage. This process is monitored by the Project Board and is explained further the Assurance section below and is fully explained the Quality Plan.

7.45 In addition, the project is subject to TfGM gateway reviews, details of which are set out in the Assurance section above.

Change Management

7.46 The Change Management procedure is covered in the Management Plan included in ***Appendix F.2.***

7.47 Change is managed by the Project Manager. Potential change or risk of change will be raised with the Project Manager and logged as an Issue within the Issue Log by the Risk Manager.

7.48 The Project Manager will review issues and determine that they are being addressed sufficiently, otherwise elevating their severity. When the severity of an Issue is deemed “significant” it shall be resolved within the Project Development and Design Team in the first instance. When the severity of an issue is deemed “Major” it will be elevated to the Project Delivery Team for discussion and resolution. Where an issue is deemed “Critical” it will be elevated to the Project Board for discussion and resolution.

7.49 For the main construction contract, change control will be managed in accordance with contract procedures such as the Early Warning and Compensation Event procedures of the NEC3, ECC contract.

Sustainability

7.50 The project management team has commissioned and are about to undertake the first stages of the CEEQUAL assessment. The Scheme provides a rigorous and comprehensive sustainability rating system for project and contract teams, celebrating the commitment – and demonstration – of the civil engineering industry to achieving high environmental, economic and social performance.

7.51 CEEQUAL rewards project and contract teams in which clients, designers and contractors go beyond the legal, environmental and social minima to achieve distinctive environmental and social performance in their work. In addition to its use as a rating system to assess performance, it also provides significant influence to project or contract teams as they develop, design and construct their work, because it encourages them to consider the issues in the question set at the most appropriate time.

7.52 CEEQUAL will be continued throughout the project lifecycle to assess how well the scheme is achieving its sustainability aspirations.

Communications and stakeholder management

Objectives

7.53 The key objectives of the scheme's stakeholder management are to:

- Keep stakeholders aware of the schemes progression and give an opportunity for feedback to help gain scheme approval;
- Give an opportunity for stakeholders to provide views and recommendations for improvements so that the scheme meets stakeholder requirements as far as is practical;
- Meet statutory requirements;
- Increase public and stakeholder awareness of the scheme;
- Provide consistent, clear and regular information to those affected by the scheme, including the nature of any scheme-related impacts and when and how it will affect people of groups both during delivery and once operational; and
- Address perceptions of the scheme where these are inconsistent with the scheme objectives and forecast outcomes.

7.54 Information presented and obtained through stakeholder engagement undertaken as part of the original SEMMMS Study has been used to inform the development of the A6 to Manchester Airport Relief Road Scheme.

7.55 The public and key stakeholders were also consulted at key stages during the development of the overall SEMMMS Strategy to identify issues, potential solutions and support for the proposed strategy.

Statutory Consultation

7.56 Consultation was undertaken for the DMRB Stage 2 Environmental Assessment in 2003/2004 on the original full scheme to obtain data and views on the impact of the scheme. No specific concerns regarding the scheme were highlighted by any of the consultees who responded, however some consultees felt they were unable to comment in detail until the scheme design had progressed further. The results of the initial phase of the Environmental Assessment were made public during the Public Consultation. As part of the development of the A6 to Manchester Airport Relief Road, a Scoping Report was issued to key stakeholders.

7.57 An updated Environmental Scoping Report was submitted in February 2010 and has since been updated in agreement with the planning authority in terms of scheme development between February 2010 and November 2012.

Public Consultation

7.58 The scheme received a high degree of public support and was supported locally by the various local authorities and by the North West Regional Assembly.

7.59 This high level of support continued through the two-phase public consultation exercise that was undertaken regarding the scheme – 91.6% of respondents felt that the scheme was needed in order to bring traffic relief to the local communities and businesses.

7.60 The first phase ran from 10 October 2003 to 9 November 2003 and sought the public's views on the principles and route of the scheme, and potential locations for junctions. Some specific amendments to the scheme definition were made to take account of the responses. This included the removal of proposed junction improvements at Osborne Street and the proposed changes to route alignment to the West of Offerton.

7.61 The second phase of the consultation, which ran from 21 November 2003 to 9 January 2004, was targeted at residents and businesses closer to the scheme, plus those members of the public from phase 1 who had specifically requested for information to be supplied throughout the consultation exercise. Leaflets and direct mail were distributed to local residents and businesses, and staffed

exhibitions were held at ten locations. As a result of views gained, further development work was considered at various specific locations.

7.62 The three promoting local authorities have engaged the DfT in dialogue since the submission of the Annex E in 2004, to ensure that scheme proposals meet funding criteria, and to inform the DfT of any changes to the scheme proposals. At the same time as these technical discussions, the scheme promoters have continued to engage the public, recognising that local residents and businesses need to be kept informed on the progress of the scheme. This was deemed of particular relevance to the following groups:

- Those planning to buy or develop a property in the area;
- Those who have land holdings that would be acquired should the scheme go ahead;
- Those in support of the scheme who are keen to see long-standing issues resolved.

7.63 A pre-planning public consultation supported by public exhibitions along the route of the scheme is currently being undertaken. The public consultation process began in October 2012 and will run through until spring 2013. The results from the public consultation exercise will be reported in a Consultation Report.

7.64 The stakeholder engagement set up for the original SEMMMS Relief Road has been retained, which includes the following.

A6 to Manchester Airport Relief Road Scheme Website

7.65 The original website for (www.u-to-us.com/semmms) was set up in 2003 and included the following key information:

- Background information on the scheme proposals;
- Stylised maps of the scheme proposals, allowing the public to set the scheme in context;
- The opportunity to feed back via an online survey;
- Access to technical reports, including environmental assessments and consultation documents; and
- Regular updates on scheme progress.

7.66 The website was overhauled in 2009 (www.semmms.info) to reflect the substantial progress already made on SEMMMS, and the need to focus specifically on the A6 to Manchester Airport Relief Road scheme. The public response to this form of consultation has been extremely positive, generating almost 50,000 site visits.

SEMMMS Telephone Enquiries

7.67 Since 2002, members of the SEMMMS Communications Team have been available to discuss the scheme by telephone with members of the public. Staff members have a detailed knowledge of the scheme and its progress and have access to GIS mapping of the area.

7.68 Calls from members of the public are predominantly concerned with route alignment, junction layouts, potential impact on property prices and project timescales. The frequency of calls has been irregular. Whilst there were low levels of activity during the decision on funding, there was a sharp increase in volume following the May 2009 announcement, and also in summer and autumn of 2010 following the Government's announcements in the Comprehensive Spending Review. Since the end of the formal consultation period to 5th March 2010 there have been 265 calls requesting further information.

SEMMMS Newsletters

7.69 SEMMMS newsletters have been made available to the public between 2002 and 2008. The newsletters provide regular updates on progress of the wider SEMMMS strategy (of which the A6 to Manchester Airport Relief Road Scheme is one element). The SEMMMS newspaper reaches a large number of people, informing on the progress and completion of all SEMMMS schemes across south east Manchester, and providing the scheme sponsors with the opportunity to include

regular updates about the scheme. Each SEMMMS newspaper contained a response slip that members of the public could complete to comment on any aspect of the strategy including the Relief Road.

7.70 In the period between 2003 and 2008 it was acknowledge that the extensive distribution (100,000+ properties) meant that any update on the funding of the Relief Road could only be included following a formal announcement from the Department for Transport; to do otherwise would have unduly raised public and stakeholders expectations.

Stakeholder contact and meetings

7.71 Contact has been maintained with key stakeholders along the route through letters linked to notifications of environmental surveys and other information requests. Informal updates also take place via regular telephone conversations or e-mail exchanges with landowners, and meetings have been held where necessary to discuss individual circumstances or sites.

Future Communication Strategy

Internal Communications Strategy

7.72 Responsibility for accurate, timely and appropriate communications within the project team rests with the Project Development and Design Team to ensure that the Project Board is kept up-to-date with project developments. The SRO is also responsible for ensuring the SGC is provided with sufficient information and that the SGC clearly understands that information in order to make any necessary project decisions.

7.73 The Project Director is responsible for keeping the Project Board aware of the development of the scheme towards meeting the project objectives. It is the responsibility of the Project Director to ensure that the Project Board has sufficient information and is involved in all decisions that affect performance of the project, achievement of the project objectives or deviation from agreed and delegated responsibilities.

7.74 The Project Manager is responsible for communicating both to the Project Development and Design Team and to the Project Director to ensure that all parties are up-to-date with relevant information.

7.75 All documentation to be issued to external parties will, in the first instance, be issued to the Project Board in Draft via the Project Manager. Once agreed by the Project Board, the document will be updated as required and issued with the appropriate revision reference.

External Communications Strategy

7.76 An updated communication strategy has been developed to ensure that the community and stakeholders are kept informed of scheme development. Consultation with specific groups (e.g. landowners, environmental groups and vulnerable users) recommenced in Spring 2010, to update key stakeholders on scheme development. A pre-planning public consultation is currently being carried and this will also help inform the planning application process.

7.77 The External Communication Strategy will use a variety of techniques to ensure that the correct information is available to the community and stakeholders and that they will have the opportunity to comment meaningfully on the scheme at appropriate times. Communications external to the project team will be managed effectively to ensure that consistent and correct information is provided to the public and all parties outside of the project team, including others within the promoting authorities. External communications are described in more detail in a separate Project Initiation Document (***Appendix F.1***).

7.78 In addition, a Consultation Report has been prepared, summarising previous consultations held on the scheme.

Planning Application Process

7.79 Discussions have commenced with the planners of the three local authorities affected by the scheme on the planning application process and the approach to the public and pre-application consultation. The Project Board's preference is for a single application to be submitted by the

lead promoting authority (Stockport MBC) to Stockport as a lead planning authority with delegated powers from the other two local authorities. Further guidance and agreement on this area is being sought through discussions between the three authorities.

Project reporting

7.80 Responsibility for accurate, timely and appropriate communications within the project team rests with the Project Manager/Project Director to ensure that the Project Board is kept up-to-date with project developments. The SRO is also responsible for ensuring the Chief Executive Steering Group is provided with sufficient information and that the Chief Executive Steering Group clearly understands that information in order to provide necessary guidance on project decisions.

7.81 The SRO is responsible for keeping the Project Board aware of the development of the scheme towards meeting the project objectives. It is the responsibility of the Project Director to ensure that the Project Board has sufficient information and is involved in all decisions that affect performance of the project, achievement of the project objectives or deviation from agreed and delegated responsibilities.

7.82 The Project Manager is responsible for leading both the Project Development and Design Team and reporting to the Project Director to ensure that all parties are up-to-date with relevant information.

Key issues for implementation

7.83 ***Table*** 7.4 (overleaf) summarises the key risks/issues identified to date, and mitigation measures that are planned to minimise the impact should these risks be realised. Further detail on the approach to risk / issue identification and management is set out below.

Contract management

7.84 The procurement strategy for the scheme is discussed in details in an tailored Project Initiation Document (**Appendix F.1**).

7.85 Numerous options have been considered including:

- Traditional design, procurement, construction, separate maintenance;
- Design and Build (D&B) procurement, construction, separate maintenance;
- Early Contractor Involvement (ECI), procurement, construction, separate maintenance
- Professional services contract for obtaining contractor advice in the pre-construction stage

7.86 Having considered the options, a staged ECI route supported with an initial period of procurement under a PSC arrangement is considered the most appropriate way of procuring a Contractor's services to support and then deliver the scheme as follows:

- Period to publication of draft Orders: PSC agreement
- Period from draft Orders to end of Public Inquiry Stage 1 ECI
- Period from end of Inquiry to end of construction Stage 2 ECI

7.87 Using a Stage ECI procurement strategy would meet the desired timescales. It would also provide a quality design to take the scheme through the statutory processes, and would lead to both time and cost efficiencies as a result of the competitive tender process for appointment of an ECI Contractor.

7.88 The tenders could be invited including the pricing of an outline design for Stage 2, and rates for Stage 1 to introduce commercial tension from the outset. A quality/price assessment would also be beneficial in examining contractors' proposals.

7.89 Tenders for the ECI contract would be invited in early 2013 in time to appoint the contractor to support the Public Inquiry. Stage 2 would be instructed under a Target Cost arrangement later

within the contract. This form of contract is less adversarial than a lump sum form and incentivises the project team to work together to deliver the scheme.

7.90 The Project Delivery Team will prepare the necessary prequalification and tender documents for this appointment and manage the tender process on behalf of the Project Board.

7.91 Following completion of construction, operation and maintenance of the Scheme would be undertaken by the local authorities except for defects and landscape aftercare commitments retained by the contractor for an initial period after opening.

Risk management strategy

7.92 The risk management strategy for the project is set out in detail in the Risk Management Plan (***Appendix F.5***). The separate Risk Management Plan sets out the overall strategy for actively managing risk to a level that is 'As Low As Reasonably Practicable' (ALARP) and ensuring that risk management is part of the development of the project.

7.93 Over the history of the scheme there have been several iterations of the risk register associated with the scheme in its various forms. Formal risk identification processes carried out by the project team to date include:

- 25th May 2006 – Risk Register compiled and updated after a Risk Workshop and analysed to review the risk allowance for Design Freeze 4A estimate for the Bredbury to Manchester Airport scheme.
- 13th December 2007 - Risk Register rationalised for the southern section only (A6 to Manchester Airport).
- September 2009 – Risk Register updated by the Project Management Team.
- 16th October 2009 – Formal risk workshop carried out including members of the Project Board, Project Management Team, Core Management Team and Delivery Team.
- July 2010 – Project Risk Register and Lands Cost Estimate and Compensation Risk Register analysed by Quantity Surveyors, Corderoy.
- 25th October 2010 – Design review meeting coordinated to discuss and agree value engineering principles, including further consideration of project risk by the Project Delivery Team.
- November 2010 – Revised version of the Project Risk Register and Lands Cost Estimate and Compensation Risk Register analysed by Quantity Surveyors.
- December 2010 – Full independent review of the risk management procedures adopted commissioned. Atkins carried out the review, providing assurance of the activities carried out to date and those proposed going forward.
- February 2012 – Revised Project Risk Register and Lands Risk Register completed in line with Design Freeze 5 and subjected to @risk QRA by Quantity Surveyors, Corderoy.
- September 2012 – Revised Project Risk Register completed in line with Design Freeze 6 and subjected to @risk QRA by Quantity Surveyors, Corderoy.

7.94 The Risk Management Plan will be developed throughout the life of the project. Following confirmation of scheme funding, ownership of the risks will be allocated to those parties best able to manage them.

7.95 The Risk Management Plan sets out the full risk management process. In summary, the risk register is reviewed and key risks and projects issues reported to Project Board and CMT on a monthly basis. Risk workshops will continue to be held going forward to review the project risks and opportunities.

Table 7.4 – Key Project Risks

Planning / Approval Risks & Mitigation

Planning / Approval Risks & Mitigation	
Risk	**Mitigation**
Delays during planning stage (including delays in statutory process orders, determination of public inquiry, advanced archaeological finds etc) leading to increased capital cost.	Ensure robust scheme and orders presented at planning application and publication. Employ experienced team to prepare and complete the statutory process.
Failure to produce adequate Environmental Statement (due to insufficient data or objection by statutory consultees)	Consultation will continue with Statutory Consultees on the development of the Environmental Statement. This will be supplemented by targeted Consultation Forums e.g. Vulnerable Road Users Group and Ecological Forums.
Failure to achieve Planning Consent after Public Inquiry	Prepare robust Planning Application. The scheme will continue to liaise with a scheme specific advisory group made up of planning officers from each of the local authorities.
Cost Risks & Mitigation	
Changes to scheme funding	Continue communication with funding sources. Continue to consult specialist funding advisors to assist in providing up to date dedicated funding advice.
Statutory Undertaker diversions cost underestimated	Continual liaison with SU's (C3 estimates already received). Consider employment of specialist consultant to value engineer planned diversions at preliminary design stage.
Change from road over rail to road under rail at West Coast Mainline. Increased construction costs and earthworks imbalance.	Manage stakeholder expectations; provide detailed and well planned public consultations/exhibitions leading up to Public Inquiry. Prepare options report and be ready for change in design at Public Inquiry if risk persists.
Delivery Risks & Mitigation	
Development sites affecting design criteria	Ensure agreement with planning authorities at early stage and review.
Additional track possessions for construction	Identify required possessions - early and continuous liaison with Network Rail to ensure agreed procedure in place in order to get additional possessions should they be needed. To date a dedicated Network Rail Project Manager has been assigned to the scheme on the request of the Project Development and Design Team to consider technical and programming issues going forward. Specialist advice will also be sought from contractors with a view to proceeding with the most efficient method of construction and procurement of works.
Delays during construction, including statutory undertaker diversions, access restrictions due to environmental constraints etc.	Continually review programme to ensure sufficient time allowance made for such issues. Continue to liaise with consultant contractor to seek advice on buildability issues. Liaison with external bodies to assist in development and acceptance of scheme design.

Benefits realisation plan

7.96 Monitoring and evaluation of benefits is required to establish the extent to which the scheme meets the objectives. To be fully effective, plans for monitoring and evaluation should form part of the early development of - and be a continuous process within – the scheme business case.

7.97 These plans are captured within the Benefits Realisation Plan (BRP). It is a management tool that presents the key activities required – what needs to be done, when, and by whom – to manage the successful realisation of benefits.

7.98 A BRP is integral to the overall appraisal process. A draft BRP has been prepared for the A6 to Manchester Airport Relief Road scheme (see ***Appendix J***), which sets out the overall approach to benefits realisation, thus:

- Summarise the scheme objectives, in terms of desired outputs and outcomes;
- Identify appropriate benefit assessment criteria;
- Describe current and future data requirements (and accounts for any future costs, where applicable);
- Set out a work programme for benefits realisation – both pre- and post-construction - within the overall A6 to Manchester Airport Relief Road scheme programme; and
- Confirm ownership of the plan, and roles and responsibilities for managing individual elements within the overall process of benefits realisation.

7.99 Details on some of the metrics, targets and desired outcomes are provided in the *'Monitoring and evaluation'* section, below.

Monitoring and Evaluation

Introduction

7.100 The scheme will be subject to a programme of before and after monitoring and evaluation. This will demonstrate the extent to which scheme objectives were met, monitor performance of the road and ensure that any potential issues post implementation are identified and addressed.

7.101 Monitoring and evaluation is integral to the overall appraisal process and is captured in detail in the BRP (see above). This section summarises some of the metrics that will be monitored/evaluated. The BRP is a ' live' document that will be updated at regular intervals throughout the development of the business case, construction of the scheme, and following scheme opening. The metrics, methods of measurement, timescales for data collection, and ownership of specific benefits are all subject to change as the scheme progresses.

Monitoring

7.102 The promoting authorities' proposals for monitoring are preliminary at this stage, as the opening date for the scheme is some years away. The authorities, along with Greater Manchester Transport Unit (GMTU), who would organise the data collection in Greater Manchester, would welcome the opportunity to discuss the detailed form of the before and after monitoring programme with the DfT in due course. However, the following paragraphs indicate initial elements of our proposed monitoring programme.

Traffic Flows

7.103 The promoting authorities have traffic data from numerous manual traffic surveys and automatic traffic counters (ATCs); in particular, there are several ATCs on key roads near the scheme. These will provide continuous traffic data before and after the scheme opens, which will provide baseline data that can be used to correlate against traffic flow prediction and movement data identified in the traffic forecasting reports and Environmental Statement.

7.104 To supplement this information, a programme of additional manual classified counts and/or temporary ATC sites will be drawn up. Counts will be carried out at the selected locations before the start of construction of the scheme and one year after opening of the scheme.

7.105 The traffic flow information collected from the ATC's will help to identify the changes in traffic patterns and volumes which will occur after the scheme has opened, including HGVs.

Traffic Speeds/Congestion

7.106 The temporary ATC equipment installed as part of the before and after monitoring will also provide information on vehicle speeds. Additional traffic speed information will be collected by speed radar and supplemented by data from the national vehicle tracking database (iTIS).

7.107 Information on bus journey times will be obtained from the 'real time' tracking equipment currently being installed on buses in Greater Manchester, in particular along the A6 corridor.

Pedestrian and Cyclist Movements

7.108 The scheme will permit facilities for pedestrians and cyclists on existing routes to be enhanced. Complementary measures will be introduced on routes where traffic flows decrease following scheme opening, to make best use of the available space. Mitigation measures will be introduced where traffic flows increase to ensure that pedestrians and cyclists do not suffer as a result of the scheme.

7.109 Observations of pedestrian and cycle movements at key locations are already carried out on a regular basis by the promoting authorities. This ongoing data collection will be supplemented by additional manual surveys of pedestrian and cycle movements before and after the scheme opens, and by installation of cycle ATCs on the new and existing routes. Data gathered will support the Environmental Statement and will be used to demonstrate that the A6 to Manchester Airport Relief Road scheme is functioning positively in terms of providing non-motorised user benefits across the wider network, in respect of accessibility and safety.

Road Safety

7.110 The Greater Manchester Transportation Unit (GMTU) on behalf of the ten Greater Manchester districts, including Manchester and Stockport, maintains a road accident database. The accident data is supplied to GMTU by the Greater Manchester Police.

7.111 Accident data from the Greater Manchester database, supplemented by equivalent data from Cheshire East Council, will be used to monitor the impact of the scheme on future accident incidences, numbers and locations.

Air Quality

7.112 A database of air quality emissions (EMIGMA) is already in place covering Greater Manchester. Similar information is available from Cheshire East Council.

7.113 The data from these sources will be supplemented by additional air quality monitoring sites that have been established and are currently being monitored. Data gathered will support the Environmental Statement (ES) in respect of predicted air quality changes and predicted localised air quality benefits associated with the overall A6 to Manchester Airport Relief Road scheme. The ES shall be prepared in accordance with the Design Manual for Roads and Bridges (DMRB), Volume 11.

Noise

7.114 Operational and construction related noise impacts will be addressed in the Environmental Statement in accordance with DMRB Volume 11. For construction, the locations of key noise and vibration construction activities, such as around major earthworks areas, junctions and embankments will be identified as will sensitive receptors. Agreement will be reached with the local Environmental Health Officer on permissible construction and noise and vibration operating limits and appropriate monitoring would be installed as required. The implications of noise mapping are currently being assessed.

Contractor / Construction Monitoring

7.115 Monitoring during construction would ensure that mitigation measures identified in the Environmental Statement would be undertaken and adhered to, which would reduce the potential for environmental impacts on the locality (e.g. dust generation). Monitoring of activity during the construction would also reduce potential damage, for instance, to undiscovered archaeological

resource (watching brief) and would generally assist with any unforeseen/unpredicted environmental issues which may arise due to activity on site. This would be embodied in a the Construction Environmental Management Plan (CEMP) to be prepared and operated as part of any contractors Environmental Management System during the construction process, cross referenced to detailed clauses within any specifications and contract documentation.

7.116 Environment Agency consents and requirements would be adhered to, forming a part of the contractor's specification contract documentation, with any specific requirements for monitoring clearly established and recorded within the scheme specific CEMP, as operated under the contractor's EMS. Similarly, a Site Waste Management Plan would be prepared to address requirements for waste handling and disposal which would be adhered to during the construction phase.

7.117 Local authority environmental health officers' stipulations in respect of air, noise, operating hours and waste would also be incorporated into the contractor's monitoring procedures and plans as part of a construction code of practice.

7.118 Licensing agreements are required for works during construction in respect of statutory protected species, e.g. badgers. Ongoing monitoring of construction works in respect of protected species would ensure that disturbance to habitats is minimised and that exclusion zones around identified habitats are enforced throughout the works period. Any future monitoring as required by the licensing bodies would be undertaken throughout the construction process, and after any establishment/maintenance period, as required to satisfy any specific license requirements. This would again be embodied in a future Environmental Management Plan to be prepared and operated as part of any contractors Environmental Management System during the construction process, cross referenced to detailed clauses within any specifications and contract documentation.

Summary

7.119 The scheme will be governed by the Project Board, guided by the Chief Executive's Steering Group. A Project Delivery Team reports to the Project Board which includes the SRO SMBC Chief Executive Eamonn Boylan.

7.120 The Project Delivery Team is in turn reported to by a Project Development and Design Team. The management structure of the project has been determined following consultation with major consultants with major highway scheme.

7.121 Staffing for the development and delivery of the Scheme is achieved through the Project Development and Design Delivery Team, which consists of a number of specialist skilled staff from the promoting authorities as well as external consultants. The Project Development and Design Team reports to the Project Delivery Team.

7.122 The processes and procedures by which the scheme is governed and controlled are set out in the suite of Project Initiation Documents included in Appendices F.1 to F.8. Processes are based upon PRINCE2 methodology and as the project is a major highways scheme, reference is also made to the Highways Agency's Project Control Framework.

7.123 A project plan has been developed. Final submission of the Major Scheme Business Case is planned for autumn 2012 with Programme Entry programmed for autumn/winter 2012. This would be followed by the submission of the planning application and the publication of the draft Orders and the Environmental Statement by summer 2013. The statutory processes and Conditional Approval (if required) is planned for autumn 2013 followed by Full Approval in autumn / winter 2014. The contractor would be appointed in autumn 2013 with the main construction works commencing in winter 2014 / 2015. Environmental mitigation and construction would last approximately two and a half years and the road would open to traffic in early 2017.

7.124 A full Quantified Risk Assessment has been carried out, identifying the key risks to the delivery of the scheme. Mitigation measures have been identified for each risk which ensures close risk management. Ownership of each risk will be assigned following confirmation of scheme funding.

7.125 Stakeholder management is key to a successful delivery of complex schemes such as this, which affect a diverse group of people and a significant number of organisations in varying ways. Therefore the extensive public consultation and stakeholder engagement that has been undertaken to date will be continued. Consultation is being undertaken on scheme junction options between October 2012 and January 2013.

7.126 A comprehensive communications and consultation strategy is in place to support the scheme as it progresses. This will ensure all stakeholders and interested parties are fully consulted upon and kept informed of the scheme through all stages of its development. Such consultation will also ensure that all issues affecting the scheme can be considered and taken into account.

7.127 The scheme will be subject to a programme of before and after monitoring. The aim of this will be to demonstrate the extent to which scheme objectives were met and to monitor performance of the road and ensure that any potential issues post implementation are identified and addressed.

7.128 To provide assurance of the governance of the scheme, the scheme is separated into stages, each with specific products to be produced. Each stage is subject to an end of stage review to be carried out by the Project Board. This recognised methodology will ensure the scheme makes steady and controlled progress with regular and well understood review procedures. External assurance will be provided in the form of Stage Gateway reviews. The scheme was subject to a Stage 0 Gateway Review in 2005. A Stage 3a Gateway Review was completed in summer 2012 which the project receiving approval to proceed. This assurance process meets the DfT requirement that schemes costing in excess of £50m have undergone an initial gateway review.