

# SEMMMS MAJOR ROAD SCHEMES - STAGE 2 ENVIRONMENTAL ASSESSMENT

## Executive Summary

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# Control Sheet

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# 1 Executive Summary

## 1.1 Introduction

Mouchel Parkman (formerly Mouchel Consulting Ltd) were appointed in February 2003, by Stockport Metropolitan Borough Council (SMBC) to undertake a Stage 2 Environmental Assessment, in accordance with the process set out in the Design Manual for Roads and Bridges (DMRB) Volume 11, for the major road scheme component of proposals contained in the Government sponsored South East Manchester Multi-Modal Study (SEMMMS). SMBC is the lead authority for a Consortium also including Cheshire County Council (CCC) and Manchester City Council (MCC). Mouchel were assisted by a team of specialist environmental sub-consultants including:

- Penny Anderson Associates (PAA).
- Bertram Hyde.
- University of Manchester Archaeological Unit (UMAU).
- Atmospheric Dispersion Modelling Ltd (ADM).

The SEMMMS strategy, published in September 2001, outlined a broad range of measures to address traffic and transportation issues. The key proposals for submission to the Government under the Local Transport plan bid are summarised below:

- An extension of the Metrolink from East Didsbury to Stockport Town Centre and further extensions.
- The creation of a Stockport centred orbital Quality Bus Corridor Network.
- Improvement to the standard of local rail services, passenger facilities, along with the creation of new routes.
- The construction of dual carriageway bypasses along the routes of the former proposed A6(M) Stockport North South Bypass, and Manchester Airport Eastern Link Road (MAELR) eastern and western sections, along with a single carriageway on the routes of the Poynton Bypass and Stepping Hill Link Road.

Whilst the SEMMMS strategy recommends that all of the above would need to be implemented to achieve its aims, the Stage 2 Environmental Assessment process concentrates only on the major road scheme elements. The study area comprises the corridors previously identified for three trunk road proposals, which were formerly promoted by the Department of Transport. Additional options and variations to these corridors were identified, arising out of the change of design standard from motorway

and dual carriageway to a more local level of provision to address the SEMMMS strategy.

This Executive Summary briefly sets out the background, main report structure, methodologies and key findings of the Environmental Assessment, along with recommendations for additional studies required to progress the scheme through the Stage 3 detailed Environmental assessment process.

## **1.2 Structure of the Main Report**

The main report was divided into three sections as outlined below, supported by four Appendices containing plans, technical reports and a Consultee Listing:

### **1 Introduction**

**2 Environmental Assessment** – This addressed each of the Environmental Topic Areas as set out in the Design Manual for Roads and Bridges (DMRB), Volume 11 Environmental Assessment.

**3 Key Issues** – A general summary of the Environmental Assessment and completed Environmental Impact Tables.

The study corridor for the Environmental Assessment was subdivided into the following sections to aid the descriptive and assessment process.

- Section 1. M60 Brinnington Interchange – Goyt Crossing.
- Section 2. Goyt Crossing – Offerton Road.
- Section 3. Stepping Hill Link.
- Section 4. Offerton Road – A6 Junction.
- Section 5. A6 Junction – MAELR Central (Existing).
- Section 6. Poynton Bypass.
- Section 7. MAELR Central.
- Section 8. MAELR Central to Styal Road Junction. \*
- Section 9. Styal Road Junction – Manchester Airport Junction. \*

\* Sections 8 and 9, MAELR (West) between the A555 at Handforth and the Airport spur are also known as Manchester Airport Link Road West (MALRW) and are referenced as this in the Local Transport Plan.



### 1.3 Engineering Description

The following key Options were developed to meet the aims defined in the SEMMMS report:

- **Option A** – The protected corridor generally with ground level junctions, including a Stepping Hill Link.
- **Option B** – The protected corridor with some junction variations and consequential separation of the main route from local roads by bridges, again including a Stepping Hill Link.
- **Option C (with A)** – As Option A, however with the alignment running to the east of Offerton Green and an extension to Stepping Hill.
- **Option C (with B)** – As Option B, again with the alignment occupying a corridor to the east of Offerton Green and an extension to Stepping Hill.

Various Sub-Options, associated with relatively limited variations in alignment on Poynton and MAELR, and some individual junction variations were also assessed, i.e.

- **Sub-Option B1** – Two sections of ‘cut and cover’ tunnel in the Bredbury corridor.
- **Sub-Option B2** – West facing slips at the A523 Macclesfield Road.
- **Sub-Option B3** – West facing slips at Woodford Road / MAELR central.
- **Poynton Bypass** – Alternative Southern Tie-in.
- **MAELR (West)** – Sub-Option 1, to the north of the protected corridor.
- **Styal Road Junctions** – Junctions configurations for Option A and B.

The engineering design work for the SEMMMS Major Road Schemes was carried out by the Engineering Design Teams of the constituent Highway Authorities, namely SMBC, CCC and MCC. The basic preliminary design assumptions in line with SEMMMS for the former A6(M) corridor and MAELR East are summarised below:

- Design Speed of 85kph (speed limit 50mph). Dual carriageway.
- Design Speed of 50kph (speed limit 30mph) on the Stepping Hill Link. Single carriageway.
- Horizontal and vertical design to current Highways Agency Design Manual for Roads and Bridges (DMRB) directive and advice notes.
- It is envisaged that the scheme would be lit for its entire length.

For Poynton Bypass the above general design and lighting standards apply, however it is proposed to be a single carriageway road in each direction with a design speed of 100kph (speed limit 60mph). The links to the Adlington Industrial Estate were designed using 50kph (speed limit 30mph).

For MAELR (West), between Wilmslow Road and Styal Road, a design speed of 120kph (speed limit 70mph) was used, changing to 85kph (speed limit 50mph) for the final section between Styal Road and the M56 airport spur.

For medium to large span bridges a modern steel composite construction could be utilised. This would be beneficial to achieve a lower bridge deck weight, cost effective and aesthetically appropriate bridge structures. Small to medium bridges are likely to be in-situ or pre-cast concrete to reduce construction and future maintenance costs.

#### **1.4 Environmental Assessment Process**

The purpose of a Stage 2 Environmental Assessment is to identify, describe and assess the environmental constraints and impacts, both beneficial and adverse, associated with the various route Options identified for the SEMMMS Major Road Schemes. It is then to present this information in a concise, unbiased and factual manner. The information would then, in association with more detailed engineering and Cost Benefit assessments, be used to identify a Preferred Option following Consultation. This Preferred Option would then be subject to a more detailed Environmental Assessment at Stage 3.

The Environmental Assessment was undertaken in accordance with methodologies set out in 'DMRB Volume 11 Environmental Assessment'. Reference was made to 'Guidance on the Methodology for Multi-Modal Studies' (GOMMMS), March 2000 and the bridging document 'Applying the Multi-Modal New Approach to Appraisal to Highway Schemes', March 2001. Reference was also made to 'DMRB Volume 10 Environmental Design', along with other 'Best Practice' guidance to inform survey methodologies and outline mitigation strategies. For certain subjects the Consortium specifically amplified the scope of the environmental assessment as summarised below:

- Ecology and Nature Conservation – Targeted surveys were undertaken for European protected species to DMRB Stage 3 level, following national best practice guidelines.
- Traffic data was prepared by Greater Manchester Transportation Unit (GMTU) and the following sets out the client rationale for modelling work undertaken to date. Options A and B were modelled separately however for this assessment Option C was only modelled as a variation to the Option A modelling. This was considered appropriate due to the nature of the Option C junctions, which are signalised. Modelling of Option C with B was not undertaken as it was anticipated that it would be likely to show more congestion and delays at the junctions than Option C (with A) due to the higher flows on the scheme alignment north and south of the divergence points for Options A or B. On average the difference in flow between A and B was anticipated to be an increase of 10% in the Goyt valley and 13% south of Offerton Road. The modelling demonstrated that Option C with A flows overload the

Otterspool Road junction and bring the Dan Bank junctions (Dooley Lane / Marple Road and Offerton Road / Marple Road) close to overcapacity. The addition of Option C with B traffic would require the Otterspool Road junction to be further expanded, to mitigate the extra traffic. Expansion of the Dan Bank junctions, whilst possible was not considered practical due to the topography and sensitivity of the area. As such modelling of Option C with B as a part of the Option B alignment was not considered appropriate.

- Traffic Noise and Vibration – Ambient noise measurements were made at 20 locations, with calculations undertaken at 50 typical locations utilising only one traffic scenario.

**Sections 1.5 to 1.16** briefly summarise the findings of the Environmental Assessment, with issues addressed under DMRB topic areas, supported by summary **Figures 1 to 4: Built Environment Constraints** and **Figures 5 to 8: Natural Environment Constraints**.

## 1.5 Air Quality

The results of the air quality assessment show that development of any Option would cause both positive and negative changes in air quality at local receptor points. All Options were predicted to cause an exceedence of the NO<sub>2</sub> objective for a receptor on the Stepping Hill Link. This location falls within an Air Quality Management Area (AQMA) and further assessment would be required at this location.

Option B was predicted to cause the greatest deterioration in air quality across the area, with the exception of the western section by the airport where it would give better results in terms of air quality. Particular air quality deterioration was noted around the proposed Stepping Hill Link area, however this is common to both Options A and B.

Results for Option A and Option C (with A) were very similar. Modelling indicated that for Option C (with A) in comparison with Option A, fewer properties were predicted to experience an improvement in air quality, however fewer properties were also predicted to experience deterioration in air quality. A significant proportion of receptors modelled experience near background pollutant concentrations.

The results of the screening assessment indicate that at Stage 3 detailed dispersion modelling would be required specifically in areas where elevated levels of NO<sub>2</sub> and PM<sub>10</sub> were predicted, or objectives exceeded. In addition, it would be necessary to conduct detailed specialist modelling for all emission points from the potential cut and cover tunnels in Sub-Option B1, should this design be taken forward. The potential requirement for declaration of an AQMA would also be identified.

**Table 1.1** below summarises improvements and deteriorations in air quality for the 50 receptor locations modelled in the assessment. **Table 1.2** highlights total numbers of potentially affected properties within 200m of the proposals.

	Number of Receptor Locations Experiencing:			
	Improvement In Air Quality	Deterioration In Air Quality	No Change	Background Levels
Option A	15	21	2	5
Option B	15	24	–	3
Option C (with A)	13	17	–	12
Alternative southern Tie-in (Poynton)	1	1	–	–
MAELR (West) Sub-Option 1	1	3	1	–

Table 1.1 – Number of Properties Experiencing Positive or Negative Air Quality Impacts.

N.B. Background levels indicate where existing traffic data is not available, e.g. in rural areas.

	Total No. of affected properties within distance bands (m)				
	0–50	50–100	100–150	150–200	Totals
Option A	153	496	777	1114	2540
Option B	196	613	866	1359	3034
Option C (With A)	169	528	673	903	2273

Table 1.2 – Property Count Comparisons.

## 1.6 Cultural Heritage

No Scheduled Ancient Monuments would be affected by the Options, and no impacts were identified for the Styal Conservation Area or the Grade II\* Registered Park at Adlington Hall. Options A and B, however, would have an impact on Halliday Hill Farmhouse and Option C on Otterspool Bridge, each of which is a Grade II Listed Building. There could be an impact on other Listed Buildings including: along the Poynton Bypass, Greenacres and Windle Hey, Street Lane Farmhouse, the milepost to the north of that site and the Legh Arms, and, on MAELR (West), The Grange. The impacts on listed buildings would potentially be positive as well as negative. The proposals would impact on a number of buildings included on the local list maintained by SMBC. The extent of this impact varies between the Options. The Options would also impact on three Important Hedgerows identified under archaeological and historical criteria (ref. Hedgerow Regulations 1997).

The proposals would affect a number of known archaeological sites and areas identified as of archaeological potential. The most significant of these were considered to be a possible early settlement site above Goyt Hall in Bredbury, several Roman roads believed to cross the study corridor, a potential area of Anglo-Saxon activity in the vicinity of Norbury Hall Farmhouse, the late 18<sup>th</sup> century water-powered cotton factory at Foggbrook Mill, and Norbury corn mill. No known remains of national importance were identified in the study corridor meriting preservation in situ.

In terms of both the built heritage and known and potential archaeology, Options A and B would largely affect the same sites. The impact would be somewhat greater for Option B given the greater area required for cuttings and road links. Option C represents the main variant to A and B in terms of sites affected. The Poynton Bypass Alternative Southern Tie-in would have a reduced impact for this part of the route.

It should be stressed that the route corridors may also contain below ground remains which cannot be identified by desk-based assessment techniques alone and the scoping and timing of further evaluation would need to be established in Stage 3.

## 1.7 Disruption Due to Construction

Potential temporary impacts associated with the construction process were assessed as broadly similar for all Options, and can generally be minimised or mitigated by the application of mitigation strategies. Key areas of concern common for all options include:

- Constrained land-take areas and proximity to residential areas.
- Unavoidable disruption to the busy commuter routes.
- Live rail crossings.
- Major river and watercourse crossings.
- Heavy Goods Vehicle (HGV) movements.
- The generation of large quantities of excess spoil.

Key points providing some differentiation between the Options include:

### Option A

- Junction construction at existing ground level, with high potential for disruption to through traffic.

### Option B

- Separation of the main route from local roads by bridges with opportunities for off-line construction and maintenance of traffic flows.
- An increase in HGV movements of almost 20% compared with Option A.
- More extensive/complicated civil engineering works requiring import of specialist materials and the utilisation of potentially noise generating plant.
- Higher potential during excavation to impact on groundwater and adjacent watercourses and ponds.

### **Option C (with A)**

- An increase in HGV movements of 3.9% on Option A and 3.3% decrease on Option B.
- Additional disruption anticipated due to utilisation of the existing road.
- 'Additional' potential environmental sensitivities associated with the Sites of Biological Importance (SBI) woodlands, River Goyt and Torkington Brook and listed structures.

For Sub-Options B1, B2, B3 and MAELR (West) Sub-Option 1; no significant additional adverse or beneficial impacts were identified, associated with the construction process. Relatively limited beneficial impacts were identified for Poynton Bypass Alternative Southern Tie-in, associated with its shorter alignment and distance from housing.

## **1.8 Ecology and Nature Conservation**

Potential ecological impacts associated with the proposals could generally be minimised or mitigated by the application of mitigation strategies summarised in the main report. Common sections of the alignment occur and have been described collectively and, where variations occur due to Option/Sub-Option differences, these have been described separately.

### **Option A+B (west of Offerton Green) Sections 1 & 4**

- 4 ancient woodland SBIs, Grade A or likely to be upgraded to such, and 4 SBI-quality smaller woods.
- 1 SBI-quality grassland.
- 1 moderate value pond and 6 low value ponds.
- 1 great crested newt (GCN) pond.
- 9 high quality grasslands affected.
- 5 high quality hedgerows are affected.
- 4 rivers and streams affected.
- 11 buildings and 16 trees with bat roost potential within the route corridor.
- Badger activity.

### **Option A+B (west of Offerton Green) Sections 2 & 3**

- Ancient woodland SBIs, one of which is a candidate Local Nature Reserve, and 1 SBI-quality woodland.

- 1 moderate value and 1 low value pond.
- High quality hedges.
- Rivers and streams.
- 7 structures and 7 trees with bat roost potential.
- Badger activity.

**Option C (east of Offerton Green) Section 2 & 3**

- 3 ancient woodland SBIs, Grade A affected.
- 1 GCN pond.
- 1 low value pond.
- 1 high quality hedgerow.
- 2 rivers and streams affected.
- 10 structures and 4 trees with bat roost potential.
- Badger activity.
- Otter activity.

**Poynton (extending from the A523 Macclesfield Road at Brookside Garden Centre to Adlington) Sections 5 & 6 - No Options**

- 1 ancient woodland SBI affected.
- 1 proposed SBI for breeding brown hare.
- 2 GCN ponds and 1 large cluster (with GCN ponds located outside route corridor).
- 3 high value, 2 moderate and 12 low value ponds are affected.
- 7 high quality grasslands.
- 3 high quality hedges.
- 3 semi-natural rivers and streams affected.
- 1 probable bat roost plus 5 structures and 60 trees within route corridor.
- 1 arable field used by Biodiversity Action Plan (BAP) birds.

- Badger activity.

**Option A+B, Sections 5 & 6**

- 2 SBI-quality ancient woodlands affected.
- 1 GCN pond in a small pond cluster.
- 10 low value ponds.
- 4 trees with bat roost potential.
- Badger activity.

**Poynton Bypass Sub-Option Alternative Southern Tie-in (the A623 tie-in to south of Adlington Industrial Estate) Section 6**

- 3 SBI-quality woodlands.
- 1 GCN pond in a small pond cluster.
- 1 high value pond.
- 1 small stream affected.
- 10 trees with bat roost potential.
- 1 arable field used by BAP birds.
- Badger activity.

**Area west of the existing MAELR corridor, Sections 8 & 9 - No Options**

- 1 wet woodland (BAP habitat).
- 2 GCN ponds in 2 different clusters.
- 1 high value, 2 moderate and 4 low value ponds.
- 2 high value hedges.
- 1 building and 13 trees with bat roost potential within route corridor.
- Badger activity.

**MAELR (West) Sub-Option 1, Section 8**

- 1 GCN pond affected.



- 1 low value pond affected.
- 1 building and 1 tree with bat roost potential affected.
- Badger activity.

#### **Option A, Section 8 & 9**

- 4 GCN ponds within a large cluster affected.
- 2 high value hedgerows affected.
- 1 tree with bat roost potential affected.
- Badger activity.

#### **Option B, Section 8 & 9**

- 3 GCN ponds within a large cluster affected.
- 1 low value pond affected.
- 3 high value hedgerows affected.
- 1 building and 4 trees with bat roost potential affected.
- Badger activity.

#### **Additional work to attain Stage 3**

Analysis of the desktop study identified a number of gaps in the information obtained from consultation which require addressing prior to Stage 3. These should be actioned during the autumn and winter months to inform additional work in 2004. Additional field surveys were recommended for the following species and habitats:

- **Bats**
  - Dusk/dawn emergence surveys of likely bat roost;
  - Dusk/dawn emergence surveys to locate areas of high activity, followed by more detailed searches for roosts;
  - Tree-by-tree aerial investigation in areas of high bat activity;
  - Detailed internal and aerial search of all buildings and structures (i.e. bridges) affected;

- Surveys to be carried out during active season for bats, i.e. mid-spring to late summer.
- **Great Crested Newt**
  - Complete full GCN surveys in-line with English Nature (EN) (2000) guidance on ponds not covered in this study;
  - Additional surveys (if required by EN) in 500m buffer in areas of high activity, i.e. at Styal and west of Poynton;
  - Both surveys will need to be carried out at an appropriate time in early spring 2004. Access permissions should be in-place beforehand.
- **Badger**
  - Conduct additional surveys to augment studies completed to date, and allow more accurate assessment of effects.
- **Invertebrates**
  - Pond and marsh invertebrates, including senescing ponds;
  - Fluvial invertebrates, to tie in with water quality assessment requirements;
  - Possible follow-up surveys from the additional desktop study work, e.g. for *Lymnaea glabra*.
- **Habitats**
  - Hedgerows – additional analysis of data collected and targeted survey would be required to highlight ‘important’ hedgerows (under the Hedgerow Regulations 1997 and proposed Amendments 2003) from those selected as ‘high’ and ‘medium’ quality in the report. This work should be carried out in autumn 2003 or, ideally, spring 2004, when species will be fully visible.

## 1.9 Landscape Effects

**Landscape Character** - The large adverse impacts of Options A and B where they pass through the Poise Brook Corridor would be substantially modified by mitigation measures to reduce the impact of the routes to the extent where they would have possibly only a slight / moderate adverse impact on a relatively low quality landscape which would retain its function as a buffer zone.

Option B has the potential to incorporate Sub-Option B1, a ‘cut and cover’ tunnel through the Bredbury corridor. This would have a significant advantage over Option A in that it would, assuming an appropriate complementary landscape scheme, transform the

large adverse impact of the route into a moderate beneficial impact retaining the corridor as an open space of importance to the local community.

Option C (with A or B), where it provides an alternative alignment through the Goyt valley and Torkington / Marple Woods to avoid the Poise Brook Corridor, generally has moderate adverse impact on views from properties. However, it has a large adverse impact on the landscape where it takes land occupied by Torkington Woods. Whilst fewer properties are affected in and around the Goyt valley, than through the Marple Road to Bean Leach Road section of the Poise Brook Corridor, Option C (with A or B) continues to have a large adverse impact on the section of Poise Brook Corridor between Bean Leach Road and Offerton Road due to the provision of the Stepping Hill Link. The adverse visual impacts can be satisfactorily mitigated to a degree consistent with the mitigation for Options A and B but whereas these options occupy the relatively low quality landscape of the Poise Brook Corridor the comparative length of Option C (with A or B) would occupy good / high quality landscape, some of which is of considerable ecological merit.

Norbury Brook, particularly the section between Norbury Hollow and Macclesfield Road would be substantially and permanently affected by all the proposed Options in a location where there is insufficient scope to achieve satisfactory mitigation.

Throughout sections 5 – 9 generally adverse / large adverse impacts have been identified on a mixed landscape of low to medium quality. Whilst specific and localised differences in impact have been identified between Options A and B, the scope for mitigation is such that throughout these sections there is considered to be potential to substantially reduce the impact of the scheme Options through a comprehensive approach to mitigation.

Much of the success of mitigation would be dependent on the implementation of planting strategies so any reduction in impact would be achieved over the time it takes for the planting to mature and initial impacts would remain high. However, scope exists to reduce the adverse / large adverse impacts to moderate and in many cases slight adverse impacts and there is a genuine opportunity for the landscape of the mitigation measures to act as a catalyst for the improvement of the currently declining landscape structure in a manner which provides complementary opportunities for recreation, environmental enhancement and improvements to the amenity value of what are important green spaces.

**Visual Impact** - Throughout the study corridor the visual effects were assessed as tending towards the moderate adverse to large adverse end of the scale. Visual impacts would be most significant and adverse in Sections 1, 2, 3, 5 and 9 but these would be reduced over the long term with the introduction of appropriate mitigation strategies. Through the remaining sections, visual intrusion would range from slight to moderate/large adverse. Effective mitigation would again serve to reduce impacts in the long term.

Option C (with A or B), east of Offerton Green, would introduce moderate to large adverse visual impact, particularly focused around the Poise Brook region of the locality.

Sub-Option B1 at the Bredbury Corridor would bring immediate moderate visual benefit by virtue of the potential cut and cover tunnel. Sub-Options B2 and B3 would not bring any discernable benefits/disbenefits visually to the main route alignment Options.

Overall, within the study corridor, there would be elements of residual large adverse impacts principally in localised areas around junctions and at elevated road / railway crossings where mitigation is either inadequate or, where it is achievable, creates its own adverse visual impacts.

## **1.10 Land Use**

**Demolition and Effect on Private Properties** – Residential property demolition gives rise to a significant adverse impact summarised below for the various Options:

- Option A - 22 Residential properties.
- Option B - 26 Residential properties.
- Option C with A - 13 Residential properties.
- Option C with B - 17 Residential properties.

Option C (with A or B) would result in significantly lesser impact through Section 2 and Section 3, than Options A or B.

Sub-Options B1 and B2 would give rise to no significant additional impact in comparison to Options A and B. Sub-Option B3 would however increase levels of impact when compared with the main Options.

The assessment concluded that Option B would potentially increase adverse impacts on residential development when compared to Option A. In terms of the general land use the overall loss of housing was considered as of low significance in a wider context. The replacement of the housing with a suitable landscape buffer would establish a more appropriate integration of land uses and would enhance the environmental quality of the corridor and wider area.

**Demolition and Effect on Commercial/Industrial Properties** – The assessment demonstrated that 4 additional individual properties would be demolished by both Options A and B and C with A or B. It further highlighted that for the entire study corridor, 18 groups of properties would be directly affected by Option A and 21 directly affected by Option B. Assessment of severance impacts indicated that, in relation to the total numbers affected, Option B would have marginally less impact than Option A.

Option C (with A) would impact on fewer groupings directly than Option C (with B). For the Sub-Options, no significant additional adverse impacts were anticipated, however MAELR (West) Sub-Option 1 would have a reduced impact on land take and severance for Styal Golf Club.

**Effects on Development Land** – Option A and B broadly follow the safeguarded corridor around Stockport, South Manchester and Poynton and are therefore in agreement with the aims of current policy guidance and designation plans.

Strategic Open Space land lost within Section 2 for Options A and B would have an impact rating of moderate adverse. Green Chain land would be slightly more affected by the greater land take of Option A than B. The proposed Stepping Hill Link area also contains comparable designations and would be subject to similar impacts.

Around Poynton all options would affect the integrity of the existing Adlington Industrial Estate. The impact of severance, loss and land take through the industrial estate would be considerable, and hence an impact rating of severe adverse was derived for all options, partially offset by the provision of a new improved access and replacement development areas.

Designated development sites near Manchester Airport would benefit from the improved transport links provided by the Options A and B of the scheme.

Option C (with A or B) would be the most damaging to both current land use and nature conservation designations, as the alignment follows a line not safeguarded for development, hence no provision has been made in terms of land use planning. This therefore warranted an overall impact rating of moderate and adverse.

**Effects on Community Land** – The assessment indicated that there would be comparable land take and severance for Options A and B with regard to community land and open space, concentrated within Sections 1, 2 and 5. The assessment further indicated that impacts would be comparable with combinations of Option C (with A or B). In the case of the community land/open space, areas identified as being impacted upon warranted an impact rating of moderate and adverse. Where the loss is negligible and the affected area(s) remain intact, the overall encroachment warranted a lesser rating of slight and adverse. Encroachment into woodland would result in an impact rating of moderate and adverse for all options.

The greatest adverse effect on Public Open Space would be experienced by the Option B being marginally more intrusive than Option A.

**Effects on Agricultural Land** - Estimated agricultural land take requirements for the study corridor are set out in **Table 1.3** below:

<b>Grade</b>	<b>Option A m<sup>2</sup></b>	<b>Option B m<sup>2</sup></b>	<b>Option C (with A) m<sup>2</sup></b>	<b>Option C (with B) m<sup>2</sup></b>
<b>1</b>	0	0	0	0
<b>2</b>	194,653	190,975	189,019	185,341
<b>3a</b>	767,199	785,902	676,939	695,642
<b>3b</b>	1,189,926	1,172,230	1,276,753	1,259,057
<b>3c</b>	106,243	115,573	106,243	115,573
<b>4</b>	159,056	161,272	159,056	161,272
<b>5</b>	7,620	7,620	7,620	7,620

**Table 1.3 – Agricultural Land Classifications, Land Take Comparison.**

Loss of agricultural land was considered of local importance, however in national terms the overall loss would be of low significance. The loss is, however, significant to owners and the locality. The majority of potentially affected farm holdings are concentrated within Sections 5, 6 and 8.

Severance was identified for farming businesses along the route and impacts were considered broadly similar for Options A and B. Severance impacts would also occur along Option C (with A or B), affecting local farms within Section 2. Generally Sub-Options would have no significant impacts on the land take requirements, however the Alternative Southern Tie-in at Poynton would result in the retention of the following areas in comparison to the main options; 16,079m<sup>2</sup> Grade 2; 182,769 m<sup>2</sup> of Grade 3a; 27,965 m<sup>2</sup> of Grade 3b and 18,550 m<sup>2</sup> of Grade 5. A detailed agricultural assessment at Stage 3 would register changes that have occurred to farming businesses along the corridor. This would also ensure that all opportunities for best alignment, adjustment and mitigation are pursued.

**Effects on Pending Planning Applications** – The assessment of current planning applications has demonstrated that no individual application would be compromised by the proposed route options. The proposals would have an overall impact rating of slight beneficial to current planning consents within Stockport Metropolitan Borough Council and Manchester City Council areas, with particular benefits being associated around Sections 1 and 9 of the scheme.

## **1.11 Traffic Noise and Vibration**

### **Option A**

The level of the Option and use of retaining walls would, to some degree, offset noise impacts, for relatively close properties on the edge of the housing estates at Bredbury. Through Offerton, the distance between the alignment and the nearest housing on the edge of residential estates results in properties experiencing only a small increase in noise level. At major junctions adjacent housing would be subject to relatively high levels of noise, with limited opportunities for noise mitigation. The scheme passes

through rural areas in which many individual and small groups of properties, would be impacted upon to different extents; i.e. some of the closest would experience a large change in noise level due to the current quiet surroundings. At the proposed ground level junction at Chester Road properties would experience high level of noise locally, however, there would also be a reduction in traffic volume and hence noise levels for the rest of Chester Road.

### **Option B**

When compared to Option A the utilisation of greater lengths of cutting would reduce noise levels at major junctions. In other areas where properties are located at some distance from the alignment, properties on the edges of the residential estates will again only be subject to only slightly increased noise levels, similar to that for Option A. Through the Bredbury corridor, the option alignment in deep cutting would result in a reduction in noise levels in comparison to Option A. The MAELR section of this Option follows a more southerly approach, which affects a small number of additional properties on Styal Road. No significant differences were identified between Option A and Option B in the Poynton area.

For Sub-Option B1 the potential use of two short 'cut and cover' tunnels through the Bredbury corridor would reduce noise levels for the majority of properties to very low levels, however there would be a distinct concentration of noise at the tunnel portals.

### **Option C (with A)**

Apart from the change in alignment around Offerton Green and the Stepping Hill Link, this Option is identical to Option A. To the east of Offerton Green, the Option is located much closer to properties, creating a significant amount of noise, however these properties are already subject to high noise levels. The Stepping Hill Link is longer for this Option, extending from Offerton Road along a similar alignment to Options A and B. Option C (with A) however, would provide reduced noise levels for properties along this section due to an overall reduction in local traffic movements.

### **Poynton Sub-Option Alternative Southern Tie-in**

The location of the tie-in to the existing London Road is further north than Options A or B and would have the effect of transferring traffic onto the existing road sooner. The small number of properties located along this existing road would therefore be subject to a relatively large increase in noise. Roads that intersect London Road, for example Mill Lane at the Adlington Crossroads, would experience no significant increase in noise in comparison to other options.

### **MAELR (West) Sub-Option 1**

This route runs to the north of Options A and B and is therefore closer to the housing estate, however changes in noise levels in comparison to other routes are negligible.

## **Vibration**

There are only a limited number of properties within 40m of the scheme, which are generally located along existing roads and as such may already be subject to vibration from existing traffic. The assessment highlighted that for Option A, there is only one location within 40m of the alignment where over 50% of people would be 'very much or quite a lot' bothered by the vibration effects. This is, however, on the A6 Buxton Road an already heavily trafficked existing route. For Option B, there are no receptors within 40m of the alignment which exceed the 50% 'bothered by vibration' threshold. For Option C (with A), there are two locations within 40m of the alignment where over 50% of people would be 'very much or quite a lot' bothered by the vibration effects. These are however, on Offerton Road and the A6 Buxton Road, both heavily trafficked existing routes. Further assessment at Stage 3 would be required to ascertain detailed impact assessment.

### **1.12 Pedestrians, Cyclists, Equestrians and Community Effects**

The potential impacts are broadly similar, as are mitigation strategies, due to the similarity of alignments and the footprint of the A and B Option corridors. Specific footpath and cycleway facilities increase the potential for integration and opportunities for new 'networking', whilst limiting potential clashes with motor vehicles. The Options also have considerable potential for significant environmental gain in terms of integrated public access within newly created landscaped areas.

The following key points provide some differentiation between the Options.

#### **Option A**

- Ground level controlled crossings facilities at major junctions cannot fully eliminate pedestrian/vehicle conflict, along with inherent potential for delay.

#### **Option B**

- Utilisation of bridges would minimise pedestrian/vehicle conflicts as far as practical.
- Linkage to Marple Road is complicated by the separation of levels requiring an access via a link road.

#### **Option C (east of Offerton Green)**

- For the rest of the corridor, impacts will be the same as for Options A or B.
- More severe impact on River Goyt bridleway, requiring a diversion and controlled crossing instead of an underpass.
- Amenity of affected paths in the wider context would be reduced due to confined 'on-line' construction.



- No 'new' severance between Offerton and Offerton Green.

MAELR (West) Sub-Option 1 would require the severance of an additional footpath.

Poynton Bypass Alternative Southern Tie-in would have a beneficial impact on one footpath, and would not impact directly on the existing setting and layout at Adlington Crossroads.

The potential provision of a 'cut and cover' tunnel in the Bredbury corridor for Sub-Option B1 offers an increased potential for a linear park to maximise opportunities for environmental gain. Sub-Options B2 and B3 offer no significant additional adverse or beneficial impacts. MAELR (West) Sub-Option 1 would however require the severance of an additional footpath. Poynton Bypass Alternative Southern Tie-in offers a local benefit in avoidance of severance of one footpath in comparison to Options A and B, and would not impact directly on the existing setting and layout at Adlington Crossroads.

It can be concluded that there is an overall reduction in traffic flows on the relieved sections of the majority of the local road network for each option. Analysis of the results indicates that there are the following significant reductions or increases in severance for each of the options:

#### **Option A**

- 1 substantial reduction in severance
- 11 moderate reductions in severance
- 1 substantial increase in severance
- 1 moderate increase in severance

#### **Option B**

- 7 moderate reductions in severance
- 2 substantial increases in severance
- 1 moderate increase in severance

#### **Option C (with A)**

- 1 substantial reduction in severance
- 4 moderate reductions in severance
- 1 substantial increase in severance
- 1 moderate increase in severance

On the basis of the above findings, Option A would appear to provide an increased reduction in severance in comparison with Options B and C (with A).

### **1.13 Vehicle Travellers**

**Driver Stress** - The potential impacts on driver stress on the new route and upon the surrounding road network are anticipated to be broadly similar, due to the similarity of alignments and the footprint of Options A and B. Assessment of stress levels on existing road networks indicates that Option A would give comparable driver stress levels to the 'Do Nothing' scenario. Option B and Option C (with A) would give comparable reductions in driver stress comparable to the 'Do Nothing' scenario.

Stress levels on the new build sections for the Options have generally been assessed as moderate to high for the majority of the route. Option B provides reduced levels of driver related stress along the alignment over Option A, and Option C (with A) would result in comparable levels of stress as Option B.

All of the new build sections would be designed to the latest Department for Transport highway and health and safety design requirements, with lighting, segregation of pedestrians and cyclists from vehicles and controlled crossing facilities included to minimise any potential conflicts. Stress levels on the 'relieved roads' have generally been assessed as high due to their existing limitations in terms of design standards and anticipated growth in traffic.

**Views from the Road** - Key variations between the Options are set out below:

- Sub Option B1 has the only wholly contained view where the motorist would pass through the potential 'cut and cover' tunnel at Bredbury corridor.
- Option C (with A or B), where it passes through the broader more open section of the Goyt valley, offers more open and expansive views towards the Pennines, than can be achieved with Option A and B.

All Options provide intermittent and occasionally open views into the surrounding rural landscape around Torkington and Norbury. Similar intermittent and open views would be available from the elevated stretches of Options A, B in sections 7, 8 and 9, albeit of a landscape of lower quality than that found in the Torkington and Norbury area. Generally the degree of cutting and containment and mitigation measures dictates that the view from the road is not a determining factor in informing route option selection. However, Option C (with A or B), where it passes through the broader areas of the River Goyt valley, does provide more open and expansive views than can be found on the equivalent section of Options A and B.

### **1.14 Water Quality and Drainage**

Options have been assessed for their affect on surface and ground water quality, using relevant legislation and best practice guidance. This identifies that treatment is required for a number of road sections. In terms of route selection however, Option C would not

require mitigation (for east of Offerton Green), whereas Options A and B would require drainage to Poise Brook to be treated.

The EC Freshwater Fish Directive is expected to be an increasingly important factor as the EA have advised that the streams and brooks within the study area are likely to be considered sensitive. It is therefore anticipated that the permitted concentrations would be exceeded on the majority of road catchments requiring high levels of treatment.

The EU Groundwater Directive requires that all road runoff is treated before discharge to groundwater. This prevents the use of conventional source control measures such as grassed swales and filter drains, which promote infiltration before treatment. A three stage treatment process would constitute the standard level of treatment for all areas that drain to groundwater. In terms of route selection, all options would require the same level of water quality treatment prior to groundwater discharge.

The drainage impacts have largely been deferred to Stage 3 however it is expected that impacts would be mitigated by the design of an overall water management strategy

### **1.15 Geology and Soils**

From the geological, RIGS and soils points of view, there are no significant benefits or disadvantages of any route Option. From the stream geomorphological viewpoint, the less they are damaged, culverted or re-trained, the lower the significance of the impacts both under the corridor, downstream and, possibly, upstream by altering erosion patterns. Option C (east of Offerton Green) would avoid losing part of Poise Brook, whereas all Options cross the River Goyt.

### **1.16 Policies and Plans**

The SEMMMS 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 (Options A and B) has been safeguarded within the Green Belt and has long been recognised within the statutory planning process at local level. Option C (with A or B) however, falls outside this established planning context. 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.

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

The policies relating to the River Goyt and the Ladybrook Valley emphasise the sensitivity and uniqueness of the landscape character within these areas. The location of the corridor in relationship to the River Goyt, the choice of best crossing points, minimising land take and creating opportunities for enhancing informal recreation are all

key policy guidance on informing the detail design of the road in order to fulfil Policy aims.

The potential widening of existing roads, embodied in Option C (with A or B), and the Poynton Bypass Alternative Southern Tie-In in certain aspects could be considered more compatible with sustainability objectives by making use of existing infrastructure. The former, however, specifically clashes with other policies on nature conservation.

Local planning guidance for the Poise Brook section of the corridor is firm in its assertion that the Options A or B and a housing site can be accommodated without compromising the integrity of the Strategic Open Space and Green Chain policies. As there is not much additional capacity within this section Option A, which has the least land take, would have a less adverse impact than Option B. Opportunities exist to fulfil planning policy aims by increasing informal recreation and facilities in the river valley as a part of mitigation proposals.

The parallel cycle/footpath routes proposed would increase recreation potential in the urban fringe and increase modes of transport. Continuation of this provision would create comprehensive alternative methods of transport in line with current policies and provide an asset of great benefit to the local community.

## **1.17 Conclusions**

The Stage 2 Environmental Assessment process identified that for many of the DMRB subject areas Options A and B, which occupy the current protected corridor, are broadly similar, differing only in 'detail' at certain specific areas generally associated with the difference between junction configurations. Option C, to the east of Offerton Green, provides the only significant variations in impact assessment when tested against the various DMRB assessment subject areas.

# Figures

## KEY

**FIGURE 1 Built Environment Constraints**

**FIGURE 2 Built Environment Constraints**

**FIGURE 3 Built Environment Constraints**

**FIGURE 4 Built Environment Constraints**

**FIGURE 5 Natural Environment Constraints**

**FIGURE 6 Natural Environment Constraints**

**FIGURE 7 Natural Environment Constraints**

**FIGURE 8 Natural Environment Constraints**

**N.B. Aerial photography provided by Stockport Metropolitan Borough Council and map data from Ordnance Survey (under License No. AL 10001 7777).**