THE MERSEY GATEWAY PROJECT

TRANSPORT

CHAPTER 16.0

TRANSPORT

C O N T E N T S

FIGURES

APPENDICES

16. TRANSPORT

16.1 Introduction

16.1.1 This Chapter of the ES describes the current performance of the transport networks in and around the Borough of Halton and the effect of the Mersey Gateway Project on that performance. Because the Project will make extensive changes to the transport system it is necessary to consider the ramifications of the changes. These will be experienced in terms of the changes to travel demand and behaviour. These changes then in turn have environmental effects on noise and air quality.

16.1.2 To fulfil the Environmental Impact Assessment requirements for the applications relating to the Project, an Environmental Statement (ES) has been produced. This Chapter is an integral part of the ES and supports the ES, and Planning Application generally, by providing information on the operation of the network as a result of the Project. It informs a number of related Chapters of the ES, including the Land Use, Social and Economic Chapters. This Chapter also fulfils the requirements of a Transport Assessment as required for a Planning Application and detailed in the relevant guidance, as specified below.

16.1.3 The assessment that supports this Chapter draws on a wide range of guidance including:

a. Design Manual for Roads and Bridges (DMRB) Volume 11 (Ref 1);
b. Traffic Appraisal Guidance (WebTAG) (Ref 2);
c. Planning Policy Guidance 13 (PPG13) – Transport (Ref 3); and
d. Guidance on Transport Assessment (Ref 4).

16.1.4 Table 16.1 lists sources of specific assessment guidance used in this Transport Assessment. The PPG13 Guidance (Ref 3) and Guidance on Transport Assessment (Ref 4) were used as the basis for the planning related assessments on the effects of the Project on the operation of the network. DMRB (Ref 1)/WebTAG (Ref 2) guidance is the basis of the environmental assessment of the Project for the construction and operational phases.

16.1.5 Following this introduction, the Study Area is briefly described, followed by a summary of the relevant transport related legislation and planning policy. An overview of the Project is then followed by an outline of the methodology applied for this assessment. The 2006 Baseline situation in terms of transport users and transport networks is described in Section 16.6 to form the basis of the effects assessment in Section 16.7. The Project is assessed in operational terms for 2015 and 2030 at the strategic and local level, with special reference to the Mersey crossings. The Project is then assessed for the construction phase of the Project and for its effect on users of the transport networks drawing on WebTAG criteria. Section 16.8 describes mitigation measures to reduce the effects of the Project assessed in Section 16.7. Any residual effects remaining after the application of mitigation measures are described in Section 16.9.

16.1.6 The traffic forecasts required for the assessments were produced by a variable demand traffic model. The model and the process of producing the traffic forecasts are summarised in the Summary Forecasting Report (Appendix 16.5).

Table 16.1 - Correspondence between Document Function and Relevant Guidance

Source of Guidance	Specific		
PPG 13	Appendix C		
WebTAG	Environmental (TAG Unit 3.3) 3.3.12)	Physical Fitness	(TAG Unit
		Journey Ambience	(TAG Unit

Source of Guidance	Specific
Guidance on Transport Assessment	3.3.13) Safety (TAG Unit 3.4) Security (TAG Unit 3.4.2) Economy (TAG Unit 3.5) Not applicable to this document Accessibility (TAG Unit 3.6) Option Values (TAG Unit 3.6.1) Severance (TAG Unit 3.6.2) Access to the Transport System (TAG Unit 3.6.3) Integration (TAG Unit 3.7) Transport Interchange (TAG Unit 3.7.1)
DMRB	Existing Conditions Proposed Development Effect of Proposed Development Mitigation Measures DMRB Volume 11 refers to WebTAG (Section 3) - Disruption due to Construction (Part 3) - Pedestrians, Cyclists, Equestrians, Community Effects (Part 8) - Vehicle Travellers (Part 9)

16.2 Study Area

The Location of Halton in the Context of Strategic Transport Networks

16.2.1 The Borough of Halton is located in the North West of England[1], (Chapter 1, Figures 1.1 and 1.2), at a strategic crossing point of the Mersey Estuary (the 'Estuary'). It comprises the Borough's two principal towns of Runcorn and Widnes either side of the Estuary, together with the four parishes of Daresbury, Hale, Moore and Preston Brook. It lies at the convergence of a number of transport systems described below.

Road

16.2.2 At the lowest bridging point across the river Mersey - i.e. closest to the sea - known as the 'Runcorn Gap', the Estuary narrows significantly and thus provides a long-used crossing point. This is now used by the main rail connection between Liverpool and the West Coast Main Line (via the Aethelfleda Railway Bridge) and the SJB which is only one of four crossings of the Mersey. It lies between the Kingsway and Queensway Tunnels to the west, the A50 and A56 at Warrington and Thelwall Viaduct (M6) crossings to the east. The SJB is a key link providing for a north-south route between the M62 and the M56 east/west routes for both local traffic and the wider regional traffic into and out of Merseyside, Cheshire, North Wales, Liverpool, Liverpool John Lennon Airport, Manchester Airport and the port of Liverpool.

16.2.3 The M62 and M56 motorways pass to the north and south of the Borough respectively with connections via the A562/A5300 and A557 to the M62, and via the A557 to the M56. To the west of Widnes the A562, Speke Road, links Widnes to south Liverpool. The M62 to the north of the Borough links the Liverpool City Region to Manchester and thereafter across the Pennines to the Yorkshire conurbations. To the south, the M56 links North Wales and Cheshire to Manchester.

Rail

16.2.4 There are two railway stations in Widnes, both on the Liverpool to Manchester line. However, there is no rail link between Widnes and Runcorn. Runcorn has two railway stations, consisting of a main line station on the Liverpool to London line and a further station on the Manchester, Chester and North Wales line.

Canals

16.2.5 The Borough provides access to three canal systems: the Manchester Ship Canal, Bridgewater Canal and St Helens Canal. Of the three, two (Bridgewater and St Helens Canal) are used for leisure purposes with the Manchester Ship Canal providing for commercial cargo.

16.2.6 The Manchester Ship Canal, a 56 kilometre linear port providing access for shipping along its full length from Eastham in Merseyside to Salford in Greater Manchester, traverses along the southern edge of the Mersey Estuary in Runcorn and provides for docking and berthing facilities at Runcorn Docks capable of handling a wide variety of bulk cargoes. The Bridgewater Canal forms a strategic link between the north and south canal network stretching from Runcorn to Leigh and was an important commercial waterway and latterly following cessation of freight acts as a leisure waterway.

16.2.7 In Widnes, the St Helens Canal links St Helens in Lancashire with Widnes. The canal, which is 15 miles in length, was closed as a commercial waterway in 1963 and is currently used for leisure purposes only. It cannot be used by vessels at present, and the canal is only accessible for a short length due to a wooden footbridge upstream from Spike Island.

[1] The North West of England is comprised of five sub regions including Cheshire, Cumbria, Greater Manchester, Merseyside and Lancashire.

Ports

16.2.8 The Port of Liverpool, including Seaforth and Garston, is located on both banks of the River Mersey in Liverpool and is within 18 miles of the Silver Jubilee Bridge. Together, the Port of Liverpool and the Manchester Ship Canal annually handles 40 million tones of cargo and 15,000 ship movements making the River Mersey Britain's third busiest estuary.

16.2.9 The Port of Garston is the most inland port on the River Mersey, and is a major shipping and container port in the North West, second only to Seaforth Docks. The Port is located within approximately 9 miles of the SJB.

Airports

16.2.10 The Borough is situated within easy reach of two international airports; Liverpool John Lennon and Manchester Airport. The SJB provides a 7 mile route to Liverpool John Lennon airport via the A562 Speke Road and a 26 mile route to Manchester airport via the A557 Weston Point Expressway and M56 motorway.

Study Area for the Transport Assessment

16.2.11 The study area for the transport assessment extends from the Mersey Tunnels in Liverpool to the M6 at Thelwall Viaduct and from the M58 to the north of Halton Borough as far as the M56 to the south. This is the area covered by the variable demand traffic model (explained in Section 16.5 below under 'Assessment Methodology') developed specifically for the appraisal of the Project.

16.2.12 A wider study area (Figure 16.1, Appendix 16.1) has been examined to identify the strategic effects of the Project, but as the analyses will show, the focus for the assessment of effects is within the Halton Borough area. This is because most significant transport effects are concentrated within this area.

16.3 Relevant Legislation and Planning Policy

Introduction

16.3.1 This section establishes the context for the Mersey Gateway Project (The Project) in relation to key national, regional and local transport planning policies and objectives. A full review of planning policies is provided in Chapter 6 Planning Policy.

Policies Reviewed

16.3.2 The key policy documents applicable to this policy assessment are set out below.

National

a. Road Traffic Reduction Act 1997 (Ref 6);
b. Transport White Paper 1998 (Ref 7);
c. From Workhorse to Thoroughbred 1999 (Ref 8);
d. Transport Ten Year Plan 2000 (Ref 9);
e. PPG13 Transport 2001 (Ref 3);
f. Education Act 2002(Ref 10);
g. Transport White Paper "The Future of Transport" 2004 (Ref 11);
h. Traffic Management Act 2004 (Ref 12); and
i. Towards a Sustainable Transport System October 2007 (Ref 13).

Regional Planning Policy

a. Regional Spatial Strategy for the North West (2003) (Ref 14);
b. Emerging Regional Spatial Strategy for the North West (2006), including the Regional Transport Strategy (2003) (Ref 15); and
c. North West Regional Economic Strategy (2006) (Ref 16).

Local Planning Policy

a. Halton Unitary Development Plan (2005) (Ref 17); and
b. Halton Local Transport Plan 2 (Ref 18).

Neighbouring Authority Policies

a. Cheshire County Council (Ref 19);
b. Warrington Borough Council (Ref 20); and
c. Merseyside Authorities (Ref 21).

National Policy

Road Traffic Reduction Act 1997 (Ref 6)

16.3.3 This act placed an obligation on Local Authorities to produce a report containing an assessment of existing levels of traffic on local roads and a forecast of expected growth together with the objective of seeking the targeted reduction of the level of road traffic or its rate of growth.

Transport White Paper 1998 (Ref 7)

16.3.4 The Transport White Paper, "A New Deal for Transport: Better for Everyone", published in 1998, established the Government's aim for a more integrated transport system focusing in broad terms on improvements to public transport services and a reduction in private car dependency. The White Paper sought to fulfil the Government's commitment to the creation of a "better, more integrated transport system to tackle the problems of congestion and pollution.

16.3.5 The White Paper sought a greater degree of integration between transport and land-use planning, so that the two combine to support more sustainable travel choices and reduce the need to travel. This reflected the acknowledged importance of the transport system in moving goods and people, and in helping to make the economy tick. "The White Paper identified the need for good transport to get people to work, and recognised that many jobs are based on extensive travel."

16.3.6 The White Paper recognised that cars have revolutionised the way that we live, bringing great flexibility and widening horizons. However, the potential congestion and thus the unreliability of car based journeys was acknowledged as adding to the costs of business, and undermining competitiveness particularly within towns and cities.

16.3.7 In order to achieve its aims, the White Paper established a framework which sought to:

a. Reduce pollution from transport;
b. Improve air quality;
c. Encourage healthy lifestyles by reducing reliance on cars, and making it easier to walk and cycle more;
d. Reduce noise and vibration from transport; and
e. Improve transport safety for users, those who work in the industry and the general public.

16.3.8 The White Paper considered that the achievement of its aims would be fundamental to the Government's objective of developing an integrated transport system to improve health standards, to increase access to employment opportunities and with it both to create a vibrant economy and to provide a healthier environment for people to live.

From Workhorse to Thoroughbred: a better role for bus travel (1999) (Ref 8)

16.3.9 This document provided a framework for integrating buses with other transport including rail, metro, coaches and airports. This placed a new emphasis on quality transport to meet the needs of travellers and the environment, and demonstrated the Government's commitment to improving mobility and enhancing the quality of life for all.

Transport Ten Year Plan 2000 (Ref 9)

16.3.10 This national strategy for transport aimed to deliver the Government's priorities of tackling congestion and traffic generated pollution through the enhancement of all forms of transport, including rail and road, public and private and by means that diversify choice. To achieve this vision, the Plan identified the need for greater integration between land-use and transport planning at a national, regional and local level to deliver a *"wider choice of quicker, safer, more reliable travel on road, rail and other public transport."*

16.3.11 The Ten Year Plan built upon the principles set out in the 1998 Transport White Paper. It provided a year on year strategy to reach the goal of transforming the transport system up to 2010 by tackling congestion and pollution, increasing choice and raising standards to make travel safer, more attractive and accessible to all. The Ten Year Plan placed an emphasis upon land-use planning and other policies to restrict the growth in private car demand and dependency. Concurrently, a range of alternative actions were identified to tackle rising congestion, including *"adding greater capacity to the most congested transport corridors."*

16.3.12 The Ten Year Plan identified good transport as essential to an enhanced quality of life, to a strong economy, and to a better environment. Improving public transport was recognised as vital in reducing social exclusion, particularly for the older generations who have less access to a car.

16.3.13 The vision expressed within the Plan aimed to provide, by 2010, the following:

a. Modern, high-quality public transport, both locally and nationally;
b. Easier access to jobs and services through improved transport links to regeneration areas and better land-use planning; and
c. A well-maintained road network with real-time driver information for strategic routes and reduced congestion.

16.3.14 The Plan expressed the Government's commitment to *"looking for ways to speed up the delivery of new transport infrastructure,"* and the considerable scope for speeding up the procurement of new schemes. The Plan recognised that *"most people now accept that we cannot rely on road building as a sustainable long-term solution to the problems of traffic growth and congestion."* Road-building was not considered to represent *"the answer"* long-term to addressing the problems of road congestion and pollution. However, until greater integration between land-use planning and other policies begins to take effect the Plan identified a range of alternative actions to tackle rising congestion, including:

a. Building bypasses to take traffic away from towns and villages and smooth traffic flows;
b. Improving larger junctions to reduce accidents and remove bottlenecks; and
c. Adding capacity to the most congested corridors, largely by widening existing trunk roads.

16.3.15 The Plan concluded by advising of the Government's key objectives for the next ten years, including the development of major bus infrastructure schemes in many cities and larger towns, and improved local traffic management and better maintained and safer roads.

Planning Policy Guidance 13: Transport (2001) (Ref 3)

16.3.16 PPG13 comprises the Government's main planning policy guidance in relation to transport and developments. The principal aim is to achieve more effective integration of planning and transport at all levels so as to promote more sustainable transport choices. The guidance seeks to ensure accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling with the overall aim to *"reduce the need to travel, especially by car."* However, there is recognition that the car will continue to have an important role to play for some journeys, and PPG13 requires Local Authorities to *"protect sites and routes which could be critical in developing infrastructure to widen transport choices for future passenger and freight movements."*

16.3.17 PPG13 identifies the likely availability and use of public transport as a very important component in determining locational policies designed to reduce the need for travel by car. Local Planning Authorities are therefore encouraged to work in partnership with public transport providers and operators to improve public transport.

16.3.18 As part of the Government's sustainability objectives, Local Planning Authorities are encouraged to promote walking through a series of measures, including:

a. The provision of wider pavements, including the reallocation of road space to pedestrians, and environmental improvements including improved lighting; and
b. Pedestrian-friendly road crossings which give pedestrians greater priority at traffic signals and avoid long detours and waiting times, indirect footbridges or underpasses.

16.3.19 Likewise, cycling is identified as having the potential to substitute for short car trips, particularly those under 5 km and to form part of a longer journey by public transport. PPG13 encourages Local Planning Authorities to promote cycling through a number of measures, including:

a. Reallocation of carriageway, to provide more spaces for cyclists, such as cycle lanes or bus lanes where cycles are permitted; and
b. Improvement of facilities off the carriageway, such as cycle tracks or paths.

16.3.20 Annex C of PPG13 advises that "care must be taken to avoid or minimise the environmental effect of any new transport infrastructure projects; this include the effects which may be caused during construction. Wherever possible, appropriate measures should be implemented to mitigate the effects of transport infrastructure."

Education Act 2002 (Ref 10)

16.3.21 The Education Act 2002 placed a requirement on Local Education Authorities to develop a '16-19' transport policy to ensure access to education and training for this age group. The importance of this objective was emphasised by a survey of Halton's learner requirements in 2005, which revealed the importance of good affordable transport choices for young people aged 14-19 years of age.

Transport White Paper "The Future of Transport" (July 2004) (Ref 11)

16.3.22 In July 2004 the Government published its second Transport White Paper "*The Future of Transport: A network for 2030.*" The Paper set out national transport policy, and emphasised the importance that the Government placed upon the system of Local Transport Plans to deliver transport / accessibility improvements at a local level. In particular, the White Paper established a vision for the delivery of a range of transport modes by 2030 as follows:

a. A more coherent road network providing a more reliable and free-flowing service for both personal travel and freight, with people able to make informed choices about how and where they travel;
b. A rail network which provides a fast, reliable and efficient service, particularly for interurban journeys and commuting into large urban areas;
c. Bus services that are reliable, flexible, convenient and tailored to local needs;
d. Making walking and cycling a real alternative for local trips; and
e. Ports and airports providing improved international and domestic links.

16.3.23 The Transport White Paper recognised the national need for a transport network that can meet the challenges of a growing economy and the increasing demand for travel. The White Paper advised that where necessary, road networks should be enhanced by *"new capacity where it is needed, assuming that any environmental and social costs are justified."*

16.3.24 The White Paper advised that an increasing proportion of journeys are now made by car. The Paper acknowledged that the shift towards car journeys has provided huge benefits for many people, *"opening up new opportunities"* for direct travel between destinations. However, the White Paper advised that cars can also have an effect on the environment and congestion, and thus identified the need to *"encourage those with cars to consider other forms of transport, particularly for short journeys."*

16.3.25 The Government's aim as expressed within the White Paper was to provide a "more reliable and freer-flowing system for motorists, other road users, and businesses." This approach should provide travellers with the opportunity to make informed choices about how and when they travel, and thus minimise the adverse effect of road traffic on the environment and other people.

16.3.26 A series of 'smarter choices' were proposed within the White Paper to promote the use of alternative means of transport, including School Travel Plans, Workplace Travel Plans, and personalised journey planning. The White Paper advised that the Government would continue to advocate this approach, recognising the importance of walking, cycling and public transport in providing reliable alternatives to the private car.

16.3.27 Where new road-building is required, the White Paper encouraged good quality transport infrastructure which should *"complement or enhance the character of its local area."* Transport schemes were also required to improve the quality of life for local communities, designed in

ways that offer *"environmental gains, reduce community severance, and improve air quality wherever possible."*

16.3.28 In line with the 1998 Transport White Paper commitment to a presumption against transport schemes that damage landscapes, townscapes, biodiversity and the aquatic environment, the 2004 White Paper reiterated that:

a. There continues to be a presumption against schemes that would significantly affect environmentally sensitive sites, or important species or habitats;
b. The effect of schemes on the environment and communities is monitored;
c. Design standards take account of environmental concerns and the effects of any new development are kept to a minimum, with mitigation measures implemented to a high standard;
d. Poor planning does not sever communities;
e. The amount of greenfield land taken for development is kept to a minimum;
f. Biodiversity is respected, and wherever possible, enhance, in our planning, decision making, delivery and network management processes;
g. The marine environment in coastal waters is protected from shipping;
h. All groundwater and surface waters are protected by controlling pollution from sources such as roads and airport runways; and
i. Noise effects from transport are reduced and mitigated, for example around airports.

16.3.29 Overall, the White Paper expressed the Government's commitment to a measured and balanced approach to ensure that transport delivers the economic and social benefits that underpin our prosperity and welfare, and makes a positive contribution towards our environmental objectives.

16.3.30 In the White Paper the Government introduced and then reiterated the concept of paying for transport on the basis of demand and supply citing the established practice and acceptability of paying differential rates for access to the telephone network.

16.3.31 It put forward a 30 year vision for transport that incorporated improved management, providing informed choices for users of the transport network and promoting those choices by developing new ways of paying for road use. It also introduced the Transport Innovation Fund (TIF). The Government recognised the importance of locking in the benefits of new capacity through various measures including tolling.

16.3.32 That fund would be available to incentivise the development of smarter transport strategies that combine road pricing, fund raising mechanisms and support transport schemes beneficial to national productivity.

16.3.33 The Government recognised the need for a mature discussion as to which approach to take to improve service levels and that the time had come to seriously consider the role that some form of road pricing policy could play. The M6 Toll Road had shown that many motorists were willing to pay extra for more reliable journeys.

16.3.34 To kick-start the debate the Government established a study of the practical feasibility of road pricing. The Government's response to that study was that it committed itself to:

a. Informing the public about how road pricing might work;
b. Lead the debate on the acceptability of such a scheme;
c. Seek to build a consensus around the objectives and use of revenues;
d. Work alongside forward looking authorities using resources from the Transport Innovation Fund (TIF) to support packages combining road pricing, modal shift and better bus services; and
e. Begin a process of involving the motoring industry in technological developments.

16.3.35 The Local Transport Bill seeks to simplify and update existing powers so that local transportation authorities can bring forward proposals for road pricing schemes that best meet local needs. It is expected that the Local Transport Act will receive Royal Assent by the end of 2008.

Traffic Management Act 2004 (Ref 12)

16.3.36 This act gave Local Authorities powers and a duty to keep roads clear and traffic moving and places a network management duty on Local Traffic Authorities towards meeting the following objectives:

a. Secure the expeditious movement of traffic on the authority's road network; and
b. Facilitate the expeditious movement of traffic on road networks for which another authority is the traffic authority.

'Towards a Sustainable Transport System' – the Government's response to Eddington and Stern (Ref 13)

16.3.37 Sir Rod Eddington was asked by Government to advise it on the long-term links between transport and the UK's economic productivity, growth and stability within the context of the Government's commitment to sustainable development. His report entitled 'Transport's role in sustaining the UK's productivity and competitiveness' was published in December 2006.

16.3.38 Prior to that, in October 2006, Sir Nicholas Stern, in his report on the 'Economics of Climate Change' presented a series of recommendations for global actions to address climate change issues.

16.3.39 In response to those reports the Secretary of State for Transport produced a discussion document presenting the Governments response.

16.3.40 That discussion document, presented to Parliament in October 2007, set out the challenge for transport in a world faced with climate change and associated economic considerations. Broad goals were presented together with clear statements that transport investment will focus on the most congested routes, emphasising public transport, inter-urban routes and linkages to ports and airports.

16.3.41 Of particular relevance to the Mersey Gateway Project, the report reinforces Eddington's recommendation that the focus, for productivity and competitiveness considerations, should be on inter-urban corridors between cities making the biggest contributions to the UK economy and on principal international gateways through which freight and business travellers pass. It is worthy of note that in the diagram accompanying the discussion on productivity and competitiveness the major 'ports' of Manchester and Liverpool are highlighted. That diagram (Figure 16.2, Appendix 16.1) Congestion on the road network, Great Britain 2003) also presented, from DfT sources, strategic links with the greatest concentration of lost hours per kilometre – the effect of congestion, in essence. The network links connecting the M62 and the M56 and forming the route across the Runcorn Gap (including the SJB) features in the top category.

16.3.42 Reinforcing the focus on inter-urban corridors the report continues, in its discussion on ports, by confirming the Department's approval of a series of major container developments capable of meeting forecast demand to 2020. Merseyside is included in the series of approved developments.

Regional Policy

Regional Spatial Strategy for the North West (RSS13, 2003) (Ref 14)

16.3.43 RSS13 comprises part of the development plan. It provides a comprehensive regional planning strategy for the North West, setting out broad strategic policies at the regional and sub-regional level where there are matters which need to be considered on a scale wider than the area of a single planning authority.

16.3.44 In terms of transport, RSS13 identifies the need for a high-quality transport system to support the competitiveness of the North West's industry and commerce, and to facilitate the Region's social and recreational needs. The guidance also notes that a high-quality transport system is also important for attracting new investment, particularly in areas where declining traditional industries need to be replaced by new development. The key transport related policies are set out below:

16.3.45 The three priorities for transport investment as set out within RSS13 include:

a. High-quality public transport in major urban areas;
b. Key transport corridors; and
c. Gateways and interchanges.

16.3.46 RSS encourages the effective use of land, including the promotion of mixed-use development within sites and the wider neighbourhood, to assist people to meet their needs locally and to encourage business clustering. The aim of this approach is to reduce the need to travel in the first instance, and secondly to reduce journey distance when travel is necessary. The reduction in journey distances and the promotion of more sustainable forms of transport are considered more *"readily achievable in metropolitan areas given the density of population and the relative proximity of housing, employment, retail and recreational facilities."* Any infrastructure improvements are required to be *"undertaken and co-ordinated commensurate with planned development."*

Policy SD9 - The Regional Transport Strategy

16.3.47 The Regional Transport Strategy sets out to deliver effectively planned and efficient transport interchanges. The policy identifies the key objectives of the Regional Transport Strategy as:

a. Effective multi-modal solutions to the conveyance of goods, people and services, especially at major hubs;
b. Effectively planned and significantly more efficient transport interchanges;
c. Attractive gateways and transport corridors;
d. High-quality public transport in urban and rural areas; and
e. A safe and pleasant environment complementary to the need to improve the Region's image and encourage more use of environmentally-friendly modes of transport including walking and cycling.

Policy T1 - Integrating Transport Networks in the North West

16.3.48 This policy considers that it is critical to the economic competitiveness of the North West region that transport systems should be modern, efficient and very well integrated. This approach should be applied alongside the efficient use of existing highway infrastructure through a strategy of network and demand management.

16.3.49 The accompanying text advises that a sustainable approach to integrated transport requires each transport mode to contribute to travel needs in an efficient and complementary way, noting that it is *"now widely accepted that constructing new roads to accommodate future traffic growth is neither environmentally nor economically sustainable."* Alongside this, the text advocates the

increased role of *"public transport, cycling and walking, together with making the best use of existing highway infrastructure through a strategy of network and demand management."*

Policy T3 - The Regional Highway Network

16.3.50 The policy states at the outset that the Highways Agency and local authorities should afford high priority to investment in the maintenance, management and selective improvement of regionally significant transport routes. Best use *"should be made of existing infrastructure, with new road construction only considered once a thorough examination of all possible solutions to a particular problem has taken place."*

16.3.51 The accompanying text advises that *"further investment is still required on some sections of the highway network to bring it up to a safe and modern standard,"* and to provide relief for those communities badly affected by heavy flows of through traffic. In some locations, the policy text advises that *"the provision of a suitable bypass may be the only way to resolve traffic-related problems."* However, RSS does overall continue to promote an emphasis *"on making the best use of existing infrastructure."*

Policy T4 - Road Safety

16.3.52 The policy states that the Highways Agency and local authorities will be expected to develop and implement consistent speed management strategies to reduce the number of people killed or seriously injured in road traffic accidents in the Region. A minimum target of a 40% reduction in the number of people killed or seriously injured in road accidents by 2010 is established.

Policy T10 - Regional Priorities for Transport Investment and Management

16.3.53 RSS13 establishes general priorities for transport investment and management within the North West in order of importance, as follows:

a. Maintaining existing networks;
b. Making best use of the networks through measures to improve:

    i. safety:
    ii. conditions for pedestrians and cyclists;
    iii. public transport passenger services;
    iv. more sustainable movement of freight; and
    v. global and local environmental conditions; and

c. Investment in major transport infrastructure schemes of regional significance focused on the following key areas:

    i. High-quality public transport;
    ii. Key transport corridors; and
    iii. Gateway and interchanges.

16.3.54 The RSS (Table 10.2) lists a number of major priority schemes of regional significance for the period to 2007, subject to the availability of resources. The Mersey Gateway Project is identified as a "*Regionally Significant Transport Study,*" and a second crossing of the River Mersey in Halton as a "*Transport Proposal of Regional Significance for delivery by 2021.*"

16.3.55 A review of RSS 13 commenced in 2004, with an adopted version expected by Spring 2008. As part of that review the North West Regional Assembly produced a Regional Transport Strategy. Policy RT8 is particularly relevant:

Draft Regional Spatial Strategy for the North West (2006) (Ref 15)

16.3.56 A full review of RSS13 commenced in July 2004. A submitted draft document was published by the North West Regional Assembly (NWRA) in January 2006. This was later subject to public consultation between 20th March 2006 and 12th June 2006. An Examination in Public (EiP) into the RSS was held between October 2006 and January 2007. On 8th May 2007 the EiP Panel published its report. Proposed Modifications are to be issued in February 2008, subject to a further period of public consultation. It is expected that the RSS will be formally adopted in Spring 2008.

16.3.57 To inform the emerging Regional Spatial Strategy for the Region, the NWRA produced a *Regional Transport Strategy* in 2003. The Strategy was progressed by the North West Assembly with guidance from the Regional Transport Co-ordination Group and involved the participation of a wide range of stakeholders through a wider reference group. The Regional Transport Strategy now forms an integral element of the draft RSS, and has informed the following policies:

Draft Policy RT2 – Management and Maintenance of the Highway Network

16.3.58 This policy focuses on the management, maintenance and improvement of the Regional Highway Network and existing infrastructure, affording a *"high priority to improving transport safety and security"* to implement a consistent approach to speed management across highway authority boundaries.

16.3.59 The policy advises that the effective *"re-allocation of road space in favour of public transport, pedestrians and cyclists should be considered"* as part of an integrated approach to managing travel demand. The accompanying text advises that proposals for major road improvements *"should only be identified following an examination of all practical alternative solutions to a particular problem."*

16.3.60 The accompanying text advises that congestion on the highway network occurs mainly during the increasingly lengthy peak periods, and thus encourages the preparation of integrated strategies to *"manage demand in the most sustainable way, including the use of parking controls, and enhancement of the public transport, pedestrian and cycle networks."*

16.3.61 The draft RSS EiP Panel Report published in May 2007 assessed these policy objectives. With regards to Policy RT2, the Panel considered this to be reasonably comprehensive and suggested no changes. The Panel considered that this policy clearly indicates that the *"best use should be made of existing infrastructure, and that any proposals for major highways improvements should only be prepared after a thorough examination of the practical alternative solutions."*

16.3.62 With regard to the requirement to review alternative options in meeting demand, the Alternatives chapter of this ES (see Chapter 5) reports how alternatives have been approached in relation to the Project. The Council and its advisers have undertaken an appraisal of the following alternatives to a new, fixed road crossing:

a. Halton Travel Plan Network;
b. Charging for using the SJB or other roads;
c. Dynamic Lane Management;
d. Selective Access by Vehicle Tagging;
e. Road Space Re-Allocation;
f. Park and Ride;
g. Rail Service Improvements;
h. Fixed crossing to the west of the Railway bridge;
i. Fixed crossing between the SJB and the Railway Bridge; and

j. Fixed crossing to the east of the Railway Bridge.

16.3.63 A fixed crossing to the east of Runcorn Railway Bridge was the only option which has the potential to deliver all of the objectives.

Draft Policy RT8 – Regional Priorities for Transport Investment and Management

16.3.64 Draft policy RT8 identifies a number of regional priorities for transport investment and management, in order of importance, as set out below:

a. Improving transport safety and security;
b. Maintaining existing transport networks and assets;
c. Making best use of existing transport networks and assets, including the widespread introduction of complementary 'smart choices' and other incentives to change travel behaviour and reduce private car use; and
d. Targeted investment in accordance with a schedule of highway priorities.

16.3.65 The supporting text confirms that whilst it is considered imperative that existing networks and assets are adequately maintained and in particular, the deterioration in the condition of local roads halted, policy advises of the *"need for further targeted investment in new or improved roads and public transport infrastructure if the Vision for the North West is to be achieved."*

16.3.66 Policy RT8 establishes a number of regional and sub-regional priorities for major transport investment, including the Mersey Gateway Project. This scheme is identified as within the Regional Funding Allocation programme, to be financed through combination of the RFA, PFI and toll revenue. The Project is identified as delivering a major improvement to the A557 route between the M56 Junction12 to M62 Junction 7, and an improvement in access to and from the A562/A561 route in Widnes, which links to Liverpool John Lennon Airport and the Port of Garston, routes recognised as of *"regional importance"* as expressed within Appendix RT2.1 of the emerging Regional Spatial Strategy.

Policy TP2 - Existing Public Transport Facilities

16.3.67 Policy TP2 states that development will not be permitted if it is likely to prejudice the use of the Runcorn Busway as part of the local public transport network, or the present or future use of existing stations, their interchange facilities, or railway lines. The supporting text states that the Busway in Runcorn is a vital strategic link in the public transport network. The supporting text advises that it is essential that this is retained for use by public transport and where possible, enhanced. The supporting text also advises that it is essential that existing railway lines and stations are retained to provide public transport services, along with the retention and enhancement of interchange facilities.

Policy TP4 - New Public Transport Facilities

16.3.68 The policy states that development likely to prevent the opportunity for new railway stations to be developed in specified locations within the Borough will not be permitted. Policy TP4 advocates the development of new stations and other new public transport facilities, including bus and rail interchanges and part and ride facilities. The supporting text states that the opening of new public transport facilities will enable more people to use the public transport network, and *"thus reduce the need to travel by private car."* The supporting text states that providing new public transport facilities will increase the prospects of more people travelling by a variety of modes of transport other than the car, as will provide interchanges between rail and bus. This will also *"increase the potential for access to Liverpool Airport using public transport."*

North West Regional Economic Strategy (2006) (Ref 16)

16.3.69 The Regional Economic Strategy (RES) establishes the twenty-year economic strategy for the North West. It sets a framework for regional, sub-regional and local action.

16.3.70 Within the Liverpool City Region, which includes Halton, the RES identifies the need to *"continue to accelerate economic recovery and urban renaissance given a continuing gap in underlying economic performance."* The RES also identifies the delivery of major transport infrastructure investments, including the *"Second Mersey Crossing"* as a key challenge for the area.

16.3.71 The North West is identified as having important cross-border economic linkages with North Wales, North Midlands, West Yorkshire, and Scotland, as well as with Ireland, London, the South East, and into Europe. The region is noted as having has an extensive public transport network in many places, but the RES identifies the opportunity *"to improve the capacity and quality of mass transit, particularly in terms of enhancing accessibility to jobs."*

16.3.72 To support the growth of the heart of the Liverpool City-Region, the RES recognises the need for improved road access to Liverpool City Centre. The development of the second Mersey Crossing is identified as a means of relieving congestion, and *"improving reliability of access to Liverpool Airport and improve linkages within the Liverpool City Region."*

16.3.73 To widen the choice of travel available to people, the RES promotes the enhancement of public transport services between the five northern City-Regions so as to develop a critical mass of activity, which in turn *"supports growth of key sectors and widens the labour markets in the city centres."* Infrastructure improvements are considered as key to improving accessibility to job opportunities, basic services and facilities, and thus delivering improved accessibility within, and between, communities. Public transport is also identified as a means of improving sustainability and reducing the growth of road travel and peak traffic volumes.

16.3.74 The RES recognises that improved infrastructure should encourage greater retention of the regional population, and attract new migrants. Actions focused upon improving the efficiency of existing infrastructure, including public transport, will minimise growth in carbon emissions. Reductions in congestion may *"make road travel more attractive,"* thus leading to carbon emissions. However, RES advises that this should be mitigated by actions to reduce congestion, including the *"increased use of public transport, home working, and reducing growth in road travel, rather than a major building programme."*

16.3.75 The RES advises that the development of the region's transport infrastructure and strategic regional sites could have some *"negative effects upon natural resources and local environment conditions."* However, the increased use of public transport is considered to represent a means of reducing vehicle emissions, improving air quality and road safety.

Local Mersey Gateway Related Planning Policy

16.3.76 The Halton UDP was adopted by The Council in April 2005 and covers the plan period 2002-2016. Under transitional arrangements, the UDP is currently saved for three years under the provisions of the Planning and Compulsory Purchase Act (2004), up to 2011.

16.3.77 The Council is in the process of preparing a series of Local Development Documents which will form the basis of its Local Development Framework to replace the current UDP, including the Core Strategy scheduled for adoption by November 2009.

Unitary Development Plan (UDP) (Ref 17)

16.3.78 Strategic Policy S14 of the adopted UDP provides in principle support for the development of the New Bridge. Policy S14 states that a New Bridge of the River Mersey, east of the existing

SJB, will be promoted to relieve congestion on the existing Bridge. The supporting text states that the existing severely congested SJB is considered to represent a "constraint on the economic development of the Region, and severely restricts the development of an integrated transport strategy for Halton." It goes on to note that a strategic aim of The Council's Local Transport Plan (LTP2) and the UDP is therefore to pursue the provision of a new and sustainable crossing of the River Mersey.

16.3.79 The policy states: "A scheme for a New Bridge of the River Mersey east of the existing SJB will be promoted to relieve congestion on the existing bridge as part of an integrated transport system for Halton and the wider regional transport network. Any proposed route of the New Bridge will be the subject of an environmental assessment."

16.3.80 The supporting text notes that, at present, the SJB carries road traffic over the River Mersey and the Manchester Ship Canal, linking the two towns of the Borough, Widnes and Runcorn. Traffic flows currently exceed capacity at peak time, and the congestion across the Bridge is a *"major contributor to the air quality hotspots that have been identified in the adjacent areas."* The accompanying text states that the SJB also offers *"poor facilities for pedestrians, and no safe facilities for cyclists."*

16.3.81 The accompanying text advises that at present, the traffic flows over the SJB have increased by 17% over the past seven years, almost double the average growth across the country. The current traffic flow across the SJB equates to the order of 80,000 vehicles each weekday. These flows are significantly in excess of the design capacity for the four sub-standard lanes. The supporting text advises that future growth in traffic flows seeking to cross the SJB would force trips on to alternative routes, effecting on the Mersey Tunnels and the M6 motorway, particularly at the Thelwall Viaduct.

16.3.82 The supporting text advises that 80% of traffic on the Bridge is making trips across the Region; 41% of all traffic movements are identified as trips across the Region, with either their origin or destination in the Borough of Halton; 39% of all traffic movements are using the Bridge entirely as a through route across the Region; only about 20% of traffic movements across the Bridge are purely locally based i.e. between Runcorn and Widnes.

16.3.83 Policy S13 Transport, states 'safe, efficient and inclusive integrated transport systems and infrastructure will be developed in Halton. Priority will be given to measures which:

a. Promote an integrated transport system;
b. Stimulate sustainable economic growth in sustainable locations;
c. Improve accessibility for all to everyday facilities;
d. Create a safer living environment; and
e. Protect and enhance the environment.

Halton Local Transport Plan 2 (Ref 18)

16.3.84 The Council has produced two full Local Transport Plans (LTPs). The first Local Transport Plan (LTP1) was published in July 2000 and covered the period 2001/02 to 2005/06. This provided a non-statutory policy framework for the continual development of the local transport network. Since the publication of the first Local Transport Plan, significant changes in both national and local planning policies have demanded a new approach to the development and delivery of transport strategies and initiatives.

16.3.85 A second Local Transport Plan (LTP2) has now been published by The Council and sets out the objectives, strategies and policies for transport during the period April 2006 to March 2011 and beyond. It also identifies the schemes and initiatives that will be delivered, together with the performance indicators and targets which will be used to monitor progress. LTP2 continues and develops the work undertaken in the First Local Transport Plan (LTP1).

16.3.86 The overarching LTP2 objective established by The Council is: "The delivery of a smart sustainable, inclusive and accessible transport system and infrastructure that seeks to improve the quality of life for people living in Halton by encouraging economic growth and regeneration, and the protection and enhancement of the historic, natural and human environment".

16.3.87 The LTP2 identifies the SJB as the biggest congestion problem in the Borough, with flows that can exceed 90,000 vehicles per day. The resulting congestion makes it very difficult to develop an integrated transport system that meets the travel needs of the Borough's residents, businesses and visitors. The Mersey Gateway Project will lead to "significant journey time savings for cross river traffic and will enable the SJB to cater for locally sustainable travel."

16.3.88 The above overarching LTP objective is underpinned by four further objectives based on the Shared Transport Priorities between local and central government;

a. Tackling Congestion -

   To address and manage both local and strategic travel demand to ensure that the area's regeneration needs are met;
   To develop a sustainable and integrated transport system that meets the social, economic and environmental needs of Halton's residents; and
   To manage and maintain the highway network to minimise congestion and delay.

b. Delivering Accessibility -

   To resolve problems experienced by socially excluded communities, when accessing key services, and enhance life chances and employment opportunities.

c. Safer Roads -

   To minimise the incidence of personal injury road crashes within the Borough, through a combination of targeted physical measures and preventative road safety education and training initiatives.

d. Better Air Quality -

   To address air quality issues which have an effect on health and the environment, through the management of travel demand and the provision and encouragement of environmentally sustainable travel choices.

16.3.89 The LTP2 identifies a number of shared priorities to address the problems identified above. The development of the Mersey Gateway Project is identified as Priority 1 in the LTP2.

Neighbouring Authority Policies

Cheshire County Council (Ref 19)

16.3.90 Within the context of the four shared Government/Local Authority priorities of congestion, accessibility, safety and air quality, Cheshire has identified the following objectives:

a. Enhance the quality of life of those who live, work or visit Cheshire;
b. Promote social inclusion and accessibility to everyday services for all, especially those without a car;
c. Promote the integration of all forms of transport and land use planning, leading to a better, more efficient public transport system;
d. Contribute to an efficient economy and to support sustainable economic growth and regeneration in appropriate locations; and
e. Manage a well maintained and efficient transport network.

Warrington Borough Council (Ref 20)

16.3.91 Warrington Borough Council is working on a co-ordinated strategy to meet the following objectives:

a. Enhance and protect the environment of the borough;
b. Improve safety, personal security and health;
c. To contribute to an efficient economy and to support sustainable economic growth in Warrington;
d. Improve accessibility and mobility in the borough;
e. To promote the integration of all forms of transport and land use planning; and
f. Improve the quality of life and transport system and reduce social exclusion and poverty in the borough.

Merseyside Authorities (Ref 21)

16.3.92 The Merseyside Authorities which comprise Merseytravel, Liverpool City Council, and St Helens, Knowsley, Sefton and Wirral Councils state the following common set of objectives in the Local Transport Plan for Merseyside 2006-2011:

a. Provide appropriate infrastructure to improve the capacity and efficiency of the network and support the economic growth areas;
b. Provide access for all to provide better links to employment, education and health;
c. Manage demand to ensure that roads do not become congested and affect the efficient movement of public transport and freight;
d. Protect/enhance the environment by taking positive measures to reduce the effects of travel demand;
e. Support an healthier community by addressing air and noise problems caused by traffic and promote cycling and walking; and
f. Make best use of existing resources by ensuring an efficient maintenance regime.

The Setting of The Mersey Gateway Project Within The Planning Policy Framework

16.3.93 The SJB is at the heart of Halton's transport network connecting its communities either side of the River Mersey. It is part of the strategic network linking the inter-urban M56 and the M62 and recognised by the DfT as one of today's congestion pinch-points. It provides a fragile level of network resilience as the only major crossing of the Mersey between the M6 Thelwall and the Mersey Tunnels, as shown in Figure 16.3. It provides access to the ports of Liverpool and Manchester and access to freight terminals as shown in Figure 16.4.

Figure 16.3 - All Crossings of the River Mersey within the Study Area

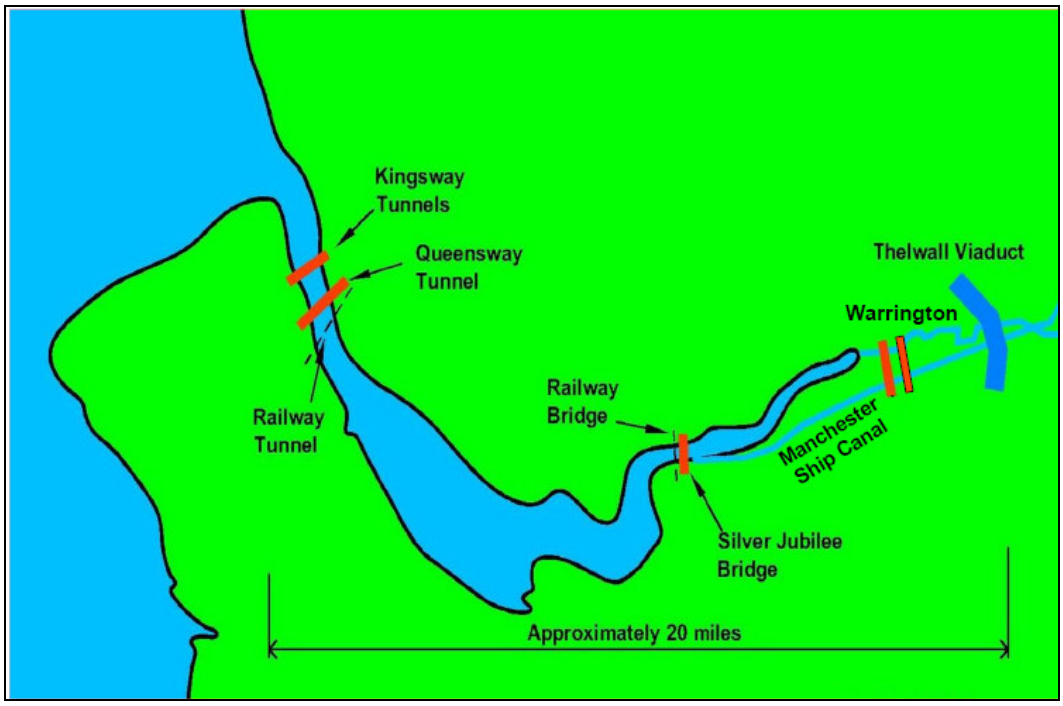


Figure 16.4 - Ports, Airports, Motorway and Trunk Road Networks

16.3.94 The Project is supported by the North West Regional Assembly and features as a scheme of Regional and Sub-Regional Significance in the emerging RSS. This key transport Project has

the potential to offer strong support to local policies and objectives, help meet local, regional and national objectives and serve both the local, regional and national highway networks.

Assessment of the Mersey Gateway Project with Policy and Legislation

16.3.95 The Project will meet a number of national, regional and local Policy objectives. The Transport White Paper (1998) (Ref 7) places a strong emphasis on improving the environment through improving pollution, air quality and noise from transport. The Project will assist in meeting these objectives through reducing congestion, and promoting sustainable transport alternatives, i.e. walking, cycling and public transport.

16.3.96 The objectives to improve bus usage and services identified in the 'Workhorse to Thoroughbred' (Ref 8) paper are also supported by the Project. The Project will improve the reliability of bus services offered, and through supporting the development of a Sustainable Transport Strategy will increase the frequency and scope of services offered within Halton.

16.3.97 The Transport Ten Year Plan (2000) (Ref 9) identifies a number of objectives aimed at improving the economy and enhancing opportunities through transport. The Project will provide a more reliable route to enable companies to maximise financial benefits out of key production methods such as 'just-in-time'.

16.3.98 The Project aims to reduce congestion, improve sustainable transport options and improve accessibility to encourage economic growth. These objectives are consistent with those also identified in PPG13 (Ref 3) and 'The Future of Transport' (Ref 11).

16.3.99 The objectives outlined in the 'Towards a Sustainable Transport System' (Ref 13) are also met through The Project. The Project aims to enhance the economy through reducing congestion and providing a more reliable and resilient network. The Project also aims to meet the objectives to improve quality of life, and protect people's safety, security and health through reducing congestion, improving the road network to assist in reducing the number of accidents and promoting walking and cycling across the dedicated facilities on the SJB.

16.3.100 The key regional policy is the 'Regional Spatial Strategy' (Ref 14) which identifies a number of objectives focusing on improving sustainable economic growth, and providing an integrated transport network to provide better links with jobs and services. Through encouraging alternative sustainable transport options and providing a more reliable transport network The Project supports these regional objectives.

16.3.101 The local policies, HBC Local Transport Plan (Ref 18) and HBC Unitary Development Plan (Ref 17), identify a number of objectives. Key objectives focus on improving accessibility, promoting economic growth and enhancing the environment. The Project aims to reduce congestion through providing an alternative cross river route and additional capacity in Halton, resulting in more reliable journey times, which together with improving accessibility at national, regional and local levels, will assist in improving economic growth. This together with the promotion of sustainable transport alternatives should also assist in enhancing the local environment.

16.3.102 In summary The Project supports key objectives identified within relevant national, regional and local policies and legislation.

16.3.103 Appendix 16.2 provides a cross-reference between the Mersey Gateway Project objectives and National, Regional and Local Transport policies. It provides a useful demonstration of the linkage between the Project and the policy framework at all levels.

16.4 Project Description

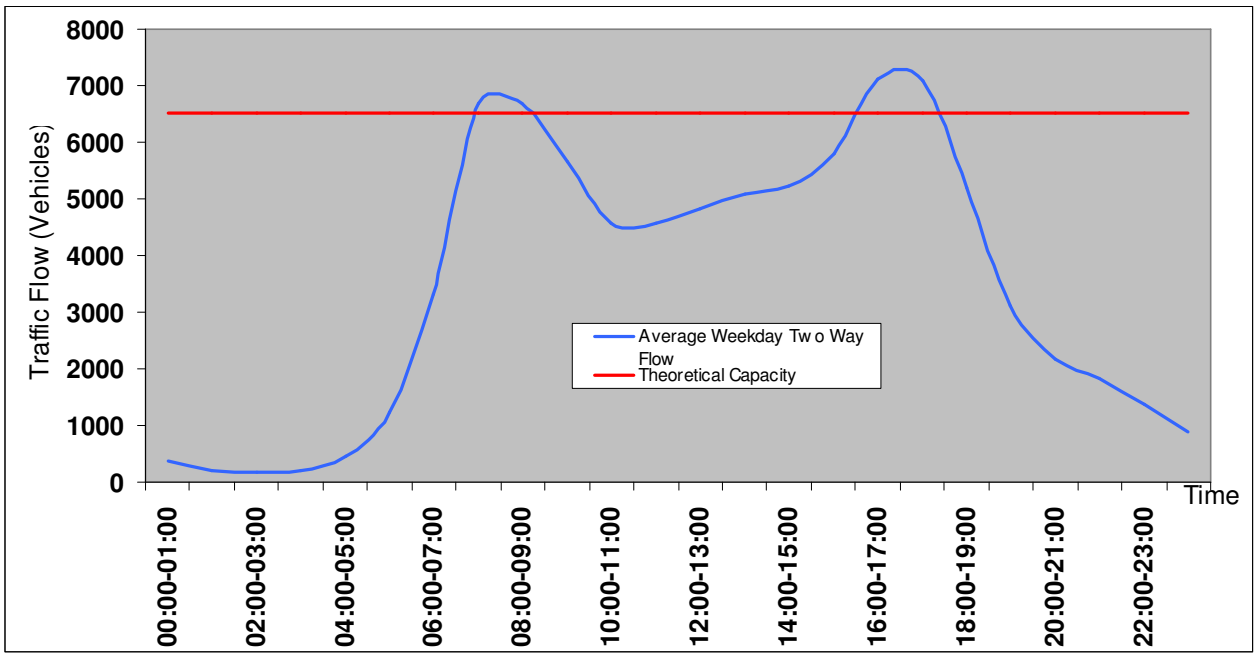
Project Location and Existing Road Network

16.4.1 The Borough of Halton stands at a strategic crossing point of the Mersey Estuary. This point, known as the 'Runcorn Gap', provides the location for the main rail connection between Liverpool and the West Coast Main Line and the A557 road link (between the M62 and the M56) via the SJB (Figure 16.4, Appendix 16.1). The A557 is a principal road maintained by the local highway authority, The Council, and connects with the M56 and M62. To the west of Widnes the A562, Speke Road, links Widnes to south Liverpool. The M62 to the north of the Borough links the majority of Merseyside to Manchester and across the Pennines to the Yorkshire conurbations. To the south, the M56 links North Wales and Cheshire to Manchester. Therefore, Halton lies at a major crossroads in the North West of England.

16.4.2 The SJB was completed in 1961 replacing the previous Transporter Bridge at Runcorn Gap. It is the only internal road link within the Borough between the towns of Runcorn and Widnes. The bridge is of major strategic importance to Merseyside and North Cheshire with 40% of traffic crossing the bridge making trips across the region and an additional 40% having either an origin or destination outside Halton.

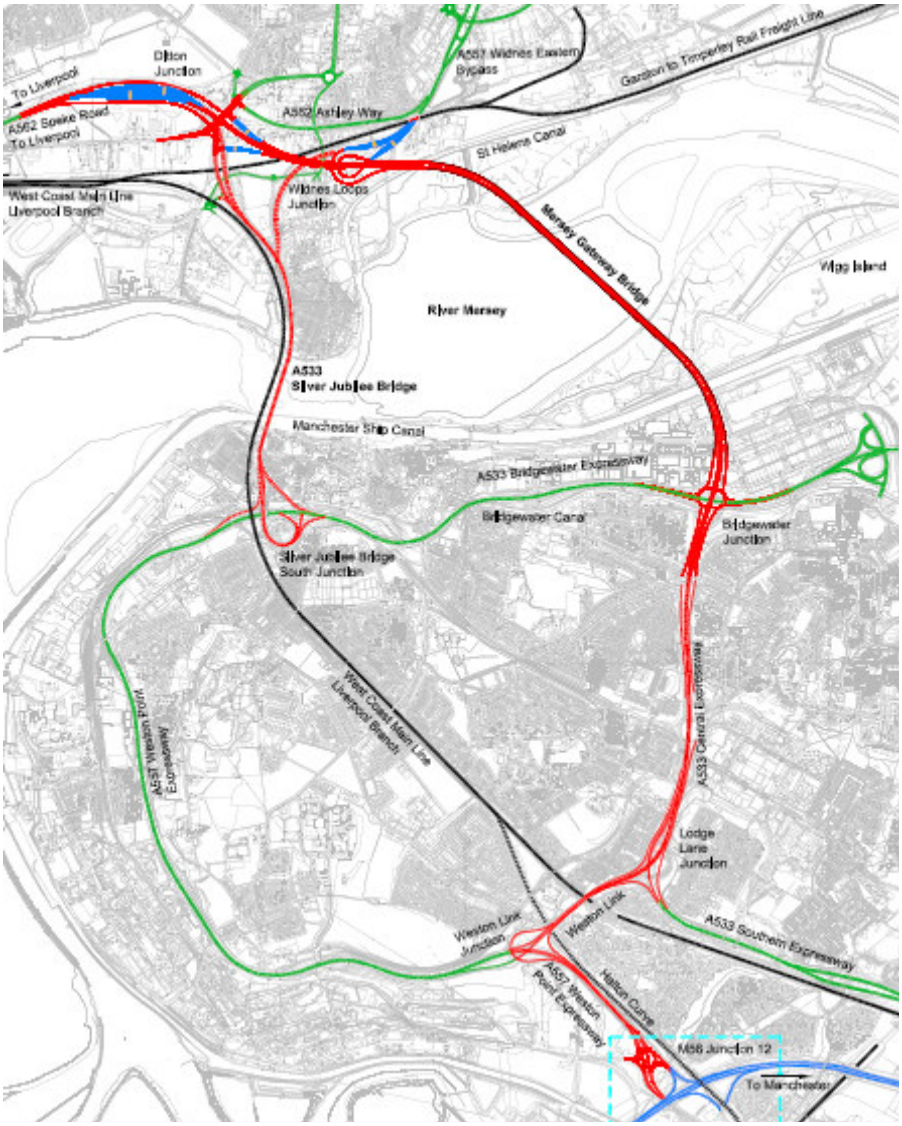
16.4.3 The SJB has four sub-standard lanes, of total width 12.2 metres. The lane capacity of the bridge (about 6,500 vehicles per hour two-way) is reached for 4 hours of the day and regular peak spreading occurs. Typically, the SJB carries 83000 vehicles per week day. It is also important to note that between the morning and evening peak periods the traffic flow is typically in excess of 5000 vehicles per hour two-way i.e. consistently operating in excess of 70% of capacity. Figure 16.5 below presents a typical daily traffic profile for the SJB based on data from a continuous traffic count monitor The SJB has poor facilities for pedestrians, no provision for cyclists other than the narrow traffic lanes and therefore severely restricts the development of integrated and sustainable transport strategies. Continuous, high levels of congestion, brought about by the limiting capacity of the SJB, additionally affect the reliability of public transport.

Figure 16.5 - Hourly Variations in SJB Average Weekday (Two-Way) Traffic Flow for March 2007



The Proposed Alignment

Figure 16.34 - Mersey Gateway Main Alignment



16.4.4 The western end of the proposed main alignment will be located in Widnes, joining the A562 Speke Road to Liverpool, to the west of the existing Ditton Roundabout Junction (A562 and A533). The alignment will then head eastwards along the line of, and to the south of, Speke Road towards the Ditton Junction. It will then progress across the land currently occupied by industrial units along Ditton Road and over the Garston to Timperley rail freight line, before crossing the alignment of the existing A557 Widnes Eastern Bypass and the western corner of the ThermPhos Chemical Works. A new junction (the 'Widnes Loops' Junction) will be formed with the A557 at this location. The alignment will then continue south eastward over the St Helens Canal, Widnes Warth Saltmarsh, Mersey Estuary, Astmoor Saltmarsh and Wigg Island, before turning south over the Manchester Ship Canal and Astmoor Industrial Estate. The alignment will then connect into the existing road network in Runcorn at the Junction of the A533 Bridgewater and Central Expressways with the A558 Daresbury Expressway (the Bridgewater Junction). The route continues south along the Central Expressway (A533) towards the junctions of the Central Expressway/Lodge Lane Junction and the Central Expressway/Weston Link Junction (known respectively as the Lodge Lane Junction and Weston Link Junction). The alignment will finally join the M56 Motorway at Junction 12.

16.4.5 The Project will provide additional cross river capacity and a much improved level of service reliability as has been evidenced, for example, on the M6 Birmingham Northern Relief Road. The resulting relief of SJB will allow the provision of improved public transport facilities, particularly for local travel and for those without access to a car.

Changes to the Existing Highway Network

Central Expressway

16.4.6 The SJB will be down-graded with the objective of providing for local traffic, improved public transport, walking and cycling. The Mersey Gateway Project will replace the current strategic function of the SJB and, because of its connection to the Central Expressway, will increase traffic volume on the Central Expressway and reduce the volume of traffic on the Weston Point Expressway in Runcorn. Existing Central Expressway junctions will require varying levels of modification.

16.4.7 The Weston Link junction will utilise much of the existing infrastructure.

16.4.8 At the Lodge Lane Junction, the current arrangement will be simplified with a free-flow link between the Weston Link and the Central Expressway.

16.4.9 Distributor roads will be provided between Halton Brow and Lodge Lane junctions to secure safer merge/diverge facilities within the mainline Central Expressway.

Ditton Junction

16.4.10 The Ditton Roundabout will be replaced with a grade-separated signalised junction that will provide increased capacity and improved access to Ditton Freight Terminal and the 3MG site. The layout will comprise three sets of linked signals with the main flow between Ditton Road and Moor Lane.

Links to M56

16.4.11 The Mersey Gateway Project will provide improvements to the existing highway network. The roundabout to the north of Junction 12 currently experiences significant peak hour congestion with consequent effect on the M56. It will be modified to provide increased capacity.

Modifications to the Silver Jubilee Bridge

16.4.12 The Mersey Gateway Project will reduce traffic crossing the SJB by transferring through traffic to the New Bridge. This transfer will be made more effective by removing some of the existing high standard roads that connect with SJB. In Widnes these roads will be demolished as they lie in the path of the alignment of the New Bridge. Where connecting roads are retained, these roads will be downgraded to suit the lower levels of traffic that will use them. This relates to Runcorn where, because the new alignment has its land fall to the east of the SJB, there are opportunities to partially de-link the SJB from the existing network in favour of local traffic and public transport (although de-linking in Runcorn does not form part of the Project). The SJB will then be a much less attractive route for non-local traffic. The SJB will then be used as part of the local transport network providing local access across the Mersey to deliver key Project objectives.

16.4.13 Provision of a shared pedestrian/cycle path is planned on the eastern side of the SJB. On the Widnes side the section of the Queensway highway approaching the proposed Ditton Junction and the section of section of the Widnes Eastern Bypass from the SJB to the proposed Widnes Loops will be made redundant.

16.4.14 The opportunity to improve public transport links between Widnes and Runcorn is currently being investigated through the Sustainable Transport Strategy facilitated by the Mersey

Gateway Project. The study is investigating how best to deliver improved public transport choice for journeys crossing the river as part of the Borough's integrated transport proposals. The conclusions from the study are expected to be reported in the summer of 2008, but the solutions to be identified should be designed to give better access into the town centres and proposed redevelopment areas in Widnes and Runcorn via the SJB. Likely sustainable transport proposals have been considered in this Chapter under 'Mitigation, Compensation, Enhancement and Monitoring'. The likely effect of these proposals would be to increase bus service frequency across the SJB, provide more convenient and safer cycle access and improved walking links. These proposals will be used to inform the sustainable transport proposals.

Tolling Infrastructure

16.4.15 The current design for the Project assumes that the technology used to collect toll / charge payments from drivers is similar to that currently used on the Mersey Tunnels and elsewhere on the UK road network i.e. a combination of manned toll booths and unmanned tag systems located at appropriately positioned 'toll plazas'.

16.4.16 On the Mersey Gateway Bridge the east and west bound toll plazas will comprise 8 tolling lanes on each carriageway. The width of each toll plaza will be 40m. Tolling booths will also be provided on the slip roads from Ditton Junction and on the link with the A557. The main toll plazas will be located to the north west of the current Ditton Roundabout at or close to existing ground level. Tolled slip roads will also be provided from the Mersey Gateway Bridge onto Ditton Junction for local traffic.

16.4.17 In addition to the tolling booths, administration and staff welfare facilities will be provided. It is likely that these will be located adjacent to the main tolling facilities to the west of Ditton Junction. Welfare facilities will also be provided at the tolling area for the A557.

16.4.18 The SJB would be tolled from booths constructed on the existing infrastructure. The main toll plaza will be located on the A562 Speke Road and land from the disused golf course, to the north west of Ditton Junction. A further tolling plaza will be constructed on the existing carriageway of Queensway, approximately 330m to the north of the SJB. Facilities will be provided in the vicinity for the toll operator staff.

16.5 Assessment Methodology

Introduction

16.5.1 This part of this Chapter explains how the transport effects of the Project have been assessed. First, the assessment tools used are described, paying particular attention to modelling techniques and rationale. The use of assessment techniques recommended by government guidance is briefly explained. The scenarios that have been modelled are then set out as well as an explanation of what was considered for each scenario. Finally, the assessment criteria are set out.

16.5.2 The methods adopted for the analysis and appraisal of effects on transport networks and their users, are described below.

The Traffic Model

Strategic Requirements

16.5.3 A variable demand traffic model (the "Mersey Gateway Model" –"MGM") has been constructed to analyse the effects of the Project upon the highway network. The approach to this model is explained in greater detail below and in the Traffic Forecasting - Summary Report in Appendix 16.5.

16.5.4 The variable demand traffic model differs from conventional fixed demand traffic models in that it enables behavioural changes in demand i.e. mode and destination for travel, as well as choice of route resulting from changes in travel costs. This enables such a model to assist in predicting how users will react to congestion on such a network and how they will respond to the imposition of charges for its use. The application of variable demand traffic models is necessitated by DfT guidance under WebTAG and the MGM complies with this guidance.

Specific Requirements

16.5.5 To provide a suitable analytical basis the MGM was designed to achieve the following:

a. Meet DfT model validation criteria in the base year (2006);
b. Evaluate the effect on existing travel behaviour taking into account local and strategic re-assignment, changes in trip distribution and induced traffic effects;
c. Permit the investigation of toll charging options;
d. Enable operational assessments to be undertaken to inform the design of the Project; and
e. Appraise options for assessing proposals for the SJB as a local crossing in support of regeneration and local transport objectives.

Modelling Travel Behaviour

Congested Networks

16.5.6 The Project is designed to relieve the congested SJB to allow Halton's regeneration and local transport objectives to be achieved. There is local congestion approaching the SJB and alternative crossings of the Mersey at the Tunnels, through Warrington and on the M6 Thelwall Viaduct also experience congestion during extended peak periods and during times of accidents or incidents on the network. Centrally located the SJB plays an important network role.

16.5.7 Therefore, the MGM had to model congestion and reflect the re-assignment and behavioural changes brought about by increasing congestion and the effects of imposing tolls over the traffic evaluation period of the Project which is fifteen years from the anticipated date of opening in 2015.

16.5.8 The MGM incorporated highway and public transport components to allow the modelling of travel behaviour when faced with congestion and the prospect of paying tolls.

Attitude to Paying Tolls

16.5.9 Providing significant additional capacity, albeit modified by the use of SJB for local traffic and no-car modes, in a congested network can normally be handled by conventional assignment models that do not incorporate behavioural components. However, because of the effect of requiring payment of a toll to use new capacity, it may be assumed that the capacity will not be taken up at the same rate as if it were free to use. Thus the MGM has to reflect the interaction between re-assignment of traffic caused by relieving congestion and the behavioural response to paying tolls. This interaction has additional dimensions when considering the value of time for travellers from different socio-economic groups and the effect of undertaking trips for different reasons.

Model Specification

16.5.10 The traffic model consists of a number of inter-related components. Separate highway and public transport models were developed for the base year of 2006. These two models are brought together in a forecasting process and it is here that the variable demand element is applied.

16.5.11 The forecasting process, summarised in Appendix 16.5, also assesses the effects of the physical changes anticipated on the travel networks (committed schemes and developments, regeneration proposals and changes in values of time and travel costs). The MGM forecasting outputs have been applied in the social, economic and environmental appraisals.

16.5.12 The data requirements of the model have been considerable. An extensive series of roadside interviews (RSIs) were conducted. Household surveys were undertaken to inform trip making patterns. Journey time surveys, manual and automatic traffic counts, stated preference surveys to establish values of time and aerial surveys to check network performance were all undertaken.

Model Structure and Software

16.5.13 The components of the traffic model have been developed using proprietary and established software relevant to the requirements of the model.

16.5.14 The highway model has been built using 'Simulation and Assignment of Traffic in Urban Road Networks' (SATURN). The public transport model has been built using 'TRansport Improvement Planning System' (TRIPS). These are brought together during the forecasting process using 'Dynamic Integrated Assignment and DEmand Modelling' (DIADEM) to enable the effects of variable demand to be modelled.

Base Year Validation

16.5.15 The public transport and highway models have been validated for the base year of 2006 and are a sound basis for the subsequent derivation of traffic forecasts for scheme appraisal.

Forecasting Scenarios

16.5.16 The MGM considered two forecasting scenarios, as described in Chapter 3 of this ES. These are the Do-Minimum scenario without the Project and the Do-Something scenario, which includes the Project.

16.5.17 Future Do-Minimum highway and public transport networks (i.e. without the Mersey Gateway Project) have been developed on the basis of on the Council's and neighbouring authorities' current and anticipated commitments. The Mersey Gateway scheme design years adopted for

the forecasts were 2015 for the opening year and 2030 for the future design year, i.e. 15 years after opening. This 15 year period is adopted in accordance with guidance contained within the Design Manual for Roads and Bridges (DMRB) (Ref 1).

16.5.18 The Do-Minimum public transport schemes were based upon an examination of a range of available sources including future committed plans for rail services contained in the West Midlands and Virgin West Coast franchise commitments. Halton's LTP2 (Ref 18) outline proposals to upgrade its public transport facilities were also included.

16.5.19 The Mersey Gateway Project has been included within the future networks for the Do-Something scenario. Future tolls for the SJB and Mersey Gateway have been assumed to match the tolls at the Mersey Tunnels. The amounts were increased in line with inflation forecasts i.e. no increase in real terms. This is described further in Appendix 16.5.

16.5.20 The transport assessment for the Project must also look towards the recently published DfT 'Guidance on Transport Assessment'. The guidance is intended to assist in preparing and determining planning applications for developments. It establishes the principles of encouraging environmental sustainability, managing the existing network and mitigating residual effects.

Assessment Methodology

16.5.21 The assessment considers effects at all critical locations on the network. This has been undertaken for the AM and PM peaks for 2015 and 2030 by identifying links with +/-5%, +/-10% and +/- 30% changes in flow as a result of implementing the Project. Key areas for assessment include strategic junctions, including on the M56 and M62 motorways. The effects of the Project were then used to determine whether the reported conditions would represent improvements or deteriorations.

16.5.22 A key part of the assessment is based on changes in accessibility. Accessibility is measured by journey times for vehicular traffic. Journey times have been assessed initially for the 2006 Base Case then appraised for the 2015 and 2030 scenarios. For the construction assessment the 2015 forecast journey times for the Do-Minimum scenario were used as a Baseline, whilst for the Do-Something scenario, 2015 and 2030 forecast journey times for the Do-Minimum scenario were used as Baselines.

16.5.23 For non–motorised transport, changes in accessibility have been assessed through changes in severance across pedestrian, cycle and equestrian networks.

16.5.24 In addition, other criteria have also been used to inform the assessment, namely:

a. Journey ambience, which considers the Project effects by different traveller modes in terms of journey quality, including views and stress;
b. Severance, which considers the Project effects upon (principally) pedestrian movements across roads affected due to changes in traffic flows or infrastructure changes;
c. Physical Fitness, which considers the Project effects on the number of journeys for pedestrians and cyclists, separately for below and above 30 minutes;
d. Security: which considers the Project effect on the level of security for road users, public transport users and freight. Indicators considered include formal surveillance using CCTV cameras, landscaping, lighting and visibility and emergency call facilities;
e. Option Values: which considers the Project effect in providing new transport options in the study area for people who would not normally use the newly created option;
f. Access to the Transport Systems: which considers the Project effect in changing access to the public transport system or access to the use of a car; and
g. Transport Interchange: which considers the Project effect on changing the quality of interchange facilities (e.g. waiting environment, reliability of connections) for public transport or freight.

16.5.25 All aspects have been assessed on a simple 3 point scale of better neutral or worse, with and without the Project, and a combined score produced.

The Transport Assessment

16.5.26 For the opening year and the design year the effects of the Project were assessed for pedestrians, cyclists, equestrians and vehicle travellers (both in private vehicles and public transport). The effects were measured in terms of changes to journey times for vehicle travellers, with and without the Project, and over the period of construction. The effects of the Project for pedestrians, cyclists and equestrians were measured through assessing changes in access to facilities for these modes due to changes in vehicle numbers in relation to networks and catchment areas, or changes in infrastructure as a result of the Project.

16.5.27 Changes in access to local facilities were assessed for both the Opening Year of 2015 and the Design Year of 2030. Access to local facilities will take place at different periods of the day during both peak and inter-peak periods. The school run, for example, takes place in the AM peak and inter-peak periods. To simplify the analysis, AM peak hour (08:00 to 09:00) car journey time data was used for the local network user access analysis.

16.5.28 The journey times for the strategic network analysis were based on specific through routes between the M56 and M62. The changes for the AM and PM peaks, with and without the Project, are analysed for 2015 and 2030.

16.5.29 The journey times used for the local network analysis were based on average zone to zone journey times, which take all main routes into account, rather than focussing on one route in particular.

16.5.30 Journey times from four Wards (two in Widnes and two in Runcorn) to local facilities, including the hospital, local college campus, local employment areas and shopping areas, were compared. Secondly, local and regional trips, including cross river, and some non-cross river were also identified and journey times compared.

16.5.31 For the assessment of effects on pedestrians, cyclists and equestrians, the threshold of significance of changes in traffic flows through catchments areas and across paths, etc. was, following DMRB guidance, defined by those links on the highway network with changes in flows of +/- 30% or more average annual daily traffic (AADT) per day. (Figure 16.6, Appendix 16.1) Evaluation of these links across the modelled network confirmed the focus to be within the Halton Borough area.

16.5.32 Journey Ambience and Physical Fitness have been assessed using the methods described below..

Physical Fitness

16.5.33 The Government recommends that a minimum level of activity for adults is to build up to 30 minutes or more of moderate activity on most days of the week. The key objective is to identify the level of physical activity through cycling and walking above 30 minutes which the Project will generate.

Journey Ambience

16.5.34 Journey Ambience was a qualitative analysis of 3 aspects:

a. Traveller Care;

This is concerned with changes in the provision of general travel, rather than route specific facilities. The latter is dealt with under the Traveller Stress heading. For the Traveller Care assessment the provision of facilities such as lay-bys and toilets are

assessed for private vehicles; for public transport users general travel information was assessed. General facilities and information were also appraised for pedestrians, cyclists and equestrians. The assessment was based on a simple three point scale – better, neutral or worse.

b. Traveller Views;

A transport improvement can affect the extent to which travellers can see the surrounding landscape and townscape and have an effect on the attractiveness of the general travelling environment.

Views are categorised as providing:

No view – where the route is in a deep cutting, a tunnel or surrounded by environmental barriers.
Restricted view – where there are frequent cuttings, tunnels or barriers.
Intermittent view – where there are shallow cuttings or barriers.
Open view – where the view extends over many miles.

An assessment has been made about the effect of the Project on travellers' views using a simple three point scale of better, neutral or worse.

c. Traveller Stress

Traveller stress is the adverse mental and physiological effects experienced by travellers. Three main factors influence travellers stress:

Frustration – for drivers this is caused by an inability to drive at a speed consistent with their own wishes relative to the standard of the road.
Fear of potential accidents – caused by the presence of other vehicles, inadequate sight distances and the possibility of pedestrians stepping into the road. Fear is highest when speed, flows and the HGV content is high. For driver stress one of the key inputs (based on DMRB guidance) was an assessment based on flows by lanes and speeds. Based on DMRB guidance the 2030 flows were analysed, rather than the 2015 opening year flows.
Route uncertainty – can be influenced by the extent to which travellers have planned their journey and the quality of route information, whether provided to users before they begin their journey, or en route.

As assessment has been made for all travellers about the effect of the proposed options on each of these sub-factors using a simple three point scale – neutral, better, to worse. The assessment for non-drivers has focussed on the provision of facilities for walking, cycling and equestrians, and delays and reliability for buses.

Construction Phase Assessment

16.5.35 The construction phase effects were assessed using outputs from the 2015 traffic forecasts and estimating the effects of construction traffic and diversion routes on the network. The purpose of the construction phase assessment is to identify the disruptive effects of the building of the Project upon the network and travellers. It identifies elements such as delays during works to highways.

16.5.36 The construction assessment has been based on the Construction Method report (Chapter 2) construction plan which detailed the construction methods and phasing at the time of the environmental assessment. The main inputs into the construction transport assessment were as follows:

a. The number of HGV movements and their scheduling and likely recommended routes;

b. Diversion requirements;
c. Main construction areas and likely extents of resulting disruption; and
d. Phasing information for all stages of construction.

16.5.37 The construction phase effects were assessed for each Construction Area (A to I) listed in Chapter 2 in turn. This provides both a local (in terms of individual construction areas) and general (in terms of the cumulative effects of all construction areas) assessment.

16.5.38 In undertaking this assessment, an attempt has been made to present a realistic assessment, which takes into account the worst case cumulative effects arising out of the construction activities at each Construction Area. Therefore, the construction effects have not been assessed in isolation at each individual Construction Area but have assumed that construction work occurs concurrently at all Construction Areas. It is assumed that whilst construction work on the New Bridge is taking place work will also be taking place at:

a. Construction Areas A (Main Toll Plaza), B (Ditton Junction to Freight Line) and C (Freight Line to St Helens Canal); and
b. Construction Areas E (Astmoor Viaduct), F (Bridgewater Junction), G (Central Expressway) and H (M56 Junction 12).

16.5.39 When the New Bridge has been opened to traffic, it is anticipated that reconfiguration works will be introduced on the SJB. It has been assumed that the SJB will be closed to all vehicular traffic and a diversion via the New Bridge will be in operation during the entire construction period relating to the de-linking and deck reconfiguration work at Area I.

16.5.40 The construction phase assessment focuses on effects on accessibility to the local highway network in the vicinity of the Construction Areas for all modes, including the extent of disruption to networks. A more detailed analysis of effects to journey time and wider highway network effects will be carried at a later stage, as detailed construction plans are drawn up. There was insufficient information for detailed analysis at the time of the Environmental Assessment.

16.5.41 The effect on the Garston to Timperley railway has also been considered. This receptor only applies for the construction phase because once the works are complete the railway line should not be subject to further interference.

Receptors

16.5.42 The receptors for the assessment of effects are defined as follows:

a. Strategic Highway Network Users;
b. Local Highway Network Users;
c. Bus Users;
d. Rail Users (Construction Phase only);
e. Pedestrians;
f. Cyclists; and
g. Equestrians.

16.5.43 The ES methodology required each receptor to be assigned an importance rating – High, Moderate or Low. Thus, for example, bus users could be rated at High Importance and cyclists Low Importance. However, different modes are used by different sections of the population for a variety of journey purposes. Assigning an importance rating to each receptor would imply a judgement on the importance of different types of journey by different sectors of the population. This was judged to be impractical and inequitable and therefore each receptor has been assigned the same importance rating of 'High'. This is appropriate because this is a transport project.

16.5.44 Receptors have been assessed separately for cross river and non-cross river trips, as the Project was judged to likely to have significantly different effects on these two categories of trips.

Magnitude of Effect

16.5.45 For each receptor the magnitude of the effect of the Project was related to changes in access as a result of the Project and, for the Do-Something scenario, changes in the quality of journeys as a result of the Project. These are discussed in turn below for motorised and non-motorised users.

16.5.46 The effect of the Project on accessibility was related to changes in journey times. There is no clear guidance on what constitutes a significant change in journey time and this will vary with factors such as overall length of journey, journey purpose, values of time of different social economic groups etc. The Eddington Transport Study (Ref 27), in its analysis of journey times in the context of the economy, assumed a journey time change of 10% or over as significant. Following on from this, journey time significance is defined for this appraisal as follows:

< 10% change - not significant

10% - 20% change - low significance

20% - 30% change - moderate significance

30% > - high significance

16.5.47 Based on the above assumptions, therefore, a journey time change of 10 minutes on a 30 minute journey would be considered highly significant. Journey times were measured for key journeys. For strategic traffic journeys between motorway junctions were assessed for specific routes. For local traffic average journey times, based on a number of routes were assessed for trips to local facilities.

16.5.48 For non-motorised modes accessibility was related to changes in severance. Based on DMRB 11.3.8 (Ref 1) guidance, changes in vehicular flows (24 hour AADT) of 30% or greater across pedestrian, cycle or equestrian routes was considered as significant in creating or removing a severance. Changes in severance were also assessed on the removal, diversion or creation of pedestrian, cycle or equestrian paths. The magnitude of the effects were judged on the number of instances of changes to severance across Halton (for non-cross river trips) and for cross river facilities (for cross river trips). The status of the routes (e.g. national or local) and the potential number of people affected were also taken into account in assessing the magnitude of any effect.

16.5.49 All receptors were assessed for the Do-Something phase on changes to journey ambience resulting from the Project. The magnitude of the change was based on WebTAG guidance requiring assessment on a three point scale of better, neutral or worse. The assessment was done for cross river and non-cross river journeys separately. A further effect was also considered for non-motorised modes by applying the outputs from the Physical Fitness WebTAG appraisal which required the calculation of changes to the numbers of people walking or cycling above or below 30 minutes as a result of the Project.

16.5.50 The final assessment of the magnitude of the Project effects on each receptor was based on a combination of the results of the accessibility appraisals and journey ambience appraisals.

Significance

16.5.51 Significance is a function of the magnitude of the effect and the sensitivity of the receptor. All receptors are defined as of High importance and are therefore regarded as equally sensitive. The assessment of significance is therefore mainly a function of magnitude. A High magnitude

effect would therefore show a significance rating of High although, on occasion a low magnitude effect could be considered sufficiently low to generate a ‘not significant’ appraisal.

16.6 Baseline

Baseline 2006 – Highway Network

16.6.1 This section describes the strategic and local highway network and presents traffic flow and journey time information along links and routes on the base transport networks within the study area in 2006. It describes the characteristics of the study area in greater detail.

Strategic Highway Network

16.6.2 The M56 to the south of the Borough links West Cheshire and North Wales with Manchester. The M62 to the north links Merseyside to Manchester and to Yorkshire. The M53 to the west links North Wales and Cheshire to the Wirral and Liverpool City Centre via the Mersey Tunnels. The M6 to the east is the main arterial route between the north-west region and the rest of the country.

16.6.3 The expressway network in Runcorn provides fast links from the M56 via the SJB to the M62 via the Widnes Eastern By-pass. This system provides an important diversionary route for the M6 particularly at the Thelwall Viaduct. The SJB is a key point of access to the motorway network for the Speke/Garston development area and is an important strategic gateway into south Merseyside.

Mersey River Crossings & the Silver Jubilee Bridge

16.6.4 The River Mersey is crossed in only four locations at or to the west of the M6 (Figure 16.4, Appendix 16.1):

a. Thelwall Viaduct (M6);
b. Small local bridges in Warrington;
c. The Silver Jubilee Bridge; and
d. Mersey Tunnels, Liverpool.

16.6.5 Centrally located in this region, the SJB is recognised by many, including the North West Regional Assembly (NWRA) as both a constraint and an opportunity for resolving the current socio-economic issues experienced in Halton and the surrounding region. The Regional Spatial Strategy and associated Regional Transport Strategy identify links to Liverpool Airport and the Port of Garston as examples of economic generators requiring improved transport links. All rely, to some extent, on the SJB.

16.6.6 The SJB, lying centrally on the A553, linking the M56 and the M62 is a key component of the strategic highway network. Whilst not part of the trunk road network it serves to provide a degree of fragile network resilience when other Mersey crossings experience incidents and has local and regional significance but is not, in itself, resilient. The SJB is a source of network weakness – it is subject to a considerable, on-going maintenance programme to ensure that it can remain operational and its peak-hour capacity has been exceeded with resultant peak spreading.

16.6.7 The constrained capacity of the SJB exerts a significant influence on the performance of the local highway network. Extensive and regular queues develop in the AM and PM peaks on the approaches to the SJB as a result.

Local Highway Network

16.6.8 The local road network under consideration in the 2006 baseline is characterised by the single crossing of the River Mersey within Halton linked into expressway systems on both sides of the river. These link directly to the trunk motorway network both north (M62) and south (M56) of the crossing.

16.6.9 The expressways provide a largely grade-separated network for the distribution of traffic into Runcorn and Widnes and beyond. There are limited points of access to the expressway system, and hence less scope for trips to re-assign (i.e. to use other routes) as the network becomes congested in any given area. At times of network stress (e.g. when incidents occur on other Mersey crossings) queues rapidly develop and extend to effect local access point (such as at Halton Brow) as a result of the limited assignment opportunities and the limiting capacity (currently reached) of the SJB.

Traffic Flows

16.6.10 This section uses traffic flow information from the base MGM to describe the network in 2006.

16.6.11 Table 16.3 presents a comparison of the peak hour traffic flows across the River Mersey from the base traffic model for the MGM. The figures clearly demonstrate the importance of the SJB and that only the M6 Thelwall crossing carries more traffic than the SJB. They also show the importance of the SJB in providing for peak hour traffic. It is notable that the Thelwall Viaduct and the Mersey Tunnels have standard lanes to cater for the traffic, whilst the SJB has 4 narrow sub-standard lanes. Figure 16.3 shows the relative locations of these alternative river crossings.

Table 16.3 - 2006 Base Year Model Traffic Flows on all crossings of the River Mersey

ALL CROSSINGS OF THE RIVER MERSEY SCREENLINE	2006 Base Year (pcu) [2]		% of total Mersey Screenline traffic in peak	
Link	**AM**	**PM**	**AM**	**PM**
Kingsway Tunnel Eastbound	3120	1821	8%	5%
Kingsway Tunnel Westbound	1394	2687	4%	7%
Queensway Tunnel Eastbound	1855	1395	5%	4%
Queensway Tunnel Westbound	1445	1900	4%	5%
Silver Jubilee Bridge Northbound	3794	3794	10%	10%
Silver Jubilee Bridge Southbound	3529	3598	10%	10%
A49 Warrington Northbound	2580	2322	7%	6%
A49 Warrington Southbound	1753	2213	5%	6%
A50 Warrington Northbound	974	740	3%	2%
A50 Warrington Southbound	1112	1095	3%	3%
M6 Thelwall Viaduct Northbound	7910	8419	21%	23%
M6 Thelwall Viaduct Southbound	7363	7354	20%	20%

16.6.12 Table 16.4 presents the morning and evening peak hour traffic flows for the principal links on the network within the Halton area. Strategic traffic uses the expressway system in Runcorn via the A557 Weston Point Expressway to access the SJB for destinations to Liverpool and Junction 6 of the M62 (via A562 Speke Road or A5300 Knowsley Road) and the M62 Junction 7 (via A557 Watkinson Way).

16.6.13 The A557 Weston Point, A558 Daresbury and A533 Bridgewater Expressways carry the majority of the traffic crossing the SJB in Runcorn. In Widnes, the majority of the strategic crossing traffic uses the A562 Speke Road and Watkinson Way for access to Liverpool and the M62 Motorway.

Table 16.4 - 2006 Base Year Model Traffic Flows on Halton Road Network Links

HALTON ROAD NETWORK	2006 Base (pcu)			
Runcorn	**AM**	**AM 2-Way**	**PM**	**2-Way PM**
A557 Weston Point Expressway Northbound	2227	4000	2001	3609
A557 Weston Point Expressway Southbound	1773		1608	
A557 Weston Point Expressway Approach to SJB	2044	3180	2099	3231
A557 Weston Point Expressway Southbound from SJB	1136		1132	
Weston Link Eastbound	775	1579	522	1229
Weston Link Westbound	804		707	

2 Unit of road traffic equivalent for capacity purposes to one nominal private car. The private car is the standard unit and other vehicles are converted to the same unit by a factor that depends on their type.

HALTON ROAD NETWORK	2006 Base (pcu)			
A533 Southern Expressway Northbound	1560	2684	1001	2573
A533 Southern Expressway Southbound	1124		1572	
A533 Central Expressway Northbound	1108	2673	1185	2712
A533 Central Expressway Southbound	1565		1527	
A558 Daresbury Expressway Westbound	1566	2972	1558	2881
A558 Daresbury Expressway Eastbound	1406		1323	
A553 Bridgewater Expressway Eastbound	1726	3044	1766	2916
A553 Bridgewater Expressway Westbound	1318		1150	
Widnes				
A562 Speke Road Eastbound	2237	4453	2357	4510
A562 Speke Road Westbound	2216		2153	
A5300 Knowsley Road Northbound	1601	3331	2030	3524
A5300 Knowsley Road Southbound	1730		1494	
Ditton Road Eastbound	663	1433	591	1292
Ditton Road Westbound	770		701	
Moor Lane South Eastbound	329	610	571	1239
Moor Lane South Westbound	281		665	
A562 Ashley Way Eastbound	636	1343	911	1522
A562 Ashley Way Westbound	707		611	
Watkinson Way Northbound	1719	3368	2098	3678
Watkinson Way Southbound	1649		1580	

Motorway Junction Traffic

16.6.14 The following tables provide modelled information on link flows at key motorway junctions in the vicinity of the Project in 2006. These junctions are examined later in the comparison of the Do-Minimum and Do-Something situations.

16.6.15 The base year traffic flows on the main links, which form Junctions 6 & 7 of the M62 motorway and Junctions 11 and 12 of the M56 motorway, are presented in Tables 16.5 to 16.8. The layout of the junctions are illustrated in Figures 16.7 to 16.10. The link capacity figures are based on DMRB Standard, TA79/99, Traffic Capacity of Urban Roads (Ref 1).

Figure 16.7 - M62 Junction 6 Tarbock Interchange

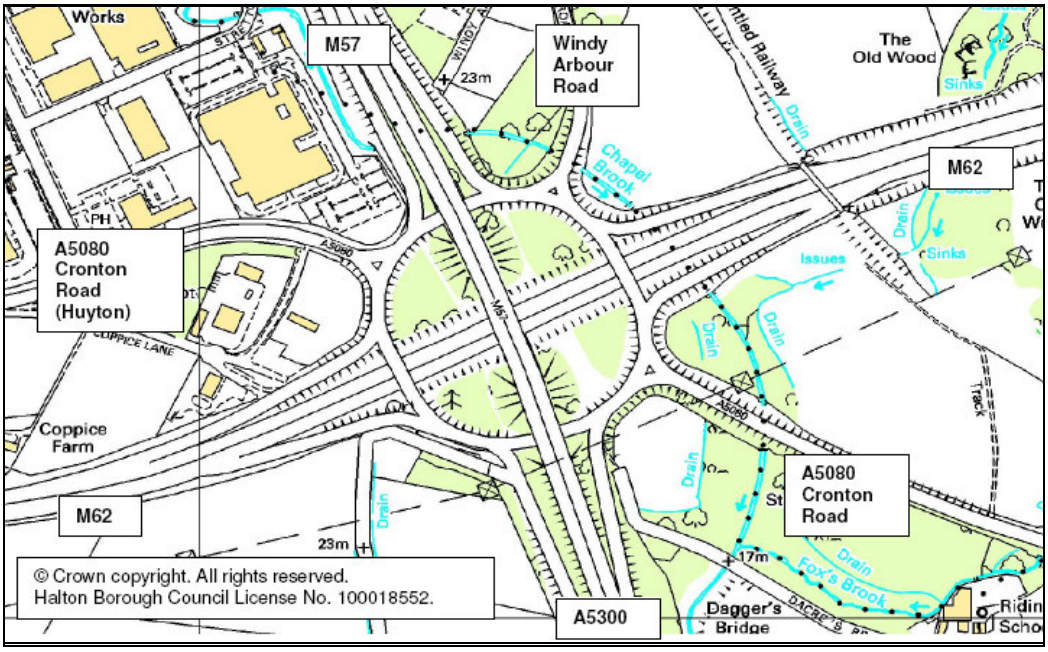
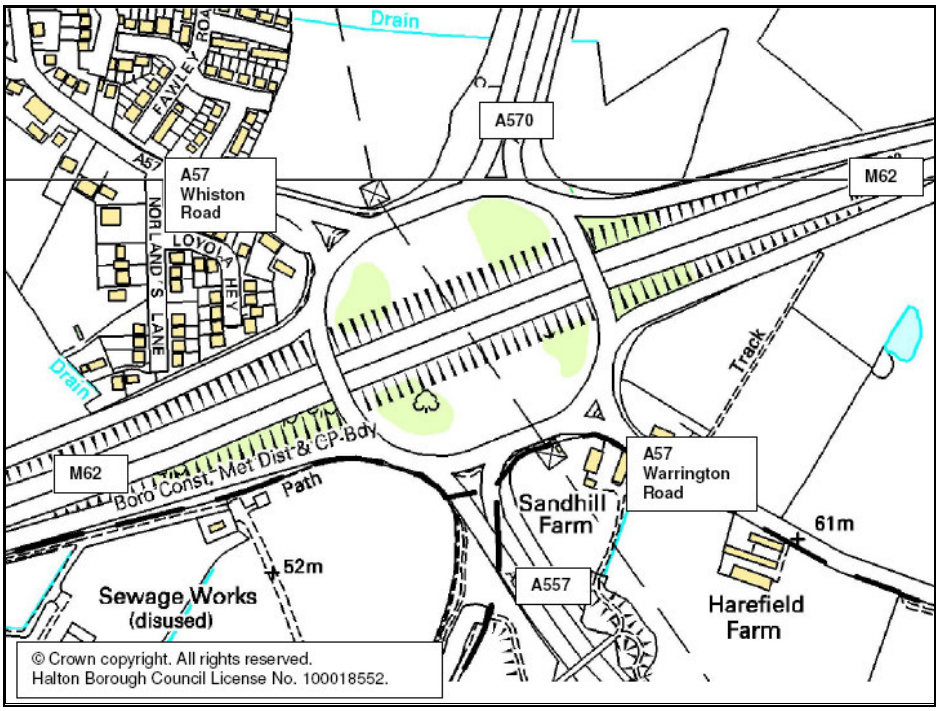


Table 16.5 - 2006 Base Year Model Traffic Flows on Links forming Junction 6 of the M62 Motorway

M62 Junction 6, Tarbock Interchange	2006 Base Scenario (pcu)		Link Capacity (pcu)*	Utilisation Factor[3]	
Link	**AM**	**PM**		**AM**	**PM**
M62 Eastbound (East of M62 J6)	2777	2971	6692	41%	44%
M62 Westbound (West of M62 J6)	2899	3849	6692	43%	58%
M57 - M62 Southbound Link Road	*Not Constructed*				
M57 Northbound On-slip	964	913	1900	51%	48%
M57 Southbound Off-slip	1241	862	1900	65%	45%
M62 Eastbound Off-slip (West of M62 J6)	526	577	1900	28%	30%
M62 Westbound On-slip	1625	1456	1900	86%	77%
M62 Westbound On-slip(East of M62 J6)	450	617	1900	24%	32%
M62 Eastbound Off-slip	1252	1234	1900	66%	65%
A5300 Knowsley Expressway Off-slip	545	870	1900	29%	46%
A5300 Knowsley Expressway On-slip	667	515	1900	35%	27%
A5300 Knowsley Expressway - M57 Northbound	1056	1160	6692	16%	17%
M57 - A5300 Knowsley Expressway Southbound	1063	980	6692	16%	15%
A5080 Cronton Road (Huyton) Eastbound	911	368	1900	48%	19%
A5080 Cronton Road (Huyton) Westbound	1146	339	1900	60%	18%
A5080 Cronton Road Eastbound	280	898	1900	15%	47%
A5080 Cronton Road Westbound	506	1040	1900	27%	55%

16.6.16 The base traffic flows on links forming Junction 7 of the M62 indicate that most links are within capacity as shown in Table 16.6.

Figure 16.8 - M62 Junction 7



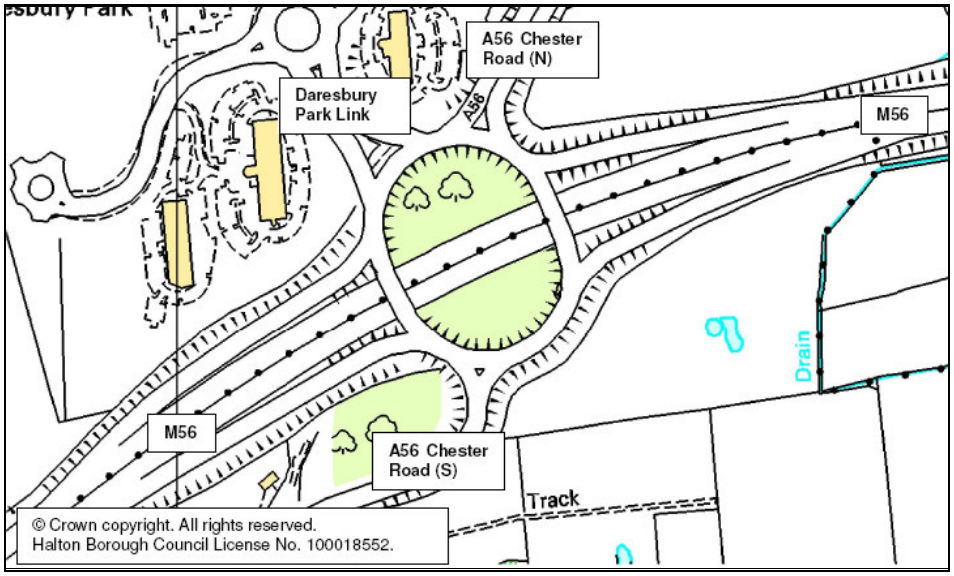
3 The Utilisation Factor (UF) is the ratio of Base Traffic Flow to Link Capacity, i.e. 2006 Base Traffic Flow/Link Capacity. A UF factor exceeding 100% implies that a link is operating above capacity and

Table 16.6 - 2006 Base Year Model Traffic Flows on Links forming Junction 7 of the M62 Motorway

M62 Junction 7	2006 Base Scenario (pcu)		Link Capacity (pcu)	Utilisation Factor	
Link	AM	PM		AM	PM
M62 Eastbound (West of J7)	3701	3849	6692	55%	58%
M62 Westbound (West of J7)	3875	3385	6692	58%	51%
M62 Off-slip (West of J7)	648	680	1900	34%	36%
M62 On-slip (West of J7)	607	384	1900	32%	20%
M62 Eastbound (East of J7)	4381	4455	6692	65%	67%
M62 Westbound (East of J7)	4043	4439	6692	60%	66%
M62 On-slip (East of J7)	1154	1287	1900	61%	68%
M62 Off-slip (East of J7)	940	1438	1900	49%	76%
A557 Northbound	967	1148	1900	51%	60%
A557 Southbound	823	924	1900	43%	49%
A57 Warrington Road Northbound	644	561	1554	41%	36%
A57 Warrington Road Southbound	496	652	1554	32%	42%
A57 Whiston Road Northbound	1257	1583	1554	81%	102%
A57 Whiston Road Southbound	1111	967	1554	71%	62%
A570 Northbound	916	918	1554	59%	59%
A570 Southbound	1037	1030	1554	67%	66%

16.6.17 The base traffic flows on the links forming Junction 11 and 12 of the M56 motorway are within capacity as shown in Table 16.7 and 16.8. However, some congestion exists at both these junctions at present (particularly at J12) which has resulted in the introduction of part-time signals.

Figure 16.9 - M56 Junction 11



UF factor less than 100% implies a link is operating below its capacity.

Table 16.7 - 2006 Base Year Model Traffic Flows on Links forming Junction 11 of the M56 Motorway

M56 Junction 11	2006 Base Scenario (pcu)		Link Capacity (pcu)	Utilisation Factor	
Link	AM	PM		AM	PM
M56 Eastbound (West of Junction11)	4537	3954	6692	68%	59%
M56 Eastbound Off-slip (West of Junction 11)	469	366	6692	7%	5%
M56 Westbound Off-slip (West of Junction 11)	802	772	1900	42%	41%
M56 Westbound (West of Junction 11)	4990	4339	6692	75%	65%
M56 Eastbound On-slip (East of Junction 11)	727	936	1900	38%	49%
M56 Eastbound (East of Junction 11)	4795	4534	6692	72%	68%
M56 Westbound (East of Junction 11)	5105	4400	6692	76%	66%
M56 Westbound Off-slip (East of Junction 11)	917	832	1900	48%	44%
A56 Chester Road (S) Northbound	573	579	1554	37%	37%
A56 Chester Road (S) Southbound	639	568	1554	41%	37%
Daresbury Park Link Northbound	95	33	1554	6%	2%
Daresbury Park Link Southbound	40	103	1554	3%	7%
A56 Chester Road (N) Northbound	1356	1010	1554	87%	65%
A56 Chester Road (S) Southbound	1440	1439	1554	93%	93%

Figure 16.10 - M56 Junction 12

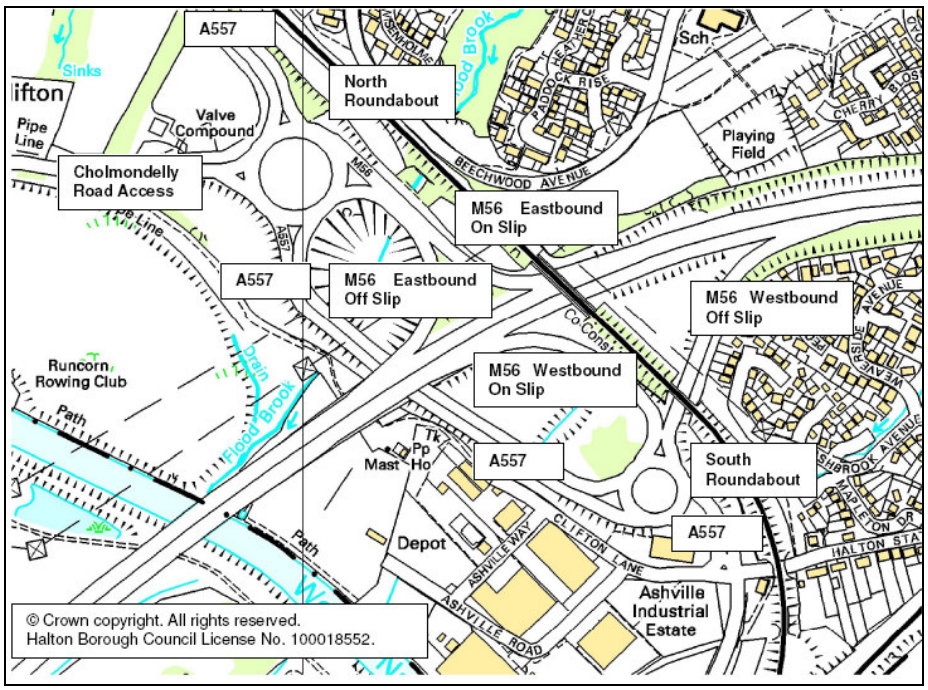


Table 16.8 - 2006 Base Year Model Traffic Flows on Links forming Junction 12 of the M56 Motorway

M56 Junction 12	2006 Base Scenario (pcu)		Link Capacity (pcu)	Utilisation Factor	
Link	AM	PM		AM	PM
M56 Eastbound (West of Junction 12)	5676	5502	6692	85%	82%
M56 Eastbound Off-slip to Junction 12 North R.Bout	1670	1697	1900	88%	89%
M56 On-slip from North Roundabout	532	149	1900	28%	8%
M56 Eastbound (East of Junction 12)	4537	3954	6692	68%	59%
M56 Westbound (East of Junction 12)	4990	4339	6692	75%	65%
M56 Westbound Off-slip to Junction 12 South R.Bout	237	601	1900	12%	32%
M56 Westbound On-slip from Junction 12 South R.Bout	1337	1425	1900	70%	75%
M56 Westbound (West of Junction 12)	6090	5162	6692	91%	77%

Journey Times

16.6.18 Table 16.9 and Table 16.10 provide examples of modelled journey times, delays, distances and speeds for a series of journeys using the SJB during the morning and evening peak hours in 2006. It can be seen that the maximum delays and decrease in speeds occur during the evening peak hour. Journey times with and without the Project are presented later in this report in Section 16.8.

Table 16.9 - 2006 Base Year AM Peak Model Traffic Journey Time

	AM Peak			
Route	Time (s)	Delay (s)	Distance (m)	Speed (kph)
M56 J11 to M62 J6	1296	371	20259	57.03
M56 J11 to M62 J7	1227	339	19064	55.92
M56 J12 to M62 J6	994	281	16171	58.56
M56 J12 to M62 J7	925	250	14706	57.23

Table 16.10 - 2006 Base Year PM Peak Model Traffic Journey Time

	PM Peak			
Route	Time (s)	Delay (s)	Distance (m)	Speed (kph)
M56 J11 to M62 J6	1379	435	20259	53.60
M56 J11 to M62 J7	1363	457	1960	50.34
M56 J12 to M62 J6	1066	350	16171	54.63
M56 J12 to M62 J7	1050	373	14706	50.41

Baseline Information – Modal Split

16.6.19 It is estimated that 31% of Halton residents work outside the Borough. This is comparable with the Merseyside average of 34% of residents working outside their home administrative area. The current modal split of travel to work is as indicated in Table 16.11, whilst Table 16.12 indicates typical length of trips to work, both tables refer to the Halton resident population aged 16-74 in employment:

Table 16.11 - Modal Split for journeys to work by Halton residents in employment (Census 2001)

	Halton Resident in Employment
Private Car	71%
Public Transport	8%
Pedestrian	10%
Cycle	2%
Other*	9%

*taxi/motorcycle/work from home

Table 16.12 - Trip length for journeys to work by Halton residents in employment (Census 2001)

	Halton Resident in Employment
Less than 5km	49%
5km – 9km	16%
Greater than 9km	25%
Other*	10%

*work from home/no fixed place of work

16.6.20 The high number of residents and employees making short journey to work trips within Halton suggests significant potential to influence modal shift away from the private car and towards other, more sustainable, forms of transport, including walking and cycling.

16.6.21 Analysis of traffic data taken from the SJB in May 2007 showed that during an average weekday in May the percentage car and HGVs shares were 83% and 8% respectively. During weekends there was a notable reduction in the percentage of HGVs to 3%, and an increase in the proportion of passenger cars to 92%.

16.6.22 Detailed, recent data on pedestrian and cycle movements was assembled for cross river traffic, including a 12 hour count of pedestrian/cycle flows across the SJB to compare to automatic cycle data collected on a continuous basis. Further data on related links was also assembled, including pedestrian and cycle counts on the Trans Pennine Trail which would potentially link into a de-linked SJB, and cycle counts on major cycle routes on the Runcorn side.

16.6.23 On the SJB, recent data from The Council indicate that on an average weekday some 172 cyclists cross the bridge. This drops to 61 during weekends. The data further indicate a very peaked profile during weekdays demonstrating a strong demand during the commuting peaks. The results for the pedestrian survey indicated that about 100 pedestrians cross the river between 7am and 7pm.

Baseline 2006 - Other Transport Networks

Rail Network

16.6.24 The Liverpool to London Euston rail line provides travel between Runcorn and London in less than two-and-a-half hours, and there are regular services to Cardiff and the south coast of England. Locally, Hough Green Station in Widnes is linked via Hunts Cross to the Merseyrail

system, while the station at Runcorn East is on the main rail line connecting Chester and North Wales with Warrington, Manchester, Leeds and the North East of England. The rail network and local rail stations serving the Halton area are identified in Figure 16.11(Appendix 16.1).

16.6.25 Runcorn Station offers a secure pay and display car park, lift access to platforms, an enclosed ticket office and waiting area, plus small shop and toilets, and sheltered seating on both platforms. Runcorn East Station provides a free car park, ramped access to the platforms and sheltered seating on both platforms.

16.6.26 Widnes Station has a free car park 20m from station entrance and ticket office, ramped access to the platforms, and sheltered seating on both platforms. Hough Green Station has limited access to the ticket office (small step) and Manchester platform (13 steps), free car parking is provided outside the station and there is sheltered seating on both platforms.

16.6.27 All four stations are staffed during various times of day between 05:30 and 00:30 hours.

Bus Network

16.6.28 The provision of commercial bus services is dominated by two main bus companies – Halton Transport and Arriva North West and Wales. Both operators have depots within the Borough. Halton Transport operates the majority of its mileage within Widnes whereas Arriva is the dominant operator in Runcorn. Virtually all local bus services within Halton are operated by a fleet of low floor easy access buses. In addition to the two main bus operators there are a further 10 smaller operators. The commercial bus routes in Halton and the bus station are shown in Figure 16.11 (Appendix 16.1), together with the rail network and local rail stations.

16.6.29 There are 2 main bus stations in Runcorn, Halton Lea North Bus Station and Runcorn High Street (Old Town) Bus Station. In September 2007 Halton Lea North Station received a £350,000 facelift which included better protection against bad weather, new information boards, extra seating, CCTV, improved disabled waiting areas and tactile tiles to assist visually impaired passengers.

16.6.30 Runcorn High Street Bus Station does not have an information help desk, although there are information boards, sheltered seating and toilet facilities, plus provisions for disabled users.

16.6.31 There are no bus stations located within Widnes, with bus interchange taking place on street and at Greenoaks shopping centre.

16.6.32 Halton's accessibility model shows that most of Halton's population live within 400m of a bus stop and 7%, based on the 2001 census, of Halton's residents travel to and from work by local bus services. This is comparable to the national average of 7.6% reported to travel to work by bus, coach and private bus (Census Data, 2001 (Ref 22)). The bus network provides good levels of accessibility from most communities to the three main commercial centres in the Borough. In terms of supported services the Council's priority is to give support to routes providing:

a. Access to healthcare;
b. Access to key service locations;
c. Access to employment sites;
d. Specialist services for disabled people;
e. Access to parts of the Borough that are not well served by current public transport provision; and
f. Evening access to social activities.

16.6.33 See Figures 20.12 (Appendix 20.1), 16.12 and 16.13 (Appendix 16.1) for the locations of key facilities, and Figure 16.14 (Appendix 16.1) for key employment sites.

Urban Transport Networks - Runcorn

16.6.34 Runcorn, a planned New Town, has a road system based around an expressway and busway system (Figure 16.15, Appendix 16.1) , with employment areas on the outside of this network, residential areas in the inside and the new town centre (Halton Lea) in the middle. In each of the New Town housing areas there is a local centre. The busway does not run within some of the Old Town areas or to some of the newer employment and residential areas such as Manor Park or Sandymoor. Initially it was proposed that each New Town neighbourhood would be distinct without road links to other areas, other than via the busway and expressway. Temporary links made during construction of the New Town were not removed in some cases. Consequently, the ability to drive between neighbourhoods in the private car is easier than anticipated when the New Town was planned. There is a network of cycleways and footpaths throughout Runcorn which are separate from the road system.

16.6.35 HBC have produced a route map (Figure 16.16, Appendix 16.1) which identifies existing and proposed routes, including greenways, cycleways, bridleways and PRoW within Halton.

16.6.36 The existing cycle network in Runcorn provides a nearly complete circular route through Runcorn's built-up area, with links to both the Halton Lea shopping centre and the Old Town. Much of the route is parallel to the Expressway highway network and includes the National Cycle Network (NCN route 5) with links beyond the Borough. There are proposals to extend the network including links along the Bridgewater Canal and to the Halton Castle area.

16.6.37 Figure 16.16 (Appendix 16.1) includes the official and unofficial cycle routes within Runcorn. These routes include unofficial cycleways which do not have the relevant orders to make them official cycleways, and also include routes which are viewed as safe and are typically used by cyclists. These unofficial routes have been identified by Halton and included within their Greenways. Greenways have no legal status but are defined by Halton as being a network of largely car free off road routes for waking, cycling or equestrian. Identifying these unofficial routes together with the official routes within this assessment has ensured that any potential effect on cyclists caused by changes in traffic flows can be assessed.

16.6.38 Survey data collected on 4th December 2007 counted 129 cyclists crossing the SJB between 7am and 7pm. During the same time period and on the same day 104 pedestrians were observed crossing the SJB.

16.6.39 For the purposes of this assessment, it has been assumed that the Saltmarshes along the Mersey Estuary comprise foreshore. As such the public have rights of access and should be treated as established rights of way; the Saltmarshes comprise Widnes Warth and Astmoor Saltmarsh. The study area crosses both areas of Saltmarsh, which are shown in Figure 4.4 (Appendix 16.1).

16.6.40 Approximately 31 desire lines have been identified within Halton. These routes at Bridgewater Junction, A553 Central Expressway and Lodge Lane Junction have been created due to repeated use by the general public and unofficial routes which have been created by HBC within public areas, but have not been designated on the HBC local plan (Ref 18).

16.6.41 Within Runcorn the main Greenway facility is provided by the circular route described previously in reference to cycling (Figure 16.16, Appendix 16.1). It is planned to enhance the Greenway network in Runcorn with links into the core area, including the Halton Lea shopping centre and to new developments to the east.

16.6.42 There are various rail sidings for freight within the Docks areas to the west of Runcorn. This area is also alongside the Manchester Ship Canal with its associated docking facilities.

16.6.43 Generally, new development land is now concentrated towards the eastern edge of the town away from public transport nodes including the busway.

Urban Transport Networks – Widnes

16.6.44 Widnes has developed as a traditional manufacturing town with the main industry being to the south along the River Mersey, and housing and the town centre towards the north.

16.6.45 As with the Runcorn New Town there are local centres within the residential areas, but these have developed over the years rather than being planned centres. The road system has also developed in an unplanned fashion.

16.6.46 In Widnes, there has been incremental infrastructure growth with roads and other transport modes being planned as part of individual developments and regeneration areas. The latest of these schemes was the development of the A557 Widnes Eastern Relief Road running from the M62 to the SJB. This has freed up the internal road network for more local traffic.

16.6.47 Cycle lane provision in Widnes has recently been expanded with 7 km provided over the period of the first Local Transport Plan. The Trans Pennine Trail route (NCN route 62) is the main through link following the coast from Warrington through Widnes towards Liverpool. Accessibility by cycle lane is patchier than in Runcorn, with much of it related to new development and there is a lack of continuous routes through the built up area.

16.6.48 Compared to Runcorn, Greenways and PRoW are very limited and patchy in Widnes, simply because of Runcorn's post war development. PRoW are routes over which the public have the right to pass and re-pass, for this ES they consist of footpaths, bridleways and byways. Existing links include routes from Ditton and Kingsway towards the town centre, a route from Prescott Road towards Widnes station (by the railway line) and a north-south route in the Crow Wood area.

16.6.49 The Trans-Pennine Trail and Mersey Way are important routes in the Greenway Network; they provide valuable recreational routes for the residents of the Borough. The Trans-Pennine Trail generally follows the routes of the Mersey Way in Widnes except in the vicinity of Hale village where the Trail turns inland through the village to link into the Speke area of Liverpool.

16.6.50 A number of desire lines have also been identified in Widnes at St Michael's Golf Course, Spike Island and West Bank. These are unofficial routes, which have not been designated on the HBC local plan.

16.6.51 There are two rail stations in Widnes, Widnes and Hough Green stations, both on the Liverpool to Manchester line. There is no rail link between Widnes and Runcorn due to the closure of Ditton Station in Widnes. Several freight lines into employment areas exist, particularly into the West Bank Dock estate and into the south-east Widnes employment area. Pedestrianisation has taken place within the town centre and a variety of pedestrian routes exist throughout the area.

Freight Network

16.6.52 Halton is an important location on the national and regional freight network. The Borough has excellent links with a number of key freight transport facilities as identified below:

16.6.53 The 3MG (previously known as Ditton Strategic Rail Freight Park) is a new road/rail freight handling and logistics parks, covering approximately 180 hectares. (Figure 16.14, Appendix 16.1)

16.6.54 This park provides a number of freight facilities including:

a. Rail access from the West Coast Main Line;
b. An operational intermodal terminal facility;
c. Daily rail links to deep sea ports, and the Channel Tunnel;
d. Direct connections to the UK motorway network;

e. Road links to two international airports at Liverpool and Manchester; and
f. Access to the nearby Port of Liverpool by road.

16.6.55 Other rail linked freight sites include Widnes Inter-modal Rail Depot and Widnes International Freight Terminal. Widnes Inter-modal Rail Depot is a private rail terminal, connected to the UK's rail network via the West Coast Main Line, which is situated between Liverpool and Manchester to link road and rail, covering the entire North West of England and beyond. Widnes International Freight Terminal was opened in 1999 and is accessible to any UK or International Rail operator. It is also open to Intermodal Operators who require lifting and storage of tank and shipping container units transported by road.

16.6.56 Currently there are two scheduled intermodal services, one from the ports of Tilbury and Purfleet routing to Grangemouth via Widnes, the other from the deep sea port of Southampton. The services are open to any individual or shipping company wishing to take advantage of the services.

16.6.57 There is also a twice-weekly service operated on behalf of three major UK and International chemical industry companies.

16.6.58 Liverpool airport is in close proximity to Halton Borough and accommodates all but the largest heavily laden planes. It benefits from being able to cater for night flights. Currently, around 15,000 tonnes of air freight is handled by the airport.

16.6.59 Similarly the World Freight Terminal, at Manchester Airport is accessed from Halton directly via Junction 6 of the M56 motorway. It handles over 140,000 tonnes of inbound and outbound air freight every year.

16.6.60 Freight distribution accounts for 11% of Halton GDP and 16% employment. 'The largest single issue in relation to road freight is the congestion on the SJB and the proposal for the Mersey Gateway' (LTP2 (Ref 18) Appendix 16.1).

16.6.61 The congestion on the SJB is recognised by Halton Council in its LTP (Ref 18) as a constraint on the operation and development of freight movements within Halton Borough.

Shipping Networks

16.6.62 The purpose of this section is to give an overview of the provision of facilities to enable waterborne transport within the vicinity of the proposed Mersey Gateway Bridge. A full assessment of waterborne transport is provided in Chapter 18.

16.6.63 The Manchester Ship Canal can handle vessels of up to 15,000 tonnes at Runcorn lay-by (HBC, LTP Appendix 16.1 2006/07 to 2010/11). Runcorn Docks can accommodate vessels up to 6,500 tonnes and has road connections for the chemical, glass and pottery industries. Using the Manchester Ship Canal, the Mersey Estuary supports docks at Runcorn and Weston Point.

16.6.64 The Manchester Ship Canal passes along the south side of the estuary and still provides passage for sea-going vessels requiring significant headroom.

16.6.65 The Bridgewater Canal, used as a leisure cruising facility, commences near the centre of Runcorn Old Town and runs eastwards alongside the Bridgewater and Daresbury Expressways.

16.6.66 The St Helens Canal, commencing near West Bank runs eastwards on the north side of the estuary. This canal is currently used as a small marina at Spike Island but is only accessible for a short length due to the presence of a wooden footbridge just upstream of Spike Island. It also retains a significant leisure role, with the towpath providing the route for the Trans-Pennine Trail for walkers and cyclists.

Current Transport Related Problems

16.6.67 Halton, along with many developing urban areas, suffers from a number of problems, many of which are related to the effect of transportation. Issues in Halton can be categorised into four broad headings.

a. Economics and Regeneration;
b. Social;
c. Traffic and Safety; and
d. Transportation.

16.6.68 These four broad headings are clearly influenced by a range of environmental issues, some directly related to transport and some associated with transport. The effects to be dealt with specifically by this transportation assessment are discussed in the methodology section. However, the following provides useful contextual information regarding the existing situation, how transport has an effect on this situation, and the opportunities that the Project could provide. Whilst the Project is not intended to alleviate all transport problems in Halton its key objectives and the opportunities presented by the relief of SJB do provide both the framework and the opportunity to develop alternative transport networks.

16.6.69 Within each of the above headings, there are a number of sub-problems. These problems have been identified following close consultation with local residents, businesses, interest groups and transport operators.

Economics and Regeneration

16.6.70 The SJB has an effect on the local economies of Runcorn and Widnes, as well as the Merseyside and North Cheshire areas and North Wales. It is a particular constraint on the economic development of the Merseyside sub-region and severely restricts the development of integrated transport strategies. In economic and regeneration terms there is a need to resolve the constraint of the SJB in order to:

a. Relieve current congestion effect; and
b. Encourage development and bring about regeneration of the area.

16.6.71 Halton's UDP (2005) identifies the following sites for freight transfer facilities:

a. Runcorn Docklands; and
b. 3MG (Ditton Strategic Rail Freight Park) which is proposed as an intermodal freight terminal and a site of regional importance for encouraging inward investment into the region.

16.6.72 The three key employment sites within Halton; Runcorn Dockland, 3MG and Daresbury Park are identified in Figure 16.14 (Appendix 16.1).

16.6.73 The baseline situation relating to freight is that the key freight terminals and freight related employment sites rely on access across the SJB as their routes to market.

Social

16.6.74 The primary findings from The Council's second LTP (Ref 18) Appendix 16.2 Access Plan, identifies the typical journey times from areas within Widnes and Runcorn to local education facilities, hospitals, employment areas and commercial centres. These findings were based on DfTs Accession Mapping Tool, which is a software package used to analyse the extent of social exclusion. Information from the Access Plan is presented below to give an indication of baseline accessibility to existing community facilities.

Access to Key Employment Sites

16.6.75 Residents in Runcorn can typically access their nearest employment area within 20-40 minutes by public transport.

16.6.76 Within Widnes there are large residential areas to the north which are over 40 minutes by public transport from the nearest major employment area.

16.6.77 Employment areas in Daresbury, Manor Park and Widnes Waterfront are not well served by public transport.

Access to Halton Hospital

16.6.78 The majority of residents in Widnes do not benefit from a direct bus service to Halton General Hospital during weekday evenings, and many are over an hour's travel time away. However, during the day (off peak) journey times, for those served by a direct link, are between 40 minutes to one hour.

16.6.79 Within Runcorn the majority of residents are in a 20-40 minutes travel time to Halton General Hospital by public transport. Sandymoor is a significant exception as it is not served

Access to Warrington General Hospital

16.6.80 Journey times from Widnes to Warrington General Hospital vary from 22 minutes to 1 hour 20 minutes, depending on the bus service. Access from Runcorn to Warrington General Hospital is from 28 minutes to 58 minutes. All services require changing at Warrington Golden Gate Bus Station.

16.6.81 A free shuttle bus operates between Halton General and Warrington General Hospital which is available to patients, visitors and staff. The shuttle bus makes 11 journeys a day, 7 days a week, between 06.40 hrs and 20.40 hours.

Access to Primary Health Care Facilities

16.6.82 The majority of wards within the borough have good or excellent access (under 30 minutes) by public transport to primary health care facilities (GPs and dentists), except for Hale and Farnworth where average journey times by public transport are 30-45 minutes.

Access to Commercial Centres

16.6.83 The majority of residents within Runcorn can access either Halton Lea or Runcorn Town centre by public transport within 20 minutes travelling time. During peak periods journey times typically increase from 20 minutes to 40 minutes. Sandymoor has limited access only during off peak periods.

16.6.84 Journey times for Widnes residents to Widnes Town centre during the off peak are typically 20-40 minutes by public transport. Evening and early morning services are infrequent, and there are few direct services from many areas within Widnes to Widnes Town Centre, including Hough Green, Ditton and Farnworth areas.

Access to Secondary Schools

16.6.85 For the majority of residents access to secondary schools is generally good/excellent however communities in Ditton, Hale and Farnworth have journey times of 30-45 minutes by public transport.

Access to Post 16 Colleges

16.6.86 Post 16 colleges offer a wide range of academic and vocational course to those aged 16 and above. The majority of communities within Runcorn can access Halton College's Runcorn Campus within 20 - 40 minutes by public transport on weekday off peak periods. However those areas on the outskirts of Runcorn can face up to 40 – 60 minutes journey times.

16.6.87 Journey times for Widnes residents accessing the Halton College Widnes Campus on Kingsway are typically under 20 minutes during the off peak period.

16.6.88 Access to both colleges are dramatically reduced during evenings, with journey times increasing significantly.

16.6.89 Whilst the public transport network within Halton is reasonable, access to facilities from either side of the Mersey becomes more difficult outside of peak periods because of reduced service frequency. However, it is peak time services that are affected by delays, particularly cross river journeys.

Traffic Safety

16.6.90 A key concern in relation to transport is safety, particularly in relation to road traffic. In 2000 the government produced a safety strategy in 'Tomorrow's Roads Safer for Everyone' (Ref 23). By 2010, the aim is to achieve, compared with the average for 1994-1998:

a. A 40% reduction in the number of people killed or seriously injured in road accidents;
b. A 50% reduction in the number of children killed or seriously injured (aged under 16); and
c. A 10% reduction in the slight casualty rate

16.6.91 During the period 1994-1998 the rate of killed or seriously injured casualties for all ages in Halton was 60% higher than the national average. However since 1998, as a result of Halton's road safety initiatives, road accidents in Halton have fallen significantly and, by 2003, the number of killed or seriously injured casualties had already fallen below the Government's target for 2010 (Choosing Health in Halton 2004 (Ref 24)).

16.6.92 Table 16.14 indicates the accident figures for Halton Borough, as quoted in Halton's Local Transport Plan (Ref 18) and updated for 2005 and 2006. Figure 16.17 (Appendix 16.1) identifies the location and severity of accidents in the area over the last six years (2000-2006) (RTA data from The Council).

Table 16.14 - Accident Analysis for Halton Borough

Year	KSI – all ages	KSI – children	Slight casualties
1994 – 1998 Halton Average	157	33	627
2005	77	15	514
2006	50	8	493
2010 national target	94 (40% reduction)	17 (50% reduction)	564 (10% reduction)

16.6.93 Previous analysis and investigation of accidents on the SJB and on both the northbound and southbound approaches found that the majority of accidents involved rear end shunts of vehicles held up on the bridge. Many of these accidents may have been caused by the misjudgement of speed or distance, whilst another significant factor was vehicles colliding whilst

changing lanes. The following table indicates the accident figures for the SJB. The area assessed is approximately 2.2 km from the south of Ditton Roundabout, across the SJB to the Queensway junction with the A533 Daresbury Expressway, and includes the approach road from the A557 Weston Point Expressway. The national reduction targets are related to the 1994-98 averages.

Table 16.13 - Accident Analysis for the Silver Jubilee Bridge

Year	KSI* – all ages	KSI* – children (aged 16 & under)	Slight casualties
1994 – 1998 Average	8	0	27
2005	2	0	25
2006	0	0	9
2010 national target	5 (40% reduction)	0 (50% reduction)	24 (10% reduction)

*Killed or Seriously Injured

16.6.94 In conjunction with Halton's road safety initiatives, the high volume of slow moving traffic on the SJB during the peak periods is a contributory factor to the zero killed or seriously injured accidents reported on the SJB in 2006. This slow moving traffic also contributes towards the number of slight accidents reported, which are mainly shunt accidents. Whilst the number of slight accidents reported is still considered low, this number is likely to be lower than the actual number of accidents as not all accidents will be reported to the Police and recorded.

Transportation

Access for Emergency Vehicles

16.6.95 Access for emergency vehicles has been identified as a concern of the public and of the emergency services themselves and the identified issues include the following:

a. Access to incidents such as collisions, dropped loads and potential suicides on the SJB itself is very difficult;
b. Access by emergency services to incidents across the bridge is hindered by congestion;
c. There is a lack of alternative routes and insufficient public warning of congestion. Narrow lanes and the volume of traffic exacerbate the problem;
d. The number of chemical incidents recorded in Halton has been rising annually. Some of these incidents have threatened closure of the SJB; and
e. If the SJB is closed the approach roads also get blocked, which increases attendance times to many areas of Runcorn and Widnes, particularly as there is a lack of alternative routes to bypass any congestion.

Congestion

16.6.96 Congestion, due to the capacity limitation of the SJB, seriously effects on transport movement and accessibility and potentially inhibits future development. The highest traffic flow crossing the SJB ever recorded in a 24-hour period was 92,889 vehicles on Friday 18th July 2003.

16.6.97 Major structural maintenance works on the SJB took place during much of 2004 with weekend and overnight lane closures. Temporary bridging units were in place over the main expansion joints for 3 months and a 24 hour 20mph speed limit applied. The resulting extensive delays and congestion brought a 10% reduction in average traffic flows but these have now built to previous high levels. As the bridge gets older and traffic levels continue to rise, congestion will

worsen, structural deterioration on the bridge will increase, and essential maintenance will become ever more disruptive.

Buses

16.6.98 The vast majority of the bus network within Halton is operated commercially, with the remainder supported by The Council. As with the United Kingdom generally (outside London) the general trend has been for a decline in patronage, although in 2003/04 a small growth in patronage was registered (0.3%). There have been very few significant changes to the bus network over recent years and the bus operators have been relatively slow to introduce innovative new services or respond to new opportunities. The Council, using a mixture of public funding sources, has taken the lead on 'pump priming' new services within the Borough such as the successful Access 200 service linking residential communities with major employment sites in the east Runcorn area, and the Council's new Route 66 rural bus service.

Pedestrian and Cyclist Facilities

16.6.99 There are presently no dedicated cycleway facilities between Runcorn and Widnes, hindering Halton's aims to reduce dependency on the private car for cross river traffic. Cyclists may either dismount and walk across the River using the footway, or cycle across the SJB using the main carriageway. However for cyclists, due to the volume of traffic and narrow lanes this is not considered a safe or attractive option.

16.6.100 The existing footpath across the Silver Jubilee is separate from the main carriageway. The footpath is of substandard width, vibrates due to vehicle movements on the carriageway and is exposed.

Baseline 2006 Summary

Strategic Highway Network

16.6.101 The SJB, whilst not part of the Highways Agency's trunk road network, plays a strategic role as a crossing of the Mersey carrying levels of peak hour traffic surpassed only by the M6 Thelwall. The percentage of daily traffic that it carries in the peak hours is almost twice that of either the tunnels or the Warrington crossings. It experiences regular congestion now and, between peak periods, operates at nearly three quarters of its capacity. Its age, the traffic loads it carries and its on-going maintenance programme mean that it has insufficient resilience to perform a long term, reliable, role providing for strategic cross-Mersey traffic.

16.6.102 Halton's UDP (Ref 17) policy S14 relates the provision of an integrated transport strategy for Halton to the improvement of cross river capacity. Without relief to the SJB, this strategy cannot be realised.

16.6.103 The Borough's development proposals for freight, rely on good cross river links to the motorway network and, with increasing congestion and lack of journey time reliability, freight operations relying on just-in-time (Halewood and the Airport for example) will be increasingly affected.

Motorway Junctions

16.6.104 Junctions 6 and 7 of the M62 operate within capacity at present. On the M56, peak hour signals have been introduced to increase capacity and reduce the effect of queues on the M56.

Local Highway Network

16.6.105 The local expressway network within Halton is, with the exception of the SJB and its associated approach roads, of high capacity. There are areas where peak hour congestion is a current issue, particularly associated with Junction 12 of the M56 and the local highway network providing access to the expressway system is vulnerable to incidents on that system. Queues

building on the approaches to the SJB have knock-on effects to access points at Halton Brow and Astmoor, for example. Regeneration and committed development will continue to add pressure to the network.

Rail Network

16.6.106 Halton is well served by national and local rail services but the two main lines through the Borough are not connected. There are safety and security issues emerging from consultation relating to the development of the Sustainable Transport Strategy Study (Appendix 16.4).

Bus Network

16.6.107 The bus network provides good accessibility (within 400m) for most of Halton's residents but there are areas, where development and regeneration has occurred, with reduced accessibility. This will reduce further unless parallel extensions and improvements to routes are made. Cross river access is subject to delay and congestion.

Walking and Cycling

16.6.108 The walking and cycling networks within Halton are extensive although there are areas where improvements are required. Cross river facilities are poor including limited access to the SJB. Cyclists have no formal facilities on the SJB and share a sub-standard cantilevered route on the eastern side of the SJB.

Traffic Safety

16.6.109 Halton has a good and improving traffic safety record particularly since 1998.

Comparison of 2006 Baseline with 2015 Baseline – Mersey Crossings

16.6.110 The transport assessment does not require a detailed comparison between the current baseline situation (2006) and that which might exist just prior the Project scheme opening year (2015) but it is helpful when trying to understand the additional constraints that might exist within the transport networks prior to assessing the Project.

16.6.111 The 2015 Do-Minimum model i.e. without the Project but including committed developments and infrastructure changes has been assessed using the full variable demand model. It therefore reflects behavioural changes resulting from travel cost changes.

16.6.112 Between the 2006 Base Year and 2015 Do Minimum the model predicts that there will be an increase in the volume of crossing flows of 3597 passenger car units (pcus – all vehicles expressed in car size units) in the AM peak and 3919 pcus in the PM peak over all crossings of the Mersey. The distributions of the additional volumes are shown in Table 16.15. The majority of the additional traffic growth between 2006 and 2015 occurs on the M6 at Thelwall followed by the Kingsway Tunnel in Liverpool. The increase in the volume of traffic on the SJB will be 71 pcus which is equivalent to 2%.

16.6.113 This is a minimal increase in peak hour volumes reflecting the fact that peak hour capacity on the SJB has already been reached. The traffic model is not able to reflect the effects of peak spreading and it is reasonable to expect that daily volumes will increase as the peaks spread with consequent effects on journey-time reliability.

16.6.114 The conclusions that can be drawn from this simple comparison are that:

a. Traffic growth, over the period 2006 to 2015, across the Mersey is in the order of 10% with none of this growth occurring on the SJB, despite considerable local development and regeneration on both sides of the Mersey. The constraint on Halton's (and the Liverpool City region's) aspirations and proposals for regeneration, economy, competitiveness and productivity is clear;

b. Despite no peak hour forecast traffic growth on the SJB, local development will inevitably lead to traffic growth on each side of the Mersey, with detrimental effect on access to the SJB, from both Widnes and Runcorn;
c. The M6 continues to absorb traffic growth which can only increase the congestion issues associated with incidents across Thelwall viaduct further reducing journey time reliability;
d. Network resilience, in a situation where the major crossing (Thelwall) experiences greater traffic volumes and the nearest major crossing (SJB) operating at capacity for more hours of the day, will be limited if not reducing to non-existent; and
e. All this would occur on an inter-urban network providing access between major cities and ports.

Table 16.15 - 2015 Do-Minimum V 2006 Base comparisons (peak hours) across all crossings of the River Mersey

ALL CROSSINGS OF THE RIVER MERSEY	2006 Base Year (pcu)		2015 Do-Minimum Scenario (pcu)		Impact		2015 Do-Minimum v 2006 Base	
Link	AM	PM	AM	PM	AM	PM	AM	PM
Kingsway Tunnel Eastbound	3120	1821	3120	2301	0	480	0%	12%
Kingsway Tunnel Westbound	1394	2687	2020	3478	626	791	17%	20%
Queensway Tunnel Eastbound	1855	1395	2015	1581	160	186	4%	5%
Queensway Tunnel Westbound	1445	1900	1797	1965	352	65	10%	2%
Silver Jubilee Bridge Northbound	3794	3794	3794	3794	0	0	0%	0%
Silver Jubilee Bridge Southbound	3529	3598	3600	3598	71	0	2%	0%
A49 Warrington Northbound	2580	2322	2503	2542	-77	220	-2%	6%
A49 Warrington Southbound	1753	2213	1827	2522	74	309	2%	8%
A50 Warrington Northbound	974	740	1077	1064	103	324	3%	8%
A50 Warrington Southbound	1112	1095	1143	1121	31	26	1%	1%
M6 Thelwall Viaduct Northbound	7910	8419	8765	8997	855	578	24%	15%
M6 Thelwall Viaduct Southbound	7363	7354	8765	8294	1402	940	39%	24%
Total	36829	37338	40426	41257	3597	3919	10%	10%

16.6.115 An initial assessment of the comparative reserve capacities of the alternative crossings suggests that, by 2015, there will only be some peak hour reserve capacity at the Queensway Tunnel and at M6 Thelwall. By 2030 there will be no reserve crossing capacity during peak hours.

16.7 Effects Assessment

Introduction

16.7.1 This section of this Chapter assesses the operational and construction effects of the Project. The operational phase is set out as follows:

a. Operational effects on the Strategic Network;
b. Operational effects on the Local (Halton) Network;
c. Effects upon objectives identified by WebTAG; and
d. Effects upon transport users.

16.7.2 For each of the effect assessments a comparison is made between the Do-Minimum assessment and the Do-Something assessment in the Opening Year and the Design Year. This shows the additional changes attributable to the Project.

16.7.3 The Operational Effect of the Mersey Gateway Project in 2015 (opening year) and 2030 (design year) is considered by comparing flows and selected journey times across the wider study network, Halton river crossings and within Halton. This Operational Effect focuses on the pure traffic effect on links and junctions. Effects on the crossings of the River Mersey and at motorway junctions (junctions 11 and 12 on the M56, and junctions 6 and 7 on the M62) are also appraised. Potential effects on the network, resulting from the implementation of the Project are identified.

16.7.4 An assessment of the effect of the Project across the wider network was undertaken to answer the following questions:

a. How far does the effect of the Project extend?;
b. What is the effect on the motorway network?; and
c. What effect does the Project have on alternative Mersey crossings?

16.7.5 The final part of the Operational Assessment assesses the effect of the Project on users of the transport networks rather than simply the network itself by comparing the changes in traffic between the Do-Minimum and the Do-Something at both 2015 and 2030. Additional analysis based on WebTag is also included here

16.7.6 The Operational Assessment is followed by the Construction Phase Assessment whereby the effect of constructing the Project is assessed.

Operational Phase - Strategic Effects

Extent of Scheme Effects 2015 and 2030

16.7.7 The MGM was run without the Project (Do-Minimum) and with the Project (Do-Something) incorporating toll levels as described in the Traffic Forecasting Report (Appendix 16.5). The resulting outputs were compared and link flow differences plotted at the 5% and 10% level for the AM and PM peaks. (Figures 16.18 to 16.25, Appendix 16.1)

16.7.8 Those plots clearly indicated that the effects of the Project do not extend across the entire modelled network. It might be initially expected that in the two Do-Something scenarios the New Bridge, with three lanes in each direction and one lane each way on the SJB, representing additional significant cross Mersey capacity, might have a wide effect. However, the Project includes significant capacity reductions on the SJB and both the SJB and the New Bridge are tolled. The resulting effect is a re-allocation of capacity from the SJB to the New Bridge with the additional effect of tolls serving to dampen down induced traffic and traffic growth on links across the Mersey in Halton.

16.7.9 There is also evidence that the existing network, under variable demand modelling, exerts a restraint on induced traffic, limiting re-assignment between crossing corridors and limiting growth at key junctions. For example, the operational assessments for J11 and J12 of the M56 reveal little change in performance between 2015 and 2030.

Effect on Motorway network 2015

16.7.10 The outputs described above provide evidence for assessing the effect of the Project on the motorway network but this has been supplemented by looking at specific Junctions on the M56 and M62. The Highways Agency expressed a wish to understand the effects of the Project on Junctions 6 & 7 of the M62 motorway and Junctions 11 & 12 of the M56 motorway. It was primarily for this reason that the model was extended to include much of the study area now the subject of the MGM.

16.7.11 Overall, the changes in flow as a result of the Project are small and re-enforce the conclusion that the effect of the Project in local in nature – i.e. focused upon the Borough of Halton itself and those using its roads.

16.7.12 At M62 Junction 6 the 2015 model results predict a maximum effect of 15% which relates to 132 pcus during the PM peak hour on the M62 Eastbound Off slip arm. It should be noted that the link Utilisation Factor, the ratio of flow to capacity, at this arm is 53% and therefore the link has sufficient capacity to cater for the additional traffic. Traffic flow on the A5080 Cronton Road westbound link at the junction also increases by 15% and results in an increase in flow of 54 pcus. The utilisation factor on this link is 22% and it is therefore considered that the link has sufficient capacity to absorb the additional traffic.

Table 16.16 - 2015 Do-Something v 2015 Do-Minimum Model Traffic Flow Comparison (peak hours) on Links forming Junction 6 of the M62 Motorway

M62 Junction 6, Tarbock Interchange	2015 Do-Minimum Scenario (pcu)		2015 Do-Something Scenario (pcu)		Impact (pcu)		Percentage Impact		Link Capacity	Utilisation Factor	
	AM	PM	AM	PM	AM	PM	AM	PM		AM	PM
M62 Eastbound (East of M62 J6)	3332	3222	3302	3067	-30	-155	-1%	-5%	6692	49%	46%
M62 Westbound (West of M62 J6)	5063	4544	5096	4511	33	-33	1%	-1%	6692	76%	67%
M57 - M62 Southbound Link Road	1349	627	1336	651	-13	24	-1%	4%	3884	34%	17%
M57 Northbound Onslip	638	351	596	369	-42	18	-7%	5%	1900	31%	19%
M57 Southbound Offslip	697	689	717	714	20	25	3%	4%	1900	38%	38%
M62 Eastbound Offslip (West of M62 J6)	584	592	576	548	-8	-44	-1%	-7%	1900	30%	29%
M62 Westbound Onslip	966	1287	1035	1341	69	54	7%	4%	1900	54%	71%
M62 Westbound Onslip (East of M62 J6)	815	608	754	610	-61	2	-7%	0%	1900	40%	32%
M62 Eastbound Offslip	1185	875	1209	1007	24	132	2%	15%	1900	64%	53%
A5300 Knowsley Expressway Offslip	754	911	765	924	11	13	1%	1%	1900	40%	49%
A5300 Knowsley Expressway Onslip	996	576	1026	649	30	73	3%	13%	1900	54%	34%
A5300 Knowsley Expressway - M57 Northbound	2308	2854	2281	2862	-27	8	-1%	0%	4780	48%	60%
M57 - A5300 Knowsley Expressway Southbound	1388	1235	1313	1160	-75	-75	-5%	-6%	4780	27%	24%
A5080 Cronton Road (Huyton) Eastbound	919	1169	916	1170	-3	1	0%	0%	1900	48%	62%
A5080 Cronton Road (Huyton) Westbound	1287	1097	1275	1095	-12	-2	-1%	0%	1900	67%	58%
A5080 Cronton Road Eastbound	583	540	601	567	18	27	3%	5%	1900	32%	30%
A5080 Cronton Road Westbound	681	358	661	412	-20	54	-3%	15%	1900	35%	22%

16.7.13 At M62 Junction 7 the model predicts effects to be within 5%. However, it is noted that on A57 Whiston Road Northbound link the Utilisation Factor is 119% and the predicted flow on the link during the PM peak hour exceeds the capacity of the link. There is a reduction in traffic flow of 8% on M62 Off slip resulting in the loss of 136 pcus during the PM peak hour with a resulting Utilisation Factor for this link of 88%. A57 Whiston Road Northbound was identified in the baseline as being over capacity.

Table 16.17 - 2015 Do-Something v 2015 Do-Minimum Model Traffic Flow Comparison (peak hours) on Links forming Junction 7 of the M62 Motorway

M62 Junction 7	2015 Do-Minimum Scenario		2015 Do-Something Scenario		Impact		Percentage Impact		Link Capacity	Utilisation Factor	
	AM	PM	AM	PM	AM	PM	AM	PM		AM	PM
M62 Eastbound (West of J7)	4691	4544	4736	4511	45	-33	1%	-1%	6692	71%	67%
M62 Westbound (West of J7)	5063	4632	5096	4685	33	53	1%	1%	6692	76%	70%
M62 Offslip (West of J7)	779	865	812	851	33	-14	4%	-2%	1900	43%	45%
M62 Onslip (West of J7)	746	646	759	609	13	-37	2%	-6%	1900	40%	32%
M62 Eastbound (East of J7)	5505	4828	5539	4789	34	-39	1%	-1%	6692	83%	72%
M62 Westbound (East of J7)	4879	5785	4912	5739	33	-46	1%	-1%	6692	73%	86%
M62 Onslip (East of J7)	1221	1149	1255	1129	34	-20	3%	-2%	1900	66%	59%
M62 Offslip (East of J7)	934	1799	935	1663	1	-136	0%	-8%	1900	49%	88%
A557 Watkinson Way Northbound	1010	1269	990	1277	-20	8	-2%	1%	1900	52%	67%
A557 Watkinson Way Southbound	1085	1124	1101	1089	16	-35	1%	-3%	1900	58%	57%
A57 Warrington Road Northbound	683	658	678	657	-5	-1	-1%	0%	1554	44%	42%
A57 Warrington Road Southbound	465	651	481	629	16	-22	3%	-3%	1554	31%	40%
A57 Whiston Road Northbound	1347	1824	1316	1846	-31	22	-2%	1%	1554	85%	119%
A57 Whiston Road Southbound	1132	969	1131	972	-1	3	0%	0%	1554	73%	63%
A570 Northbound	771	1166	754	1107	-17	-59	-2%	-5%	1554	49%	71%
A570 Southbound	1327	1048	1316	1050	-11	2	-1%	0%	1554	85%	68%

16.7.14 At M56 Junction 11 the model predicts a maximum effect of 18% on the A56 Chester Road (S) Northbound Link which amounts to an additional 79 pcus during the AM peak hour. The Utilisation Factor on the link is 34% for the period concerned and therefore has sufficient capacity to cater for the additional traffic. The A56 Chester Road, in the Do-Something scenario link, exceeds capacity with an Utilisation Factor of 114% and 108% during the AM and PM peak hours respectively.

Table 16.18 - 2015 Do-Something v 2015 Do-Minimum Model Traffic Flow Comparison (peak hours) on Links forming Junction 11 of the M56 Motorway

M56 Junction 11	2015 Do Minimum Scenario		2015 Do Something Scenario		Impact		Percentage Impact		Link Capacity	Utilisation Factor	
	AM	PM	AM	PM	AM	PM	AM	PM		AM	PM
M56 Eastbound (West of J11)	4947	4403	5275	4774	328	371	7%	8%	6692	79%	71%
M56 Eastbound Offslip (West of J11)	501	477	551	542	50	65	10%	14%	6692	8%	8%
M56 Westbound Onslip (West of J11	791	884	753	854	-38	-30	-5%	-3%	1900	40%	45%
M56 Westbound (West of J11)	5307	5163	5389	4970	82	-193	2%	-4%	6692	81%	74%
M56 Eastbound Onslip (East of J11)	671	942	608	792	-63	-150	-9%	-16%	1900	32%	42%
M56 Eastbound (East of J11)	5117	4868	5332	5023	215	155	4%	3%	6692	80%	75%
M56 Westbound (East of J11)	5497	5120	5408	5108	-89	-12	-2%	0%	6692	81%	76%
M56 Westbound Offslip (East of J11)	981	842	772	992	-209	150	-21%	18%	1900	41%	52%
A56 Chester Road (S) Northbound	443	437	522	377	79	-60	18%	-14%	1554	34%	24%
A56 Chester Road (S) Southbound	327	411	361	445	34	34	10%	8%	1554	23%	29%
Daresbury Park Link Northbound	556	120	567	121	11	1	2%	1%	1554	36%	8%
Daresbury Park Link Southbound	145	479	144	477	-1	-2	-1%	0%	1554	9%	31%
A56 Chester Road (N) Northbound	1543	1476	1472	1671	-71	195	-5%	13%	1554	95%	108%
A56 Chester Road (N) Southbound	1818	1599	1773	1494	-45	-105	-2%	-7%	1554	114%	96%

16.7.15 Operational assessments of this junction using data from the variable demand model for the 2015 Do-Something scenario have been undertaken to evaluate the level of service along the route of the reference design. As the junction has two entry links that are signal controlled, both ARCADY and LINSIG programs have been used to model both the priority and signal controlled elements. The results are summarised below:

Table 16.19 - M56 Junction 11 Operational Assessment Summary Do-Minimum and Do-Something 2015 Results

M56 Junction 11	2015 Do- Minimum				2015 Do-Something			
	AM		PM		AM		PM	
	Degree of Saturation %	Queue (pcu)	Degree of Saturation %	Queue (pcu)	Degree of Saturation %	Queue (pcu)	Degree of Saturation %	Queue (pcu)
A56 North	58	1	64	2	58	1	56	1
Circulatory C/W prior to M56 WB Off Slip	64	13	55	11	39	4	54	5
M56 WB Off Slip	62	6	56	5	34	2	62	6
A56 South	49	1	38	1	49	1	34	1
Circulatory C/W prior to M56 EB Off Slip	46	5	45	5	49	5	48	5
M56 EB Off Slip	43	6	43	6	45	4	47	6
Daresbury Business Park	11	1	37	1	11	0	39	1

16.7.16 The results of the modelling suggest that the existing grade separated roundabout, with signalised entry arms for both the M56 eastbound and westbound off slips, has adequate capacity for the opening year 2015 with the level of development assumed within the model. The maximum degree of saturation (ratio of flow to capacity) of 62 %, with a maximum resulting queue of 6 passenger car units, occurs at the entry slip-road from the M56 westbound off slip.

16.7.17 At M56 Junction 12 the model results predict a maximum effect of 208% during the PM peak hour on the on-slip from Clifton Roundabout. This effect results in an increase in flow of 233 pcus during the PM peak. However, it should be noted that the utilisation Factor is 18% and therefore the link has sufficient capacity to absorb the additional traffic. The westbound link on the motorway has reached capacity with an Utilisation Factor of 100% during the AM peak and near to capacity during the PM peak (Utilisation Factor of 89%).

Table 16.20 - 2015 Do-Something v 2015 Do Minimum Model Traffic Flow Comparison (peak hours) on Links forming Junction 12 of the M56 Motorway

M56 Junction 12	2015 Do-Minimum Scenario		2015 Do-Something Scenario		Impact		Percentage Impact		Link Capacity	Utilisation Factor	
	AM	PM	AM	PM	AM	PM	AM	PM		AM	PM
M56 Eastbound (West of J12)	6257	6215	6110	6168	-147	-47	-2%	-1%	6692	91%	92%
M56 Eastbound Offslip to North Roundabout	1614	1743	1330	1612	-284	-131	-18%	-8%	1900	70%	85%
M56 Eastbound Onslip from North Roundabout	520	112	547	345	27	233	5%	208%	1900	29%	18%
M56 Eastbound (East of J12)	4947	4403	5275	4774	328	371	7%	8%	6692	79%	71%
M56 Westbound (East of J12)	5307	5163	5140	4970	-167	-193	-3%	-4%	6692	77%	74%
M56 Westbound Offslip to South Roundabout	188	852	249	753	61	-99	32%	-12%	1900	13%	40%
M56 Westbound Onslip at J12	1377	1506	1519	1724	142	218	10%	14%	1900	80%	91%
M56 Westbound (West of J12)	6497	5817	6659	5941	162	124	2%	2%	6692	100%	89%

16.7.18 Operational assessments of this junction using data from the variable demand model for the 2015 Do-Something scenario have been undertaken to evaluate the level of service along the route of the reference design.

16.7.19 In the Do-Something scenario the existing roundabout to the north of the M56 Junction 12 would be modified to include a signal controlled link directly across the centre of the existing roundabout for the main line of the new highway, leaving the outer roundabout segments for local turning traffic and for eastbound access to the M56 Junction 12 as shown in Figure 16.26.

16.7.20 In the Do-Something scenario the existing roundabout to the south of the M56 Junction 12 would remain unchanged as sown in Figure 16.27.

Table 16.21 - M56 Junction 12 North Operational Assessment Summary Do-Minimum 2015 Results

M56 North Junction 12	2015 Do-Minimum			
	AM		PM	
	Degree of Saturation %	Queue	Degree of Saturation %	Queue
A557 Southbound	77	3	64	2
M56 Off Slip	124	172	137	268
A557 Northbound	71	3	57	1
Cholmondely Road Access	0	0	0	0

Figure 16.26 - M56 Junction 12 North Roundabout Do-Something Layout

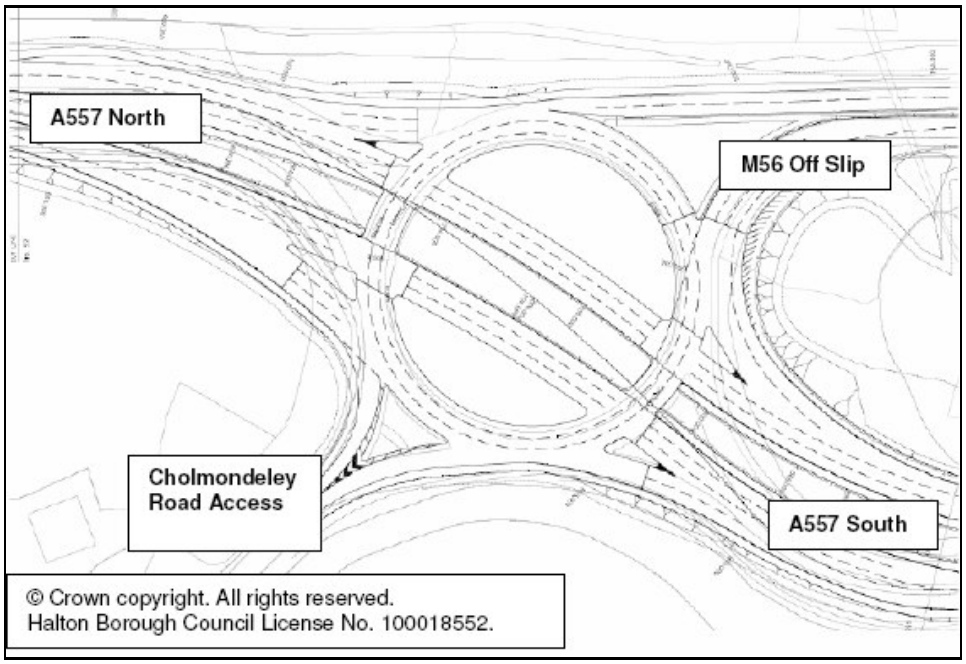


Table 16.22 - M56 Junction 12 North Operational Assessment Summary Do-Something 2015 Results

M56 North Junction 12	2015 Do-Something Scenario			
	AM		PM	
	Degree of Saturation %	Queue (pcu)	Degree of Saturation %	Queue (pcu)
A557 Northbound Circulatory	45	4	11	1
A557 Northbound Straight-ahead	58	15	42	10
A557 Southbound Straight-ahead	93	19	95	26
M56 Eastbound Off Slip	30	2	36	2
Cholmondeley Road Access	1	0	1	0
A557 Southbound Straight-ahead	31	3	23	1
A557 Southbound Circulatory	84	29	90	34
A557 Southbound to M56 Westbound Slip	32	5	54	10

Figure 16.27 - M56 Junction 12 South Roundabout

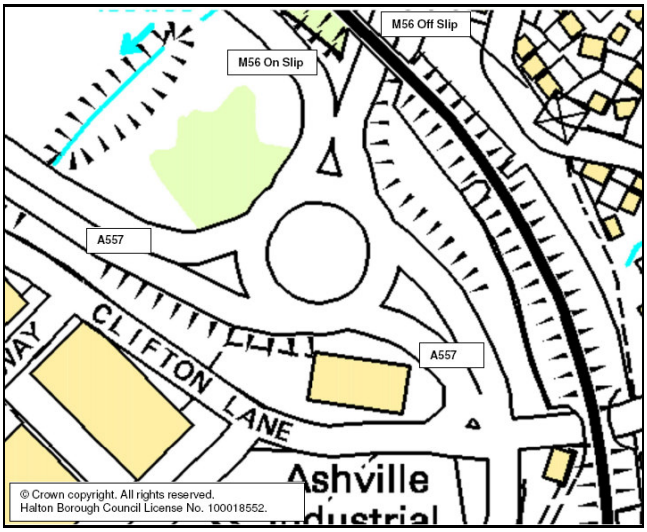


Table 16.23 - M56 Junction 12 South Operational Assessment Summary Do-Something 2015 Results

M56 South Junction 12	2015 Do-Minimum				2015 Do-Something			
	AM		PM		AM		PM	
	Degree of Saturation %	Queue	Degree of Saturation %	Queue	Degree of Saturation %	Queue	Degree of Saturation %	Queue
M56 Off Slip	12	0	49	1	17	1	49	1
A557 Clifton Road	67	2	41	1	64	2	32	1
A557 Rocksavage	70	2	70	2	89	7	104	67

16.7.21 The computer program TRANSYT has been used to assess the re-modelled roundabout to the north of M56 Junction 12 as a series of linked signals.

16.7.22 The results of the modelling suggest that the re-modelled signalised layout presents an improvement to the Do-Minimum layout, in capacity terms, with a maximum degree of saturation of 95% with resulting queue of 26 pcus, occurring as the A557 southbound straight ahead land during the PM peak.

16.7.23 The computer program ARCADY has been used to model the roundabout to the south of M56 Junction 12.

16.7.24 The results of the modelling suggest that the south roundabout exceeds capacity at the entry link from the A557 with a maximum degree of saturation 104% during the pm peak with resulting queues of 67 pcus.

Effect on Motorway Network 2030

16.7.25 The comparisons of the Do-Something and Do-Minimum model traffic flows for the design year 2030 on the main links which form junctions 6 & 7 of the M62 motorway and junctions 11 and 12 of the M56 motorway are presented below.

16.7.26 Overall, the changes in flow as a result of the Project are small and re-enforce the conclusion that the effect of the Project in local in nature – i.e. Focused upon the Borough of Halton itself and those using its roads.

16.7.27 The increase in traffic volumes on links forming the junction at M62 Junction 6 are on A5080 Cronton Lane with a maximum two-way flow of 103 pcus during the AM peak hour. The maximum link utilisation factor on this link is 71% and therefore it is considered that the increase in volume is sufficient to cater for the increase in volume.

Table 16.24 - 2030 Do- Minimum and 2030 Do-Something Comparisons (peak hour) on the M62 Junction 6, Tarbock Interchange

M62 Junction 6, Tarbock Interchange	2030 Do-Minimum Scenario (pcu)		2030 Do-Something Scenario (pcu)		Impact (pcu)		Percentage Impact	
	AM	PM	AM	PM	AM	PM	AM	PM
M62 Eastbound (West of M62 J6)	3566	3486	3504	3445	-62	-41	-2%	-1%
M62 Westbound (East of M62 J6)	5750	5072	5670	5095	-80	23	-1%	0%
M57 - M62 Southbound Link Road	1654	763	1634	758	-20	-5	-1%	-1%
M57 Northbound Onslip	718	503	722	562	4	59	1%	12%
M57 Southbound Offslip	874	1032	861	1005	-13	-27	-1%	-3%
M62 Eastbound Offslip (West of M62 J6)	595	635	601	597	6	-38	1%	-6%
M62 Eastbound Onslip	1132	1458	1133	1490	1	32	0%	2%
M62 Westbound Onslip (East of M62 J6)	742	666	725	677	-17	11	-2%	2%
M62 Eastbound Offslip	1200	891	1212	929	12	38	1%	4%
A5300 Knowsley Expressway Offslip	835	927	836	931	1	4	0%	0%
A5300 Knowsley Expressway Onslip	969	550	1040	575	71	25	7%	5%
A5300 Knowsley Expressway - M57 Northbound	2644	3203	2618	3219	-26	16	-1%	0%
M57 - A5300 Knowsley Expressway Southbound	1500	1293	1605	1289	105	-4	7%	0%
A5080 Cronton Road (Huyton) Eastbound	1172	1269	1170	1272	-2	3	0%	0%
A5080 Cronton Road (Huyton) Westbound	1339	1136	1342	1152	3	16	0%	1%
A5080 Cronton Road Eastbound	790	748	710	715	-80	-33	-10%	-4%
A5080 Cronton Road Westbound	688	611	673	726	-15	115	-2%	19%

16.7.28 The increase in traffic volumes on links forming the junction at M62 Junction 7 are less than 100 pcus. The maximum increase occurs on A557 Watkinson Way Southbound link during the PM peak hour with a flow increment of 73 pcus. It can be seen from the utilisation factor is 63% for this link and therefore has sufficient capacity to accommodate the additional traffic.

Table 16.25 - 2030 Do-Minimum and 2030 Do-Something Comparisons (peak hr) on the M62 Junction 7

M62 Junction 7	2030 Do-Minimum Scenario		2030 Do-Something Scenario		Impact		Percentage Impact	
	AM	PM	AM	PM	AM	PM	AM	PM
M62 Eastbound (West of J7)	5750	5072	5670	5095	-80	23	-1%	0%
M62 Westbound (West of J7)	4984	4832	4999	4801	15	-31	0%	-1%
M62 Offslip (West of J7)	939	965	925	965	-14	0	-1%	0%
M62 Onslip (West of J7)	775	540	748	481	-27	-59	-3%	-11%
M62 Eastbound (East of J7)	6116	5169	6099	5134	-17	-35	0%	-1%
M62 Westbound (East of J7)	5256	6083	5305	6104	49	21	1%	0%
M62 Onslip (East of J7)	1305	1061	1354	1003	49	-58	4%	-5%
M62 Offslip (East of J7)	1047	1687	1054	1660	7	-27	1%	-2%
A557 Northbound	1179	1289	1186	1336	7	47	1%	4%
A557 Southbound	1623	1130	1627	1203	4	73	0%	6%
A57 Warrington Road Northbound	679	666	678	672	-1	6	0%	1%
A57 Warrington Road Southbound	511	551	498	523	-13	-28	-3%	-5%
A57 Whiston Road Northbound	1617	1908	1620	1912	3	4	0%	0%
A57 Whiston Road Southbound	1163	975	1162	977	-1	2	0%	0%
A570 Northbound	864	1353	833	1394	-31	41	-4%	3%
A570 Southbound	1935	1069	1938	1077	3	8	0%	1%

16.7.29 At M56 Junction 11 the model results indicate an increase in flows on the M56 Eastbound Off slip of 27% and 21% during the AM and PM peak hours respectively. This relates to an additional 152 pcus and 117 pcus during the AM and PM peak hours. With a maximum utilisation factor of 11% it can be concluded that the link has sufficient capacity to cater for the additional traffic.

16.7.30 On the M56 Westbound Off slip the there is an increase in the volume of traffic of 16% resulting in 130 pcus during the PM peak hour. The utilisation factor on this link is 45% and therefore it can be concluded that the link has sufficient capacity to cater for the additional traffic volume.

16.7.31 On the A56 Chester Road links forming junction 11 of the M56 there is an increase in the volume of traffic on the northbound link of 8% (119 pcus) and 16% (265 pcus) during the AM and PM peak hours. With link utilisation factors of 107% and 124% the links have flows which exceed capacity.

Table 16.26 - 2030 Do-Minimum and 2030 Do-Something Comparisons on the M56 Junction 11

M56 Junction 11	2030 Do Minimum Scenario		2030 Do Something Scenario		Impact		Percentage Impact	
A Node B Node	AM	PM	AM	PM	AM	PM	AM	PM
M56 Eastbound (West of J11)	5096	4744	5521	5099	425	355	8%	7%
M56 Eastbound Offslip (West of J11)	554	550	706	667	152	117	27%	21%
M56 Westbound Onslip (West of J11)	877	971	856	886	-21	-85	-2%	-9%
M56 Westbound (West of J11)	5735	5272	5673	5076	-62	-196	-1%	-4%
M56 Eastbound Onslip (East of J11)	724	1001	679	912	-45	-89	-6%	-9%
M56 Eastbound (East of J11)	5266	5195	5494	5343	228	148	4%	3%
M56 Westbound (East of J11)	5573	5101	5572	5121	-1	20	0%	0%
M56 Westbound Offslip (East of J11)	715	800	754	930	39	130	5%	16%
A56 Chester Road (S) Northbound	333	382	347	317	14	-65	4%	-17%
A56 Chester Road (S) Southbound	186	295	222	293	36	-2	19%	-1%
Daresbury Park Link Northbound	626	129	642	131	16	2	3%	2%
Daresbury Park Link Southbound	165	560	163	546	-2	-14	-1%	-3%
A56 Chester Road (N) Northbound	1549	1664	1668	1929	119	265	8%	16%
A56 Chester Road (N) Southbound	2194	1768	2096	1707	-98	-61	-4%	-3%

16.7.32 Operational assessments of this junction using data from the variable demand model for the 2030 Do-Something scenario have been undertaken to evaluate the level of service along the route of the reference design. As the junction has two entry links that are signal controlled, both ARCADY and LINSIG programs have been used to model both the priority and signal controlled elements. The results are summarised below:

Table 16.27 - M56 Junction 11 Operational Assessment Summary Do-Something 2030 Results

M56 Junction 11	2030 Do-Something Scenario			
	AM		PM	
	Degree of Saturation %	Queue (pcus)	Degree of Saturation %	Queue (pcus)
A56 North	69	2	63	2
Circulatory C/W prior to M56 WB Off Slip	65	7	58	5
M56 WB Off Slip	62	5	64	7
A56 South	41	1	30	1
Circulatory C/W prior to M56 EB Off Slip	50	5	53	6
M56 EB Off Slip	51	4	50	4
Daresbury Business Park	13	0	48	1

16.7.33 The results of the modelling suggest that the existing grade separated roundabout, with signalised entry arms for both the M56 eastbound and westbound off slips, has adequate capacity for the design year 2030 with the level of development assumed within the model. The maximum degree of saturation (ratio of flow to capacity) of 69 %, with a maximum resulting queue of 2 passenger car units, occurs at the entry arm from the A56.

Table 16.28 - 2030 Do-Minimum and 2030 Do-Something Comparisons (peak hr) on the M56 Junction 12

M56 Junction 12	2030 Do-Minimum Scenario		2030 Do-Something Scenario		Impact		Percentage Impact	
	AM	PM	AM	PM	AM	PM	AM	PM
M56 Eastbound (West of J12)	6517	6501	6342	6424	-175	-77	-3%	-1%
M56 Eastbound Offslip to North Roundab	1484	1359	1304	1304	-180	-55	-12%	-4%
M56 Onslip from North Roundabout	532	46	765	344	233	298	44%	648%
M56 Eastbound (East of J12)	5096	4744	5521	5099	425	355	8%	7%
M56 Westbound (East of J12)	5735	5272	5673	5076	-62	-196	-1%	-4%
M56 Westbound Offslip to South Rounda	369	897	329	921	-40	24	-11%	3%
M56 Westbound Onslip from South Rour	1482	1467	1662	1883	180	416	12%	28%
M56 Westbound (West of J12)	6848	5842	7006	6039	158	197	2%	3%

16.7.34 Operational assessments of this junction using data from the variable demand model for the 2030 Do-Something scenario have been undertaken to evaluate the level of service along the route of the reference design.

16.7.35 In the Do-Something scenario the existing roundabout to the north of the M56 Junction 12 would be modified to include a signal controlled link directly across the centre of the existing roundabout for the main line of the new highway, leaving the outer roundabout segments for local turning traffic and for eastbound access to the M56 Junction 12.

16.7.36 In the Do-Something scenario the existing roundabout to the south of the M56 Junction 12 would remain unchanged.

Table 16.29 - M56 Junction 12 North Operational Assessment Summary Do-Something 2030 Results

M56 North Junction 12	2030 Do-Something Scenario			
	AM		PM	
	Degree of Saturation %	Queue (pcu)	Degree of Saturation %	Queue (pcu)
A557 Northbound Circulatory	45	4	20	2
A557 Northbound Straight-ahead	67	19	78	24
A557 Southbound Straight-ahead	92	18	93	21
M56 Eastbound Off Slip	31	2	31	2
Cholmondeley Road Access	1	0	1	0
A557 Southbound Straight-ahead	37	3	45	4
A557 Southbound Circulatory	84	31	88	34
A557 Southbound to M56 Westbound Slip	60	12	65	13

Table 16.30 - M56 Junction 12 South Operational Assessment Summary Do-Something 2030 Results

M56 South Junction 12	2030 Do-Something Scenario			
	AM		PM	
	Degree of Saturation %	Queue (pcu)	Degree of Saturation %	Queue (pcu)
M56 Off Slip	23	0	49	1
A557 Clifton Road	73	3	63	2
A557 Rocksavage	104	7	81	4

16.7.37 The computer program TRANSYT has been used to assess the re-modelled roundabout to the north of M56 Junction 12 as a series of linked signals.

16.7.38 The results of the modelling suggest that the signalised layout is nearing capacity at the A557 southbound straight ahead lane with a maximum degree of saturation 93% during the PM peak with resulting queues of 21 pcus.

16.7.39 The computer program ARCADY has been used to model the roundabout to the south of M56 Junction 12.

16.7.40 The results of the modelling suggest that the roundabout exceeds capacity at the entry link from the A557 with a maximum degree of saturation 104% during the AM peak with resulting queues of 7 pcus.

Effects on Mersey Crossings 2015

16.7.41 On the opening of the Project the level of traffic on the SJB will be reduced by about 80 per cent. However, the total level of traffic on the New Bridge and the SJB will be broadly commensurate with existing traffic levels although the two crossings will no-longer be saturated.

16.7.42 The MGM indicates that total trips across the Mersey in 2015 reduce slightly in the AM peak and slightly increase in the PM peak. These small percentage changes are difficult to interpret.

There is no obvious network reason why traffic volumes apparent in the Do-Minimum should decrease or increase, albeit slightly, as a result of the Project opening. Certainly re-assignment could be expected and, in a variable demand model, some increase due to induced traffic. However, because of the combined and sometimes opposite effects of the tolls, increased capacity and the behavioural changes reflected in the variable demand model it is not possible to ascribe precise causes to such marginal differences. These small cross river changes on the SJB and New Bridge are not significant. Being small, the initial changes in flows demonstrate that additional capacity has been achieved whilst allowing future managed growth, something impossible with the existing SJB.

16.7.43 The Do-Something results show that on the A50 crossing of the River in Warrington an increase of 162 additional pcus will result in the northbound direction. Conversely, there is a decrease, in the same direction, of 90 pcus on the A49. This suggests that these local routes interact in terms of use, but this is not associated with the Project or not as much as to be significant.

16.7.44 The effects of the Project on other crossing traffic across the Mersey are not significant and the effect of the Project is demonstrably local to routes in and serving the Borough of Halton. This analysis supports the evidence from the assessment of the wider effects and the review of key M56 and M62 junctions that the Principal effects of the Project focus on Halton's own network, whilst clearly achieving the fundamental objective of removing traffic from the SJB.

Table 16.31 - 2015 Do-Something V 2015 Do-Minimum comparisons (peak hour) across all crossings of the River Mersey

ALL CROSSINGS OF THE RIVER MERSEY	2015 Do-Minimum (pcu)		2015 Do-Something (pcu)		Impact (pcu)		% Impact	
Link	AM	PM	AM	PM	AM	PM	AM	PM
Kingsway Tunnel Eastbound	3120	2301	3120	2301	0	0	0%	0%
Kingsway Tunnel Westbound	2020	3478	2020	3477	0	-1	0%	0%
Queensway Tunnel Eastbound	2015	1581	2026	1605	11	24	1%	2%
Queensway Tunnel Westbound	1797	1965	1799	1965	2	0	0%	0%
Silver Jubilee Bridge Northbound	3794	3794	709	808	-3085	-2986	-81%	-79%
Silver Jubilee Bridge Southbound	3600	3598	559	631	-3041	-2967	-84%	-82%
Mersey Gateway Northbound			2636	3467	2636	3467		
Mersey Gateway Southbound			2958	2863	2958	2863		
A49 Warrington Northbound	2503	2542	2413	2549	-90	7	-4%	0%
A49 Warrington Southbound	1827	2522	1822	2549	-5	27	0%	1%
A50 Warrington Northbound	1077	1064	1240	1081	163	17	15%	2%
A50 Warrington Southbound	1143	1121	1144	1121	1	0	0%	0%
M6 Thelwall Viaduct Northbound	8765	8997	8826	8848	61	-149	1%	-2%
M6 Thelwall Viaduct Southbound	8765	8294	7966	8327	-799	33	-9%	0%
Total	40426	41257	39238	41592	-1188	335	-3%	1%

Effects on Mersey Crossings 2030

16.7.45 The results of the assessment for the design year are consistent with those for the opening year.

16.7.46 Comparison of the 2015 Do-Minimum and the 2030 Do-Minimum shows that only a small increase in cross-Mersey traffic would occur, regardless of the links considered. During the peak periods the change over the 15 year period is between 1% and 3%. This demonstrates that without the Project the network would continue to constrain traffic growth, as shown by the MGM.

16.7.47 A comparison of the 2015 and 2030 Do-Something results indicates a larger increase in traffic across the Mersey over the fifteen year period during the peak periods (between 7 and 8%) with most of these increase occurring across the Mersey Gateway and, to a lesser extent, the SJB. However, traffic on the SJB is still reduced by 77% from what would occur in the Do-Minimum scenario.

16.7.48 The increase in traffic across the Mersey in 2030 between the Do-Minimum and the Do-Something as a result of the Project, is also small, around 5% indicating that, despite additional capacity being provided by the Project demand is successfully modified by the tolls. This demonstrates that the Project is not providing capacity for suppressed demand. It is relieving congestion and allowing for appropriate growth. The variable demand model indicates that, without the Project, peak hour traffic growth across the Mersey is limited. With the Project, minimal growth is achieved at 2015 whilst at 2030 modest growth (4-5%) is achieved.

16.7.49 The effect of the Project over the fifteen year period is to accommodate 7-8% peak hour traffic growth across the Mersey.

16.7.50 The indications of peak hour traffic growth across the River Mersey are not large and again the effect of the Project is local to the Halton crossings corridor and the routes that feed or depend upon it.

Table 16.32 - 2030 Do-Minimum and 2030 Do-Something Comparisons (peak hours) across all crossings of the River Mersey

ALL CROSSINGS OF THE RIVER MERSEY	2030 Do-Minimum (pcu)		2030 Do-Something (pcu)		Impact (pcu)		% Impact	
Link	AM	PM	AM	PM	AM	PM	AM	PM
Kingsway Tunnel Eastbound	3120	2301	3120	2301	0	0	0%	0%
Kingsway Tunnel Westbound	2455	3726	2443	3705	-12	-21	0%	-1%
Queensway Tunnel Eastbound	2037	1785	2009	1793	-28	8	-1%	0%
Queensway Tunnel Westbound	1995	2006	1987	1996	-8	-10	0%	0%
Silver Jubilee Bridge Northbound	3794	3794	906	1029	-2888	-2765	-76%	-73%
Silver Jubilee Bridge Southbound	3600	3598	707	810	-2893	-2788	-80%	-77%
Mersey Gateway Northbound			3145	4312	3145	4312		
Mersey Gateway Southbound			3855	3609	3855	3609		
A49 Warrington Northbound	2151	2562	2274	2680	123	118	6%	5%
A49 Warrington Southbound	1815	2665	1988	2561	173	-104	10%	-4%
A50 Warrington Northbound	1335	1038	1341	1086	6	48	0%	5%
A50 Warrington Southbound	1379	1123	1382	1113	3	-10	0%	-1%
M6 Thelwall Viaduct Northbound	8934	9099	8957	9072	23	-27	0%	0%
M6 Thelwall Viaduct Southbound	8296	8613	8239	8561	-57	-52	-1%	-1%
Total	40911	42310	42353	44628	1442	2318	4%	5%

Operational Effect - Local Effects

16.7.51 Having determined that the strategic effects of the Project under a variable demand modelling regime are limited and centred on Halton and its internal highway network, it is appropriate to examine the local effects in more detail. It should be recognised that, whilst the traffic model has detailed networks, traffic zoning systems and trip matrices it is designed to inform the strategic appraisal of the Project. It does however offer a good representation of the local effects, particularly for longer distance trips, and can indicate areas where further analysis may be required, but very local movements may or may not be well represented.

16.7.52 Changes in traffic volumes across a set of main links on the Halton road network for the peak hours are discussed below.

Effects on Local Network 2015

Runcorn

16.7.53 The Project results in a reduction in peak hour traffic in the order of 80% on the A557 Weston Point Expressway links to/from the SJB and a maximum of 151% increase in flow on the A533 Central Expressway. There is also a maximum increase of 197% increase in traffic on Weston Link. These increases are entirely due to the local reassignment effects caused by traffic switching from the A557 Weston Point Expressway onto the A533 Central Expressway – the Central Expressway becoming the direct route from the M56 to the New Bridge, in place of the Weston Point Expressway, which serves the SJB.

16.7.54 On the A533 Southern Expressway there is on average a reduction in flow of 20%. This is due to some of the traffic bound for the A533 Central Expressway reassigning as a result of the modelled delay at the reconfigured A557 Weston Point Expressway Junction. In practice, it is considered that this is unlikely to occur because of the provision of improved free flow links between the Central Expressway and Southern Expressway at the Lodge Lane junction.

16.7.55 On the A558 Daresbury Expressway there is a net increase in traffic in the two-way flows. The maximum increase that the model predicts is 21% resulting in an additional 395 pcus. This increase is partly due to some traffic from Castlefields area that in the base year accessed the A533 Central Expressway and Bridgewater Expressway via the Halton Brow signal junction reassigning to Castlefields Avenue East to access the A558 Daresbury Expressway because the alternative route will be freer flowing.

16.7.56 The traffic level on the A558 Bridgewater Expressway eastbound is reduced by a maximum of 73%. The level of traffic on the A558 Bridgewater Expressway reduces as a result of the reassignment of the crossing traffic from A533 Central Expressway and A558 Daresbury Expressway to the New Bridge.

Widnes

16.7.57 In Widnes traffic on A562 Speke Road decreases by a maximum of 13% during the AM peak period.

Table 16.33 - 2015 Do-Something V 2015 Do-Minimum Comparisons (peak hours) of Flows on Selected Links on Halton Road Network

Halton Road Network	2015 Do Minimum Scenario (pcu)		2015 Do Something Scenario (pcu)		Impact (pcu)		Percentage Impact	
Runcorn	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
A557 Weston Point Expressway Northbound	2323	2337	2156	2157	-167	-180	-7%	-8%
A557 Weston Point Expressway Southbound	1722	1617	2047	2442	325	825	19%	51%
A557 Weston Point Expressway Approach to Silver Jubilee Bridge	2124	2306	314	411	-1810	-1895	-85%	-82%
A557 Weston Point Expressway Approach from Silver Jubilee Bridge	1185	1184	173	239	-1012	-945	-85%	-80%
Weston Link Eastbound	880	644	1910	1910	1030	1266	117%	197%
Weston Link Westbound	852	647	1588	1789	736	1142	86%	177%
A533 Southern Expressway Northbound	1642	1122	1160	969	-482	-153	-29%	-14%
A533 Southern Expressway Southbound	1266	1763	1076	1358	-190	-405	-15%	-23%
A533 Central Expressway Northbound	1165	1199	2664	3005	1499	1806	129%	151%
A533 Central Expressway Southbound	1645	1687	2673	2706	1028	1019	62%	60%
A558 Daresbury Expressway Westbound	1885	1875	1750	2270	-135	395	-7%	21%
A558 Daresbury Expressway Eastbound	1679	1478	1824	1387	145	-91	9%	-6%
A558 Bridgewater Expressway Eastbound	1927	1921	427	514	-1500	-1407	-78%	-73%
A558 Bridgewater Expressway Westbound	1520	1297	670	613	-850	-684	-56%	-53%
Widnes								
A562 Speke Road Eastbound	2721	2808	2378	2486	-343	-322	-13%	-11%
A562 Speke Road Westbound	2381	2327	2204	2421	-177	94	-7%	4%
A5300 Knowsley Road Northbound	2130	2274	2095	2326	-35	52	-2%	2%
A5300 Knowsley Road Southbound	2384	1812	2357	1808	-27	-4	-1%	0%
Ditton Road Eastbound	697	602	650	604	-47	2	-7%	0%
Ditton Road Westbound	737	805	723	933	-14	128	-2%	16%
Moor Lane South Eastbound	510	557	556	637	46	80	9%	14%
Moor Lane South Westbound	545	640	723	815	178	175	33%	27%
A562 Ashley Way Eastbound	770	1032	971	928	201	-104	26%	-10%
A562 Ashley Way Westbound	630	721	851	812	221	91	35%	13%
Watkinson Way Northbound	1849	2217	1776	2404	-73	187	-4%	8%
Watkinson Way Southbound	1728	1741	1674	1646	-54	-95	-3%	-5%

Effects on Local Network 2030

16.7.58 The variable demand model indicates similar effects at 2030 to those at 2015.

Runcorn

16.7.59 The model results predict a net increase of 743 pcus in the two-way flow during the AM peak on the A557 Weston Point Expressway link between Clifton Roundabout and Weston Point Expressway Junction and 1082 pcus in the PM peak when comparing the 2030 Do-Minimum

and 2030 Do-Something scenarios. The increase in traffic is due to additional cross-Mersey traffic using the New Bridge.

16.7.60 The level of traffic on the A557 Weston Point Expressway approach to/from the SJB is reduced on average by a maximum of 83% and 74% during the AM and PM peak respectively when comparing the 2030 Do-Minimum and 2030 Do-Something traffic flows. This is as a result of the re-assignment of the strategic crossing traffic from the SJB onto the New Bridge. This re-assignment effect is to be expected as a result of an improved and shorter crossing route via the A533 Central Expressway in Runcorn thereby leading to a reduction in the A557 Weston Point Expressway approach traffic to/from the SJB.

16.7.61 The reassignment of strategic crossing traffic from the A557 Weston Point Expressway to A533 Central Expressway via the Weston Link results in an increase in the volume of traffic on the Weston Link. The two-way flows increase by 2191 pcus and 2773 pcus during the AM and PM peak respectively.

16.7.62 There is a reduction in the level of traffic on the A533 Southern Expressway in the vicinity of the Lodge Lane Junction. The two-way flow reduces by 605 pcus and 482 pcus during the AM and PM peak hours respectively. The reduction in flow is as a result of the reconfiguration of the Lodge Lane junction, to give priority to Weston Link traffic, which results in some delay to A533 Southern Expressway traffic. There is some reassignment of traffic via Hallwood Link Road and Halton Lea.

16.7.63 There is an increase in the level of traffic on the A533 Central Expressway approach to the New Bridge. This is as a result of the reassignment of the strategic crossing traffic from the A557 Weston Point Expressway to the A533 Central Expressway. The increase in the two-way flow, amounts to 3278 pcus and 3166 pcus during the AM and PM peak hours respectively.

16.7.64 The level of traffic on the A558 Bridgewater Expressway reduces as a result of the reassignment of the crossing traffic from A533 Central Expressway and A558 Daresbury Expressway. There is a reduction in the two-way flow of 2423 pcus and 1933 pcus during the AM and PM peak hours respectively.

16.7.65 The level of traffic to/from the A558 Daresbury Expressway increases by 355 pcus and 307 pcus during the AM and PM peak hours respectively. This increase is in New Bridge traffic generated by the provision of the New Bridge.

Widnes

16.7.66 In Widnes the model predicts an increase in the level of traffic on the A562 Speke Road. The two-way flow increases by 661 pcus and 504 pcus during the AM and PM peak hours respectively.

16.7.67 Slight increases in traffic volumes are predicted on the A5300 Knowsley Road. The two-way flows increase by 202 pcus and 47 pcus during the AM and PM peak hours respectively.

16.7.68 The two-way traffic flows on Ditton Road increase by 177 pcus and 303 pcus during the AM and PM peak hours respectively. This is a result of some reassignment of traffic from the SJB using Ditton Road to access Speke.

16.7.69 There is also an increase in the volume of traffic on Moor Lane South as a result of the New Bridge. There is a net increase of 696 pcus and 568 pcus during the AM and PM peak hours respectively.

16.7.70 Two-way traffic flows on both the A562 Ashley Way South and Watkinson Way increase as a result of the New Bridge. There is a net increase of 269 pcus during the AM peak on A562 Ashley Way and, 191 pcus and 583 pcus during the AM and PM respectively on Watkinson Way.

Table 16.34 - 2030 Do-Minimum and 2030 Do-Something Comparisons (peak hours) on Selected Links on the Halton Road Network

Halton Road Network	2030 Do Minimum Scenario (pcu)		2030 Do Something Scenario (pcu)		Impact (pcu)		Percentage Impact	
Runcorn	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
A557 Weston Point Expressway Northbound	2344	2526	2350	2698	6	172	0%	7%
A557 Weston Point Expressway Southbound	1855	1701	2592	2611	737	910	40%	53%
A557 Weston Point Expressway Approach to Silver Jubilee Bridge	2165	1999	485	653	-1680	-1346	-78%	-67%
A557 Weston Point Expressway Approach from Silver Jubilee Bridge	1217	1133	205	294	-1012	-839	-83%	-74%
Weston Link Eastbound	937	665	2018	2207	1081	1542	115%	232%
Weston Link Westbound	942	788	2052	2037	1110	1249	118%	159%
A533 Southern Expressway Northbound	1790	1263	1325	1110	-465	-153	-26%	-12%
A533 Southern Expressway Southbound	1339	1796	1199	1467	-140	-329	-10%	-18%
A533 Central Expressway Northbound	1238	1483	2937	3538	1699	2055	137%	139%
A533 Central Expressway Southbound	1687	1934	3266	3045	1579	1111	94%	57%
A558 Daresbury Expressway Westbound	1963	1973	2038	2242	75	269	4%	14%
A558 Daresbury Expressway Eastbound	1880	1702	2160	1740	280	38	15%	2%
A558 Bridgewater Expressway Eastbound	2042	2046	479	694	-1563	-1352	-77%	-66%
A558 Bridgewater Expressway Westbound	1573	1198	713	617	-860	-581	-55%	-48%
Widnes								
A562 Speke Road Eastbound	2649	2876	3040	2875	391	-1	15%	0%
A562 Speke Road Westbound	2266	2461	2536	2966	270	505	12%	21%
A5300 Knowsley Road Northbound	2320	2483	2299	2512	-21	29	-1%	1%
A5300 Knowsley Road Southbound	2469	1843	2650	1861	181	18	7%	1%
Ditton Road Eastbound	759	641	796	756	37	115	5%	18%
Ditton Road Westbound	706	842	846	1030	140	188	20%	22%
Moor Lane South Eastbound	456	621	748	838	292	217	64%	35%
Moor Lane South Westbound	436	524	840	875	404	351	93%	67%
A562 Ashley Way Eastbound	819	1179	1017	1034	198	-145	24%	-12%
A562 Ashley Way Westbound	852	983	923	980	71	-3	8%	0%
Watkinson Way Northbound	1910	2363	2084	2850	174	487	9%	21%
Watkinson Way Southbound	2047	2078	2064	2174	17	96	1%	5%

Scheme Effects on Journey Times

16.7.71 Table 16.34 and Table 16.35 show the modelled journey times, delays, distances and speeds for a series of journeys using the SJB and the New MG Bridge during the morning and evening peak hours for the 2015 Do-Minimum and 2015 Do-Something scenarios.

16.7.72 The model assignments are based on generalised cost, to reflect both distance and time elements of a journey.

Table 16.35 - 2015 Do-Minimum and Do-Something AM Peak Model Traffic Journey Times

2015	AM Peak			
Do-Minimum Route	**Time (s)**	**Delay (s)**	**Distance (m)**	**Speed (kph)**
M56 J11 to M62 J6	1428	502	20529	51.75
M56 J11 to M62 J7	1336	448	19064	51.36
M56 J12 to M62 J6	1099	394	16171	53.12
M56 J12 to M62 J7	1007	339	14746	52.72
Do-Something Route	**Time (s)**	**Delay (s)**	**Distance (m)**	**Speed (kph)**
M56 J11 to M62 J6	1000	160	20057	72.19
M56 J11 to M62 J7	887	112	17527	71.14
M56 J12 to M62 J6	844	132	16556	70.59
M56 J12 to M62 J7	731	84	14026	69.06

Table 16.36 - 2015 Do-Minimum and Do-Something PM Peak Model Traffic Journey Times

2015	PM Peak			
Do-Minimum Route	**Time (s)**	**Delay (s)**	**Distance (m)**	**Speed (kph)**
M56 J11 to M62 J6	1651	706	20529	44.76
M56 J11 to M62 J7	1559	652	19064	44.01
M56 J12 to M62 J6	1350	641	16171	43.24
M56 J12 to M62 J7	1258	588	14746	42.2
Do-Something Route	**Time (s)**	**Delay (s)**	**Distance (m)**	**Speed (kph)**
M56 J11 to M62 J6	1122	279	20057	64.35
M56 J11 to M62 J7	982	216	17527	64.24
M56 J12 to M62 J6	904	184	16556	65.93
M56 J12 to M62 J7	764	121	14026	66.08

16.7.73 Between 2015 Do-Minimum and 2015 Do-Something the model predicts the following decreases in journey times:

a. There will be a decrease in journey times for trips between M56 Junction 11 and M62 Junctions 6 with journey time savings of 428 and 529 seconds during the AM and PM peak hours respectively;
b. There will be a decrease in journey times for trips between M56 Junction 11 and M62 Junctions 7 with journey time savings of 449 and 577 seconds during the AM and PM peak hours respectively;
c. There will be a decrease in journey times for trips between M56 Junction 12 and M62 Junctions 6 with journey time savings of 255 and 446 seconds during the AM and PM peak hours respectively; and
d. There will be a decrease in journey times for trips between M56 Junction 12 and M62 Junctions 7 with journey time savings of 276 and 494 seconds during the AM and PM peak hours respectively.

16.7.74 Table 16.36 and Table 16.37 show the modelled journey times, delays, distances and speeds for a series of journeys using the SJB and the New Bridge during the morning and evening peak hours for the 2030 Do-Minimum and 2030 Do-Something scenarios.

Table 16.37 - 2030 Do-Minimum and Do-Something AM Peak Model Traffic Journey Times

2030	AM Peak			
Do-Minimum Route	**Time (s)**	**Delay (s)**	**Distance (m)**	**Speed (kph)**
M56 J11 to M62 J6	1523	593	20529	48.53
M56 J11 to M62 J7	1429	536	19064	48.03
M56 J12 to M62 J6	1142	436	16171	51.1
M56 J12 to M62 J7	1048	379	14746	50.65
Do-Something Route	**Time (s)**	**Delay (s)**	**Distance (m)**	**Speed (kph)**
M56 J11 to M62 J6	1098	258	20057	65.74
M56 J11 to M62 J7	966	194	17527	65.32
M56 J12 to M62 J6	883	170	16556	67.53
M56 J12 to M62 J7	750	106	14026	67.31

Table 16.38 - 2030 Do-Minimum and Do-Something PM Peak Model Traffic Journey Times

2030	PM Peak			
Do-Minimum Route	**Time (s)**	**Delay (s)**	**Distance (m)**	**Speed (kph)**
M56 J11 to M62 J6	1922	978	20529	38.46
M56 J11 to M62 J7	1830	925	19064	37.51
M56 J12 to M62 J6	1469	760	16171	39.74
M56 J12 to M62 J7	1377	706	14746	38.56
Do-Something Route	**Time (s)**	**Delay (s)**	**Distance (m)**	**Speed (kph)**
M56 J11 to M62 J6	1317	473	20057	54.81
M56 J11 to M62 J7	1083	316	17527	58.27
M56 J12 to M62 J6	1074	356	16556	55.47
M56 J12 to M62 J7	840	199	14026	60.12

16.7.75 Between 2030 Do-Minimum and 2030 Do-Something scenarios the model predicts the following reduction in journey times along the following routes:

a. There will be a decrease in journey times for trips between M56 Junction 11 and M62 Junctions 6 with journey time savings of 425 and 605 seconds during the AM and PM peak hours respectively;
b. There will be a decrease in journey times for trips between M56 Junction 11 and M62 Junctions 7 with journey time savings of 463 and 747 seconds during the AM and PM peak hours respectively;
c. There will be a decrease in journey times for trips between M56 Junction 12 and M62 Junctions 6 with journey time savings of 259 and 395 seconds during the AM and PM peak hours respectively; and
d. There will be a decrease in journey times for trips between M56 Junction 12 and M62 Junctions 7 with journey time savings of 298 and 537 seconds during the AM and PM peak hours respectively.

16.7.76 For both the 2015 and 2030 assessments summarised above, the reduction in journey times are gained as a result of the combination of the provision of an improved route onto the New Bridge, resulting in reduced junction delays, and reduced distance, offered by the switching of traffic from the A557 Weston Point to A533 Central Expressway for river crossing traffic which results in an overall reduction in delays for journeys along the Do-Something route.

16.7.77 The reductions in journey times are very significant for all the routes appraised, generally between 30% and 40% journey time reductions in both 2015 and 2030. This clearly illustrates the direct benefits of the Project in easing congestion for strategic traffic to/from and across Halton. The benefits are made much more certain in the Project through the mechanism of the tolls which regulates re-assignment from other corridors, as discussed below.

Summary of Effects on Highway Networks

16.7.78 The strategic effects of the Project are limited to an area of the highway network centred on Halton. It is clear that the Project does provide additional cross Mersey capacity that will be available at a strategic level, but the resulting traffic growth is predicted to be modest and limited to the Halton crossings, largely the Mersey Gateway with some increase on the SJB.

16.7.79 Examination of this in more detail, by looking at the peak hour traffic flows on competing crossings of the Mersey, confirms that the effect is limited to the narrow corridor containing the New Bridge and the SJB. The considerable additional capacity offered by the New Bridge is used by traffic transferring from the SJB, therefore enabling the strategic scheme objectives to be achieved.

16.7.80 Increases in peak hour traffic as a result of the Project are minimal on the motorway network and key motorway junctions within and adjacent to the area showing the greatest effect when compared to the Do-Minimum.

16.7.81 The MGM is not showing re-assignment to the New Bridge from Mersey crossings other than the SJB and, because of tolling and other network capacity limitations. This indicates that the Project is not inducing significant cross-Mersey traffic growth.

16.7.82 The effects of the Project are more pronounced within Halton but, with the exception of some local re-routing particularly in Runcorn, are restricted to the Expressway network. In Widnes the Project connects into the local network at a location similar to the SJB; in Runcorn the connection to the local network is some distance from the SJB and accessing the eastern portion of the Expressway system. Re-assignment would not be expected in Widnes and, in Runcorn, the effects would be expected to be seen on Central Expressway and Weston Point Expressway.

16.7.83 Extending this argument out away from Halton towards the M62 and the M56, the nearest motorway connections, limited effect should be expected. Strategic effect has been shown to be limited, alternative crossings are not affected and routes within Halton converge to the same points. (Speke Road in Widnes and Weston Link in Runcorn)

16.7.84 An examination of the closest motorway junctions (6 and 7 on the M62 and 11 and 12 on the M56) reveal that the effect of the Project is indeed limited. Some overcapacity at those junctions is indicated but this occurs in the Do-Minimum and well as the Do-Something.

16.7.85 Significant peak hour journey time's reductions are achieved with the Project for cross river trips.

Effects upon Transport Users

Introduction

16.7.86 What follows is an assessment of the Project on users of the local transport network. Effects on motorised users are examined first for both 2015 and 2030 followed by an appraisal for pedestrians, cyclists and equestrians in the 2015 opening year.

16.7.87 Trips to local facilities and cross river and non-cross river trips within Halton were assessed.

16.7.88 Local facilities including health, education, employment and shopping were identified as follows:

a. Halton Lea Hospital;
b. Runcorn College Campus;
c. Daresbury Park;
d. 3MG site; and
e. Widnes town centre.

16.7.89 Two wards from Runcorn and Widnes were selected:

a. Windmill Hill;
b. Heath;
c. Farnworth; and
d. Kingsway.

16.7.90 Windmill Hill and Kingsway have been identified by Halton as two of the top five most deprived wards in Halton and are typical of Halton wards requiring regeneration.

16.7.91 The Farnworth ward is located to the north of Widnes town centre and was selected on the basis that any journey time savings from this ward would also be seen in those wards in closer proximity to the SJB.

16.7.92 Within Runcorn, Heath ward is located in the south west of the Borough and any journey time savings from journeys to/from this ward across the SJB, should also be reflected in other neighbouring wards.

16.7.93 Journey times for cross river trips between Runcorn town centre and Widnes town centre, and the return journey were assessed. Journey times between the north of Widnes to the south of Runcorn, and the return journey were also assessed.

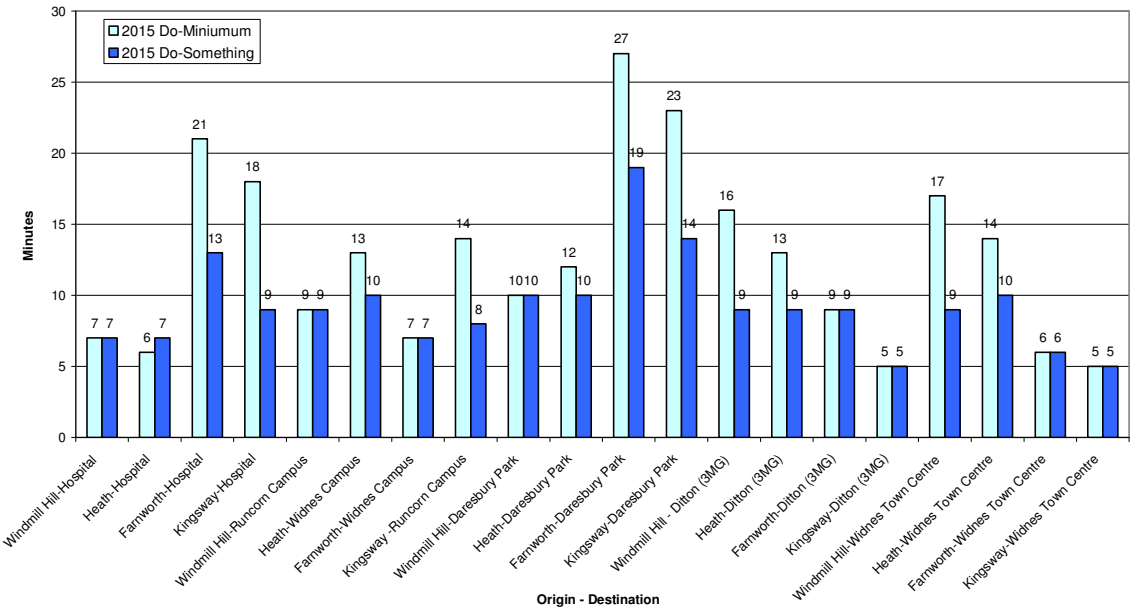
16.7.94 Non-cross river trips between the north of Runcorn and the south of Runcorn, and the east of Runcorn to the West of Runcorn were also assessed to gauge journey times across Runcorn. Similarly journey times across Widnes were assessed based on journey times between the north of Widnes to the south of Widnes, and journeys between the east of Widnes and the west of Widnes.

Effects on Motorised Users – 2015

Car Trips to Local Facilities

16.7.95 Graph 16.1 below shows the differences in journey times between the 2015 Do-Minimum and 2015 Do-Something AM peak, to local facilities from four wards in Halton, identified above. A significant improvement in the majority of journey times can be seen.

Graph 16.1 - 2015 DM v 2015 DS AM Peak Local Facilities Journey Times



16.7.96 The results indicate a number of significant journey time savings between the 2015 Do-Minimum and the 2015 Do-Something, the largest predicted decrease in journey time is 9 minutes (50%) between Kingsway and Halton Lea Hospital. A decrease in journey time of 8 minutes (40%) is also predicted between Kingsway and Daresbury Park, with a 6 minute (43%) decrease between Kingsway and Runcorn Campus.

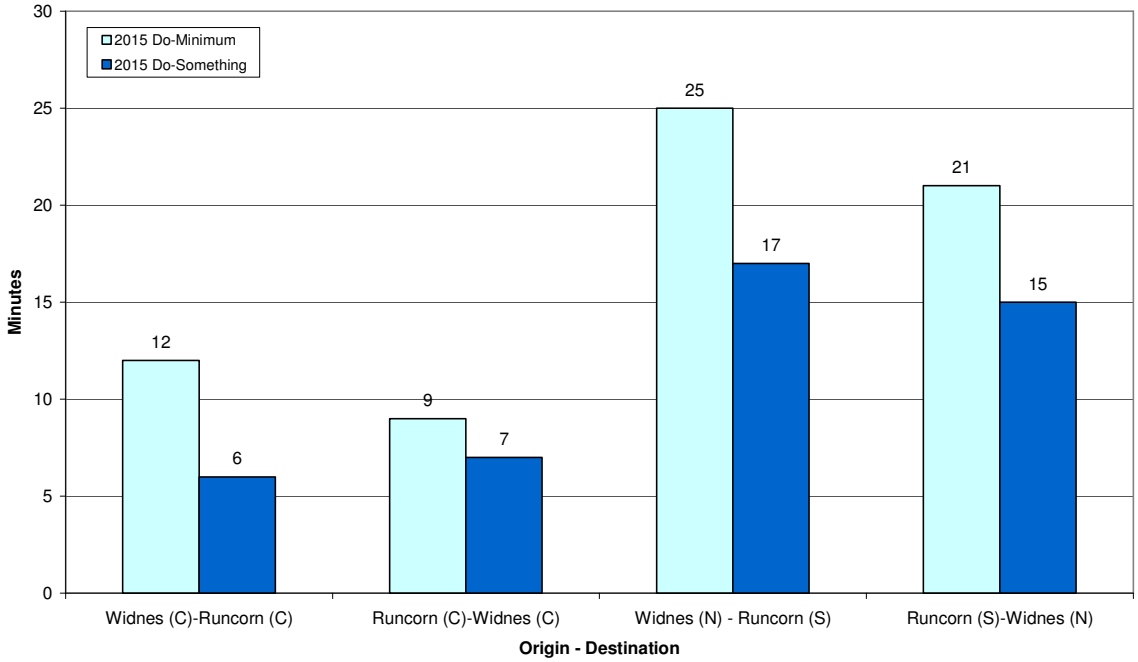
16.7.97 Similarly, the graph also shows journey time savings from Windmill Hill. Journeys between Windmill Hill and Widnes town centre show an 8 minute (47%) decrease, with journeys between Windmill Hill and Ditton decreasing by 7 minutes (44%).

16.7.98 Journey time savings of 8 minutes (38%) between Farnworth and Halton Lea Hospital are shown, together with a saving of 8 minutes (30%) between Farnworth and Daresbury Park.

16.7.99 Again, journey times between Heath and the 3MG site show a decrease of 4 minutes (31%), with journeys between Heath and Widnes town centre also decreasing by 4 minutes (29%).

16.7.100 The above generally shows journey time savings between 30% and 50% for journeys to local facilities and is therefore judged highly significant. All these trips are cross river trips, however

Graph 16.2 - 2015 DM v 2015 DS AM Peak Cross River Journey Times



16.7.101 Graph 16.2 above compares the journey times for cross river trips during the AM peak, between 2015 Do-Minimum and 2015 Do-Something.

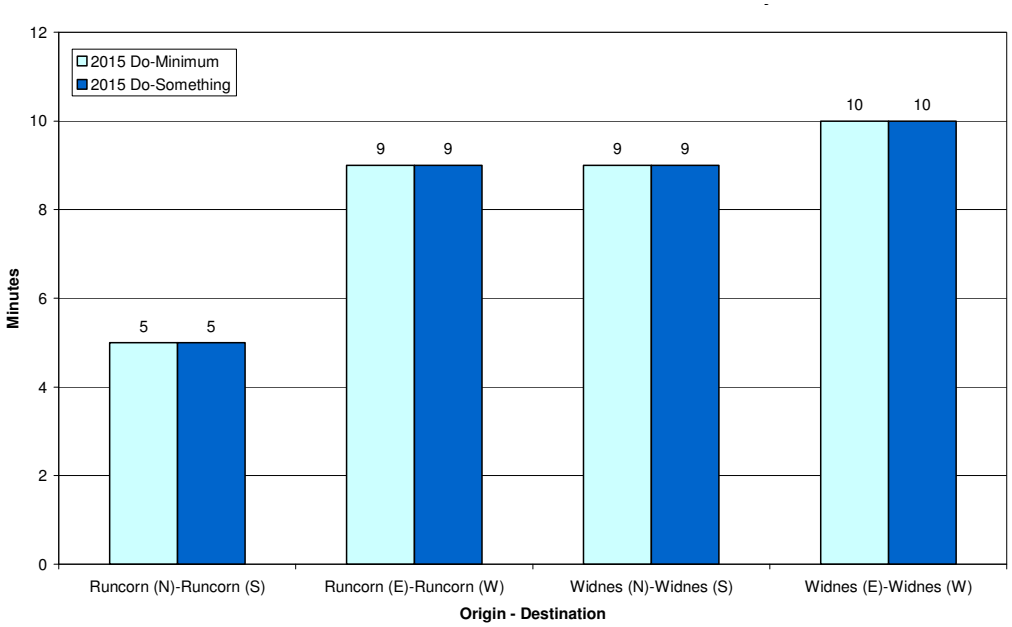
16.7.102 The results indicate journey time savings of 6 minutes (50%) between Widnes town centre and Runcorn town centre, the return journey shows a time saving of 2 minutes (22%).

16.7.103 Journey time savings of 8 minutes (32%) can be seen between the north of Widnes and the south of Runcorn, journey time savings of 6 minutes (29%) are shown on the return journey.

16.7.104 Again, these cross river journey time savings of over 30% are considered highly significant.

16.7.105 Trips to local facilities not involving crossing the river do not shown such journey time reduction. These are further investigated below. The difference in journey times between 2015 Do-Minimum and 2015 Do-Something for non- cross river trips during the AM peak are shown in Graph 16.3 below.

Graph 16.3 - 2015 DM v 2015 DS AM Peak Non-Cross River Journey Times



16.7.106 The results show no change in journey times between the trips identified, therefore these journeys are not considered to be significantly affected. However, the MGM replicates average conditions and non-cross river trips will benefit from reductions in congestion because local access points to the expressway network can be affected by congestion on the approaches to the SJB.

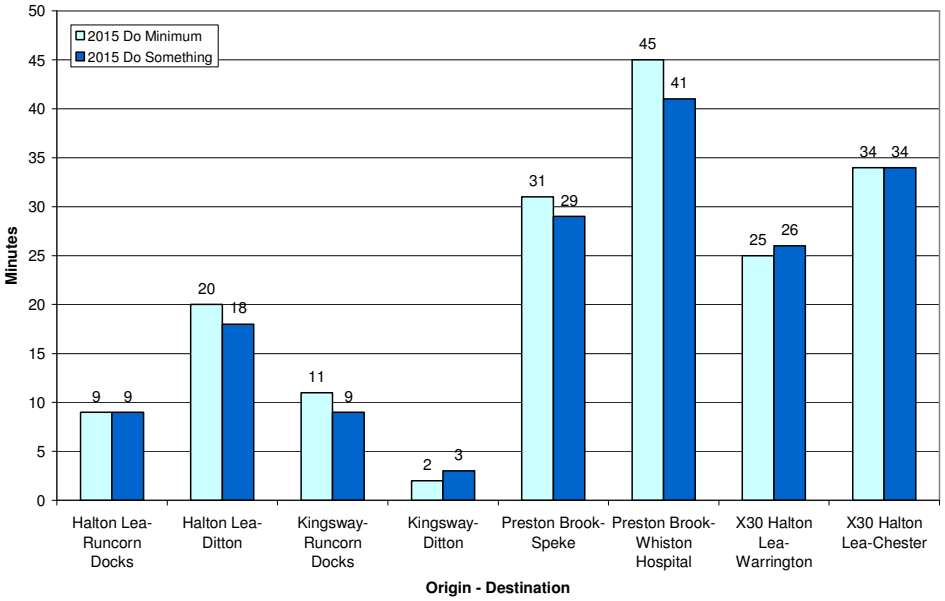
Bus Trips

16.7.107 Bus journeys from Halton Lea, Kingsway, and Preston Brook were selected. These origins were selected to provide information on bus journey times from central wards within Widnes (Kingsway) and Runcorn (Halton Lea), and from the outskirts of the Borough, in Preston Brook.

16.7.108 The destinations selected included Runcorn Docks and Ditton, the location of the 3MG site, which are 2 key employment areas within Halton. Speke, Warrington and Chester destinations were selected to provide a broad analysis of bus journey times to the north east and west of Halton, and to the south. Whiston Hospital, which is located to the north of Widnes near Prescot, was also identified to assess journey times by public transport to a local health facility. Both the AM and PM peaks were assessed for these bus journey times.

Bus trips (AM Peak)

Graph 16.4 - 2015 DM v 2015 DS AM Peak Bus Journey Times



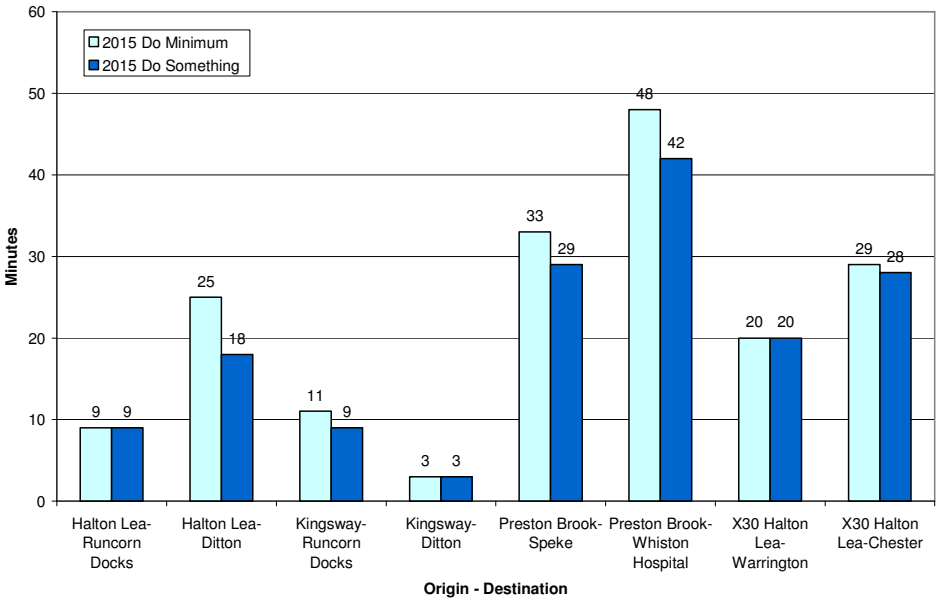
16.7.109 As shown in Graph 16.4 above, the largest improvement in absolute terms (minutes) in journey time during the AM peak can be seen in the Preston Brook to Whiston hospital cross river bus service, with a journey time saving of 4 minutes (9%). This is not considered a significant journey time saving although the service will benefit from improved journey time reliability as a result of less congestion due to The Project.

16.7.110 Cross river bus journey times between Kingsway and Runcorn Docks show a decrease in 2 minutes (18%). Similarly bus services between Halton Lea and Ditton (3MG) also show a time saving of 2 minutes (10%).

16.7.111 Journey times on the Kingsway to Ditton (3MG) bus service during the AM peak increases from 2 minutes to 3 minutes (50%), this is attributed to the proposed new signalised Ditton Interchange. Also during the AM peak, journey times on services between X30 Halton Lea to Warrington increase from 25 to 26 minutes (4%) due to reduced speeds along Chester Road leading to the M56 Junction 11. Analysis of the two other non-cross river bus services show no change in journey time between 2015 Do-Minimum and 2015 Do-Something.

Bus Trips (PM Peak)

Graph 16.5 - 2015 DM v 2015 DS PM Peak Bus Journey Times



16.7.112 Graph 16.5 above shows the difference in journey times during the PM peak between 2015 Do-Minimum and 2015 Do-Something. The largest improvement in journey time overall is during the PM peak for the cross river journey between Halton Lea and Ditton (3MG) with a reduction in journey time of 7 minutes (28%).

16.7.113 The results show bus journey time savings of 6 minutes (13%) between Preston Brook and Whiston Hospital. Similarly the results also show a decrease in bus journey time of 4 minutes (12%) between Preston Brook and Speke.

16.7.114 Bus journey time savings of 1 minute (3%) is shown between X30 Halton Lea and Chester. Analysis of non-cross river bus journey time services between both Halton Lea to Runcorn Docks and Kingsway to Ditton (3MG) show no change.

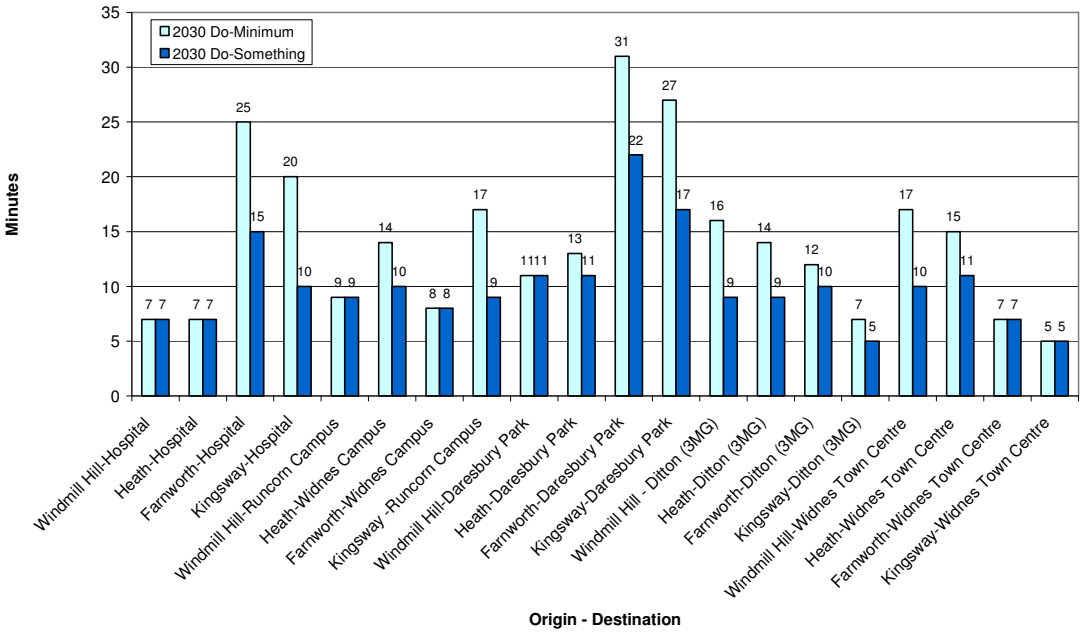
16.7.115 Overall, the changes in bus journey time savings between 2015 Do-Minimum and 2015 Do-Something are judged to be of moderate positive significance for cross river trips. Non-cross river trips are not significantly affected, but are likely to benefit from increase journey time reliability as a result of less congestion due to the Project.

Effects on Motorised Users – 2030

Car Trips to Local Facilities

16.7.116 Journey times to local facilities for 2030 were also assessed, again the results shown below in Graph 16.6 indicate that the majority of journey times under the Do-Something scenario will improve when compared to the Do-Minimum.

Graph 16.6 - 2030 DM v 2030 DS AM Peak Local Facilities Journey Times

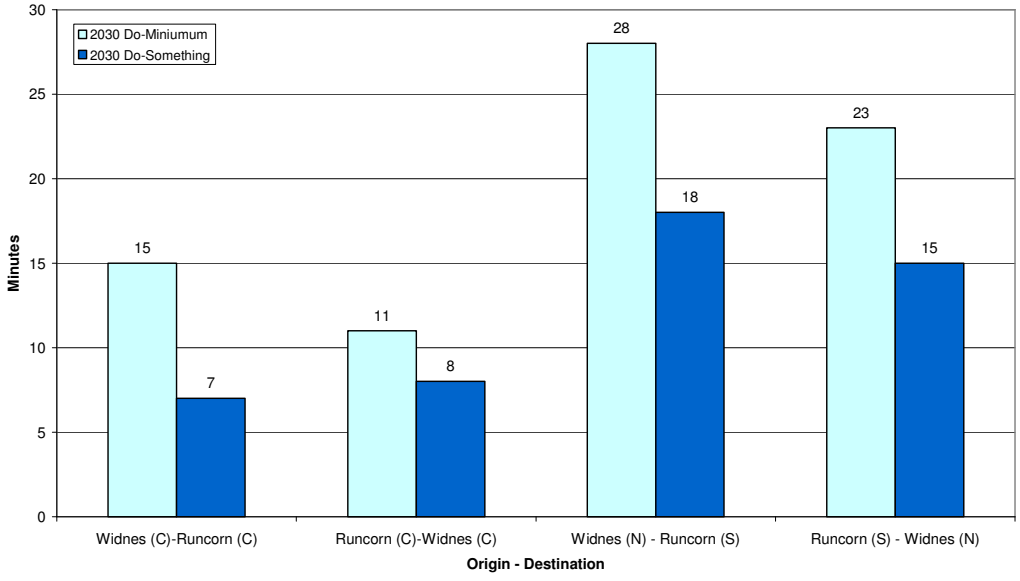


16.7.117 Significant time savings can be seen between Kingsway and Daresbury Park with journey times decreasing by 10 minutes (37%). Similarly journeys between Kingsway and Halton Lea Hospital are shown to decrease by about 10 minutes (50%), and journeys from Kingsway to Runcorn Campus by 8 minutes (47%).

16.7.118 Similarly, the graph shows journey time savings from Windmill Hill. Journeys between Windmill Hill and Widnes town centre shows a 7 minute (41%) decrease, with journeys between Windmill Hill and Ditton, also shown to decrease by 7 minutes (44%). Again these improvements in journey times could assist in improving accessibility to local facilities from Windmill Hill.

16.7.119 These journey time savings to local facilities are considered to be of high significance. All these trips are cross river trips, however. Trips to local facilities not involving crossing the river do not show such journey time reduction.

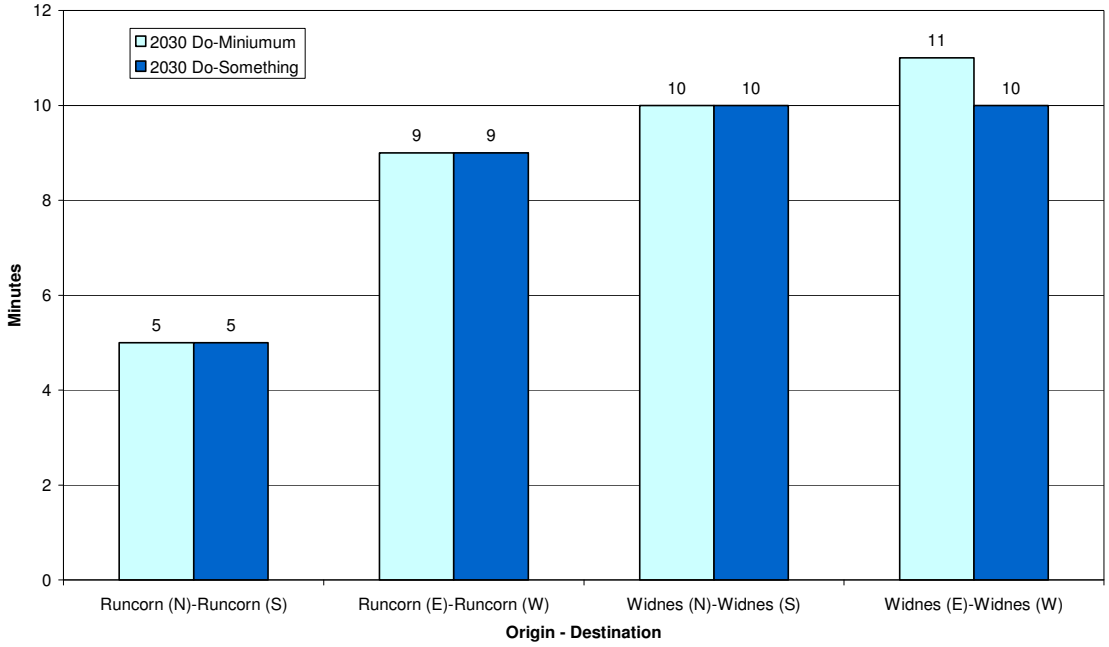
Graph 16.7 - 2030 DM v 2030 DS AM Peak Local Cross River Journey Times



16.7.120 Graph 16.7 above shows the predicted changes in journey times for local cross river journeys between 2030 Do-Minimum and 2030 Do-Something. The results suggest significant time savings for cross river trips within Halton, including halving the journey time between Widnes and Runcorn from 15 minutes to 7 minutes (53%). Journey times from Runcorn south, to the north of Widnes show a similar pattern with journey time savings of 8 minutes (35%). These time savings are considered to be highly significant.

16.7.121 Generally cross river journey times remain the same, as shown in Graph 16.8 below, although journeys between the east of Widnes to the west of Widnes show a journey time saving of 1 minute (9%). These non-cross river journey time savings are not considered significant.

Graph 16.8 - 2030 DM v 2030 DS AM Peak Local Non-Cross River Journey Times



16.7.122 The journey time savings between 2030 Do-Minimum and 2030 Do-Something are considered to be of high significance for cross river trips. However journey time savings for non-cross river trips remain constant and the effect of the Project on them is therefore considered 'neutral'.

Non-motorised Users

Pedestrians

a. Severance

The effect of the Project in terms of infrastructure and re-routing traffic affecting either pedestrian routes or catchment areas throughout Halton was assessed.

Traffic flow changes of at least a 30% increase or decrease between the 2015 Do-Minimum and 2015 Do-Something (24hr AADT) were identified based upon the MGM. Key community facilities and routes, including Greenways, Bridleways, Cycleways and PRoW were also identified. A walking catchment area of 2km, and a cycling catchment of 5km was assumed to identify the potential number of people effected by severance.

Based upon the links identified with a +/-30% change in traffic flows and the assumed catchment areas, all key facilities and public routes potentially effected were identified.

The majority of routes identified with a +/-30% change in traffic flow were on the Expressways in Runcorn which link the M56 to the SJB, and potentially the Mersey Gateway Bridge. These Expressways, also including Speke Road and Ditton Junction in Widnes are not promoted as routes for pedestrians, cyclists or equestrians. There are also a number of footbridges which provide pedestrian links across the Expressways, therefore changes in flows on the Expressways were not considered to create severance.

The SJB was identified as a link where pedestrians faced severance in the 2015 Do-Minimum. This is due to the traffic flows, and sub-standard facilities for pedestrians. When compared to the 2015 Do-Something the level of severance decreased to a highly significant extent, due to reduced traffic flows and segregated pedestrian facilities provided through the Project on the SJB.

The remaining non-cross river links identified in Halton were assessed as not creating severance due to the dedicated walking facilities provided on these routes, or due to the low traffic flows predicted. An overall assessment score for non-cross river movements of neutral was therefore assigned.

Further details of these links and the assessment are shown in Appendix 16.3.

b. Journey Ambience

The impact of the Project on pedestrian journey ambience was assessed. This considered the provision and design of dedicated facilities, the route environment, traveller's views and the level of stress or frustration faced by the user.

The Project will ensure all existing footpaths and PRoW will be maintained to ensure that all existing access is retained. The SJB will include the provision of a well lit segregated walkway/cycleway, which will also be accessible for people with disabilities. Improved links to Runcorn and Widnes from either end of the SJB will improve accessibility to local facilities, together with new signage. These measures will create a more attractive environment for pedestrians, along with improving their safety and therefore reducing levels of stress.

Overall, the Project was judged to improve cross river journey ambience for pedestrians to a highly significant extent, but have no significant effect for non-cross river pedestrian trips.

c. Encouraging Walking

Severance and Journey ambience for pedestrians have been assessed above . What is now assessed is the potential effect of the Project on influencing an increase in the number of walkers. The rationale for proposing an increase in the number of walking trips follows:

i. Since 2004 when 'Walking and Cycling – an Action Plan' (Ref 28) was published by the Department of Transport there has been increasing Government encouragement to promote and support walking projects that provide a real choice to using the private car for short journeys. With increasing investment, awareness of climate change issues and the positive health implications of increasing physical activity it is not unreasonable to promote local walking targets to maintain Halton's average at least equal to the national average of 11% of all journey to work trips;

ii. The improved accessibility provided by the Project, in particular the de-linking of the SJB and the opportunities presented to provide direct access into and from Runcorn to the SJB and the Widnes Waterfront Regeneration areas, removes physical barriers to walking and provides improved links to local, high quality destinations. The fact that 102 walkers have been observed crossing the SJB on a typical weekday (the majority travelling out of the peak hours), when they have limited dedicated facilities and have to negotiate the expressway system is evidence of a demand, as well as a necessity, to walk.

iii. Walking will gain a competitive advantage once the Project is implemented and tolling is introduced – it will be free and, with rising fuel costs as well, will therefore become more attractive to those who use their car (National Travel Statistics 2005 (Ref 30) indicate that over 40% of car users would walk more 'if congestion charging was introduced'). That advantage may be more relevant in Halton with low car ownership and a significant proportion of its population in low income groups. The traffic modelling undertaken using the MDM suggests that in the Do-Something tolling does have an effect on travel behaviour, changes in mode being one of the potential changes.

The Physical fitness analysis presented below, which has had to consider only peak hour regular trips has estimated that a significant number of additional walking trips will be made during the peak hours (140). Whilst this is a significant peak hour increase it may be an underestimate of the total additional trips because it does not take into account the effect of the pedestrian improvements on the bulk of the observed walking trips occurring during the remainder of the day.

If this increase were to be achieved during peak hours (to achieve national average walking proportions) then it is not unreasonable to expect increases over the remainder of the day particularly as the opportunities for leisure walking will be increased. There is therefore an expectation that, in total, an additional 200-300 walking trips per day could result from the Project.

Cyclists

a. Severance

As for pedestrians, the Project effects cyclists in terms of infrastructure and changes in flows across the wider network were assessed. As for pedestrians, cycle severance for cross river journeys was judged to be reduced to a highly significant extent due to the dedicated facilities and reduced flows on the SJB as a result of the Project. The effect on non-cross river cycle trips was judged to be neutral.

b. Journey Ambience

The impact of the Project on the cyclist journey ambience was assessed. This considered the provision and design of dedicated facilities, the route environment, traveller's views and the level of stress or frustration faced by the user.

The Project will ensure all existing cycleways will be maintained to ensure that all existing access is retained. A well lit segregated cycleway, to current standards and guidelines, on the SJB will be provided. Plus, access to the SJB from Runcorn and Widnes will be improved, together with a new signing strategy. The SJB is also a proposed future route for regional route 82 which would allow connection of the NCN 62 with NCN5.

Based upon this assessment of improved facilities the Project was assessed as improving cyclist's journey ambience on the SJB, and a summary assessment score of large beneficial was assigned for cross river journeys. The effect on non-cross river journeys was assessed as not significant.

c. Encouraging cycling

Severance and Journey ambience for cyclists have been assessed above. What is now assessed is the effect of the Project on increasing the number of cyclists. The rationale for proposing an increase in the number of cycling trips follows:

i. Since 2004 when 'Walking and Cycling – an Action Plan' (Ref 28) was published by the Department of Transport there has been increasing Government encouragement to promote and support cycling projects that provide a real choice to using the private car for short journeys. Cycling England was introduced and established by the Government as part of the Action Plan. As recently as January 2008, in its publication 'A Sustainable Future for Cycling' (Ref 29) the DfT announced a 6-fold increase in the funding of cycling projects to be channelled through Cycling England. With increasing investment, awareness of climate change issues and the positive health implications of increasing physical activity it is not unreasonable to promote local cycling targets at least equal to the national average of 3% of all journey to work trips;

ii. The improved accessibility provided by the Project , in particular the de-linking of the SJB and the opportunities presented to provide direct access into and from Runcorn to the SJB and the Widnes Waterfront Regeneration areas, removes physical barriers to cycling and provides improved links to local, high quality destinations. The fact that 172 cyclists have been observed crossing the SJB on a typical weekday (the majority travelling out of the peak hours), when they have no dedicated facilities and have to negotiate the expressway system is evidence of a demand, as well as a necessity, to cycle.

iii. Cycling will gain a competitive advantage once the Project is implemented and tolling is introduced – it will be free and, with rising fuel costs as well, will therefore become more attractive to those who use their car (National Travel Statistics 2005 (Ref 30) indicate that a quarter of car users would cycle more 'if congestion charging was introduced'). That advantage may be more relevant in Halton with low car ownership and a significant proportion of its population in low income groups. The traffic modelling undertaken using the MDM suggests that in the Do-Something tolling does have an effect on travel behaviour, changes in mode being one of the potential changes.

The Physical fitness analysis presented below, which has had to consider only peak hour regular trips has estimated that an additional 50% of cycling trips will be made during the peak hours. This is an underestimate of the total additional trips because it does not aspire to national cycling proportions not does it take into account the effect of the cycling improvements on the bulk of the observed cycling trips occurring during the remainder of the day.

Using a national cyling proportion of 3% as a target rather than the Halton average of 2% and applying that to daily data yields a potential increase in cycling of some 200 new trips per day. It is worth observing that other areas of the country where topography is generally flat (East Anglia, Humberside) show cycling proportions between 4 and 6%.

Equestrians

16.7.123 Overall, the Project will have no significant effect on equestrian movements.

WebTAG Summary

16.7.124 The key WebTAG appraisals informing this assessment were the following:

a. Physical Fitness;
b. Journey Ambience;
c. Severance;
d. Security;
e. Option Values;
f. Access to the Transport System; and
g. Transport Interchange.

16.7.125 The approach to the Journey Ambience and Severance appraisal details are provided in the Methodology Section 16.5 and in the analysis above. A summary of the remaining appraisals is provided below; the detailed analysis can be found in Appendix 16.3.

Physical Fitness

16.7.126 The effect on physical fitness was assessed through identifying the change in the number of pedestrian journeys with and without the Project. Those additional journeys over 30 minutes were deemed to have significant health benefits.

16.7.127 The SJB is approximately 1 mile long (1.6km), this is based upon points where pedestrians and cyclists can access/exit the bridge. Widnes town centre is approximately 1 mile (1.6km) from the Widnes access/exit point, and Runcorn high street 0.2 mile (0.3km) from the Runcorn SJB access/exit point.

16.7.128 Based upon an average walking speed of 5km/hr it would take approximately 19 minutes just to walk across the SJB, therefore, it has been assumed that all walking trips across the SJB will exceed the 30 minute level of activity, as this can include both the outward and return journey.

16.7.129 The provision of high quality facilities on the SJB was assessed to have a significant effect on pedestrians increasing the number of pedestrians using the bridge by 140 a day, thereby improving physical fitness.

16.7.130 The most significant effect on physical fitness will be the provision and promotion of walking and cycling facilities on the SJB. This was assessed through identifying the change in the number of cyclist journeys with and without the Project. Those additional journeys over 30 minutes were deemed to have significant health benefits.

16.7.131 An average cycle speed of 20km/hr would suggest it would take approximately 5 minutes to cross the SJB. However, based upon the distances to Runcorn high street and Widnes town centre from the SJB it would take approximately 11 minutes to cycle between these two points. This together with the location of residential properties, from where trips are likely to be generated, has lead to the assumption that most cycle trips to work or school using the SJB will also at least attain a 15 minute journey time, and therefore return journey of 30 minutes a day.

16.7.132 The new SJB dedicated cycle facilities and improved links at either end will significantly improve cyclist journeys across the river, resulting in a possible increase of 8 additional cycle trips a day of over 30 minutes. This figure is based upon the percentage of cyclists recorded travelling across the SJB during the peak hour, compared to the travel to work census data (2001). However, it should be noted that this is a conservative estimate. Through an advanced and extensive publicity campaign, promoting the new cycle facilities, and subsequent links into

Widnes and Runcorn further cycle trips will be generated as part of a sustainable transport strategy for Halton.

Security

16.7.133 This assessment aims to identify the changes in the level of security for road users, public transport passengers and freight and the likely numbers of users affected as a result of the Project.

16.7.134 The assessment is based on the following security indicators:

a. Formal surveillance;
b. Informal surveillance;
c. Landscaping;
d. Lighting and visibility;
e. Emergency call facilities; and
f. Pedestrian and cycle facilities.

16.7.135 The proposed improvements to the SJB as part of the Project include improved surveillance and dedicated facilities. The number of users affected, are based on crossing traffic in terms of general traffic, pedestrians and cyclists. Based on this, over 100 pedestrians, over 160 cyclists and over 80,000 vehicles are expected to benefit from improved security as a result of the Project. Based on WebTAG guidance, this results in a moderate beneficial value score.

Option Values

16.7.136 This seeks to appraise the value gain or loss through providing or removing a facility, for people with no intention of using it, but who are likely to value having the option.

16.7.137 The Project includes a new footway/cycleway facility on the SJB, which may provide a more realistic option for walking and cycling on the SJB. Based upon local residents within a specified walking and cycling catchment area, and travel to work data (Census 2001), approximately 1950 people are likely to view walking or cycling as a realistic modal option. Based on WebTAG guidance, this results in a moderate beneficial overall option value score.

Access to the Transport System

16.7.138 This assesses the changes in proportions of households with access to a car or within 250m walking distance from public transport, with and without the Project.

16.7.139 The census data (2001) shows 71% of households have access to a car, leaving 29% without. Approximately 70% of Halton's population live with 250m of a bus stop with a least an hourly service, however up to 90% are within 400m of a bus stop which is still considered a reasonable walking distance.

16.7.140 The Project will improve travel choice for cross river trips within Halton, and will improve the reliability of bus services, enabling additional routes and improved services. Based on WebTAG guidance a moderate beneficial score has been assigned.

Transport Interchange

16.7.141 This assesses the change in public transport and freight interchanges as a result of the Project. The Project is considered to have no direct effect on the quality of freight interchange within a facility. A limited effect on public transport interchange has been assessed due to the close proximity of Runcorn mainline rail station and Runcorn bus station to the SJB. The Project will improve the level of information available, physical linkage for the next stage of the journey and assist towards improving connection time and risk of missing connection.

16.7.142 Based upon patronage figures it has been assessed that approximately 2,000 bus passengers and 1,300 rail passengers may be affected. Based on WebTAG guidance, this results in a moderate beneficial score.

Operational Effects Summary

16.7.143 The operational effects of the Project on all transport users have been assessed. It has been assumed that pedestrians will be affected by changes to all routes, cyclists will be affected by changes to cycle routes, cycleways and bridleways, and equestrians will only be affected by changes to bridleways.

Strategic Highway Network User

16.7.144 The effects of the Project do not extend across the wider modelled network. Re-allocation of capacity from the SJB to the New Bridge, with the additional effect of tolls, dampens down induced traffic and traffic growth on links across the River.

16.7.145 The effects of the Project on Junctions 6 and 7 on the M62, and Junctions 11 and 12 on the M56 indicate small changes in flows in 2015. The assessment of changes in flows, as a result of the Project, on these motorway network junctions in 2030 are also shown to be small.

16.7.146 The total level of traffic on the New Bridge and SJB will remain at a level similar to that currently existing. The effect of the Project on other crossing traffic across the Mersey is not significant, confirming that the effect of the Project is local to routes in and serving the Borough of Halton.

16.7.147 Significant peak hour journey time reductions are achieved with the Project for cross river trips in 2015 and 2030. These reductions are as a result of the provision of an improved route onto the New Bridge leading to reduced junction delays and reduced journey distance for cross river trips and increasing journey time reliability. Therefore, cross-river trips have been assigned a high positive significance.

Local Highway Network User

16.7.148 The assessment of the effect of the Project on journey time trips to local facilities in 2015 indicated highly significant journey time savings for cross river trips, however non cross river trips did not show such significant journey time savings. Further analysis of cross river journey times and non-cross river journey times supported this, with cross river trips showing significant journey time savings and non-cross river journey times remaining constant. However, with the removal of congestion and improved journey time reliability the lower frequency of incidents of congestion blocking back to affect the local network will result in a positive benefit. Because the MGM models average situations this additional positive effect on the local network has not been assessed.

16.7.149 The effect of the Project on journey times to local facilities in 2030 was also assessed. As with 2015 significant journey time savings were identified on trips to local facilities which involved crossing the river, however changes to non-cross river journey times were not considered significant. This again, was supported through further analysis of cross river journey times, which showed highly significant journey times savings, compared to non-cross river journey times which did not show significant changes.

16.7.150 Overall cross river trips have been evaluated as receiving a high position benefit as a result of the Project, with neutral effects on non-cross river trips although, as indicated above, there is likely to be benefit.

Bus

16.7.151 Bus journey times to a number of key facilities and destinations were assessed during the AM and PM Peak, 2015.

16.7.152 Overall the changes in bus journey times during both the AM and PM peak showed the same effect. Cross river bus journey time savings are judged to be of moderate positive significance, whilst non-cross river trips are not considered to be significantly effected. All bus journeys are likely to benefit from improved journey time reliability as a result of less congestion due to the Project.

16.7.153 Overall, cross river bus journeys are assigned as moderate positive significant benefits, with neutral effects on non-cross river bus trips. However, with the reductions in congestion and the improvements anticipated form the implementation of the Sustainable Transport Strategy (described in 16.8) benefits to bus users are expected as a result of the Project.

Pedestrians

16.7.154 The majority of routes with a +/-30% change in traffic flow were not considered to have a significant effect on the level of severance faced by pedestrians, due to dedicated pedestrian facilities, or low traffic flows. The main exception was the SJB where high levels of severance were identified in the 2015 Do-Minimum, which reduced in the 2015 Do-Something as a result of reduced traffic flows and dedicated pedestrian facilities on the SJB.

16.7.155 The provision of dedicated facilities on the SJB was also assessed to have a significant effect on increasing the number of pedestrians using the SJB to 200-300 a day, thereby improving physical fitness.

16.7.156 The effect of the Project on pedestrian journey ambience was judged to improve cross river journey ambience to a highly significant extent, but to have no significant effect for non-cross river pedestrian trips.

16.7.157 The effect of the Project infrastructure upon pedestrian routes was also assessed based on the Council's definitive map, and supplemented by the route map. Two pedestrian routes within Halton were identified as being effected.

a. The Old Lane Path (PRoW 58), which links Ditton Road and Lower House residential area across the closed golf course, will be permanently closed as a result of the Toll Plaza; and
b. The PRoW (No: 60) access that links Croft Street with the TPT and NCN62, and the PRoW (No: 61) between Ashley Way and the TPT and NCN 62 will be permanently stopped up. This link is also identified as a proposed cycleway by Halton.

16.7.158 Overall, the effect of the Project on pedestrian cross river trips is considered to have a high significance, with improved facilities on the SJB encouraging pedestrian trips, and improving accessibility throughout the Borough. Non-cross river pedestrian trips have been assigned a low negative significance due to localised effects on PRoW from the Project infrastructure.

Cyclists

16.7.159 Changes in non-cross river traffic flows as a result of the Project were not deemed to have a significant effect upon cyclists and cycleways. Again, the main exception is the SJB where under the 2015 Do-Minimum no dedicated cycle facilities exist which forms a high level of severance. In the 2015 Do-Something dedicated cycle facilities are provided which will encourage cycle trips and reduce the level of severance. Therefore severance for cross river trips was considered to be reduced to a highly significant extent with the result that an additional 200 cycling trips per day has been estimated,

16.7.160 The improved cycle facilities as a result of the Project on the SJB were assessed as improving a cyclist's journey ambience on the SJB, and a summary assessment score of large beneficial was assigned for cross river trips. The effect of non-cross river trips on journey ambience was assessed as not significant.

16.7.161 Cycleways affected by the Project infrastructure were also identified; the Lodge Lane Junction infrastructure will affect a small section of the Hallwood Park cycleway, which is also used by pedestrians.

16.7.162 The effect of the Project on cyclists cross river journeys is considered to be of high positive significance, due to the improved dedicated facilities on the SJB. Non-cross river cycle trips have a low negative significance due to the effect of the Project infrastructure on the cycleways identified.

Equestrians

16.7.163 The Project does not include any specific facilities for equestrians.

16.7.164 The effects of the Project infrastructure on two bridleways were identified;

a. Construction of the Weston Link Junction will affect the bridleway running along the A557 Weston Point Expressway highway boundary; and
b. A small section of the bridleway near Clifton will be affected by the M56 Junction 12 infrastructure.

16.7.165 The effects on bridleways will also affect pedestrian and cycle users.

16.7.166 Overall, cross river equestrian trips are considered not to be significantly effected by the Project; however the effect of the Project infrastructure on non cross river trips has been rated as not significant.

Conclusion

16.7.167 The New Bridge will reduce flows on the SJB for both 2015 and 2030. In 2015 flows will reduce from a predicted 94,000 to 13,000; and in 2030 from 97,000 to 16,000. The Project can therefore be shown to be highly successful in the removal of strategic traffic and allowing for the reconfiguring of the SJB for enhancement for pedestrians and cyclists.

16.7.168 Journey time savings for cross river traffic as a result of the Project are shown to be significant for both 2015 and 2030, for cross river journeys within Halton. Trips not crossing the River however show little variation with and without the Project, demonstrating little disbenefit to other routes as a result of the Project.

16.7.169 There will be only localised disruptions to pedestrians and cyclists and mitigation measures are discussed in section 16.8.

The Construction Phase Assessment

Assumptions

16.7.170 This assessment considers the potential effects during the construction phase of the Project on pedestrians, cyclists, equestrians and motorised vehicle users (cars, heavy goods vehicles and buses). The Construction Methods Report (Chapter 2, Appendix 2.1, MG_REP_EIA_010) provides the assumptions for this assessment.

16.7.171 Approximations of quantities, vehicle movements associated with construction activities and dimensions are stated in the Construction Method report. These quantities have been used in this assessment to determine the traffic effects relating to Construction Vehicle Movements and Waste Disposal Vehicle Movements. The Construction Method report also gives estimates of the number of site operatives that might be required for construction.

16.7.172 All construction effects are assumed to be short term (under 40 months duration) as the whole indicative programme is scheduled to be 39 months.

16.7.173 In carrying out the construction phase assessment for transport purposes, the following assumptions have been made:

Working Period and Hours

16.7.174 It has been assumed that normal site working hours will be from 07:00 hours to 19.00 hours on weekdays (excluding public holidays) and 07:00 hours to 14:00 hours on Saturdays.

Lorry Movements

16.7.175 It has been assumed that all excavated material will be removed using road transport. This is a worst case scenario because it is likely that given the proximity of the site to the Manchester Ship Canal that water-borne transport will be used by the contractor to remove waste arising from the Construction Areas.

16.7.176 The potential effects of abnormal loads or plant equipment have not been appraised because it is considered that these are likely to be infrequent and most likely to occur during off-peak periods when the effects to road users will be minimal.

Traffic

16.7.177 Construction traffic movements are assumed to be spread evenly throughout a normal working day.

Cumulative Effects Due to Construction

16.7.178 An indicative construction programme for the Project is shown in Appendix C of the Construction Methods report. That programme has been used to estimate the level of traffic generated by construction tasks at each Construction Area.

16.7.179 This assessment assumes that tasks relating to Construction Area D, the Mersey Gateway Bridge, is on a critical path and will be unchanged from the indicative programme. However there is scope for the tasks relating to work at Construction Areas A, B, C, E, F, G and H to commence and finish at different times to those shown on the indicative programme. Construction Area I (SJB de-linking) will be active only after construction work has finished at all other areas.

16.7.180 In undertaking this assessment, an attempt has been made to present a robust assessment, which takes into account the worst case cumulative effects arising out of the construction activities at each Construction Area. Therefore, the construction effects have not been assessed in isolation at each individual Construction Area, but it has been assumed that construction work occurs concurrently at all Construction Areas. It is assumed that whilst construction work on the New Bridge is taking place work will also be taking place at:

a. Construction Areas A (Main Toll Plaza), B (Ditton Junction to Freight Line) and C (Freight Line to St Helens Canal); and
b. Construction Areas E (Astmoor Viaduct), F (Bridgewater Junction), G (Central Expressway) and H (M56 Junction 12).

16.7.181 It has been assumed that the SJB will be closed to all vehicular traffic and a diversion via the New Bridge will be in operation during the entire construction period relating to the de-linking and deck reconfiguration work at Area I.

16.7.182 Analysis of the vehicle movements relating to the range of tasks shown in the indicative programme suggest that the maximum vehicle movements per month of 7470 occurs due to construction and waste disposal tasks whilst work is carried out concurrently on Construction Areas A, B, C, D, E, F, G and H.

16.7.183 The construction effect assessments have been undertaken using the 2015 Do-Minimum peak hour link traffic flow data from the variable demand traffic model. The traffic generated by the construction and waste disposal activities were assessed against the 2015 Do-Minimum link flows to assess effects on Car, HGV and Bus users. The assessments are therefore considered to be 'worst case' given that the construction period is 2012 to 2014, and that site deliveries will be coordinated to ensure that they occur at off-peak periods.

16.7.184 The calculated peak hour traffic generated by the construction and waste disposal operations have been analysed and compared with the peak hour link traffic flows from the variable demand model.

Construction Areas A, B and C

Construction and Waste Disposal Traffic

16.7.185 The effects of construction and waste disposal activities at Construction Areas A, B and C results in the addition of a maximum of 3565 vehicle movements per month (13 vehicle movements per hour) on the Halton road network for a period of 3 months during construction.

Strategic and Local Highway Traffic

16.7.186 The construction work at Construction Areas A, B and C will be carried out in phases using traffic management. The management measures described below may be considered as mitigation by design, but the concessionaire will be required to agree traffic management measures with the local highway authority officers in advance.

16.7.187 At Construction Area A the existing eastbound off-slip and westbound on-slip to/from Ditton Roundabout will be used to divert traffic between Speke Road and Queensway (SJB) to Ditton Roundabout during the first phase of the works. During this phase the Main Toll Plaza, Ditton Junction Bridge and part of the remodelled Ditton Junction will be constructed. During the second phase the westbound on-slip from Ditton Junction to Speke Road will be constructed offline and tied in with Ashley Way and Ditton Road to the new linked signal junctions known as Ditton Junction.

16.7.188 At Ditton Roundabout, a 20 miles per hour speed limit and traffic management using extensive signing, lighting, coning and temporary lights (when required) will be implemented in order to provide safe traffic access to all movements between Ditton Road, Speke Road, SJB and Ashley Way during the duration of the construction period.

16.7.189 During works at Construction Area B the existing Ditton Road East access to Ditton roundabout will be stopped up and all traffic from/to Ditton Road East will be diverted via Ashley Way West and Moor Lane to/from Ditton Roundabout. A 20 miles per hour speed limit and traffic management measures using advance signing and temporary traffic lights will be in operation at Ditton Road East junction with Ashley Way and at Ditton Roundabout.

16.7.190 At Construction Area C the Widnes Eastern Bypass link to the SJB will be stopped up as the area will be used to form part of the Widnes Loops Junction. Traffic to/from the SJB will be diverted via a series of phased construction operations using temporary diversions via permanent links which form the Widnes Loops Junction, as well as temporary links such as Victoria Road and Hutchinson Street. The existing Widnes Eastern Bypass / Ashley Way signalised junction will be modified to allow full access between Ashley Way and the SJB during construction.

16.7.191 Although the highway network has sufficient link capacity to absorb the additional traffic generated by the construction operations, the traffic management and speed restrictions at the above Construction Areas and junctions will cause inevitable cause delay to all road users using the Ditton Roundabout and Ashley Way. Buses with routes via Ditton Roundabout, including

most cross river bus routes and many serving regional as well as local destinations, will also be subject to delay and increased journey times.

16.7.192 Based on the above analysis, construction activities at Construction Areas A, B and C are appraised to have a temporary High Magnitude Negative effect on strategic and local highway network users and bus users.

Pedestrians, Cyclists and Equestrians

16.7.193 The existing PRoW through St Michael Golf Course in Widnes will be stopped up and diverted along the western boundary of St Michael Golf Course and link with the Old Lane PRoW at Ditton Road as shown in Figure 16.28 (Appendix 16.1) prior to the commencement of work at Construction Area A.

16.7.194 The existing PRoW access linking Croft Street and Ashley Way with Spike Island and the Trans Pennine Trail will be stopped up and a newly diverted PRoW will be provided along the boundary of the Widnes Loops Junction. During the construction stage a lengthy diversion of both PRoWs via Ashley Way, Victoria Road and Waterloo Road will be provided as a temporary measure.

16.7.195 Users of the existing cycle lanes on Ditton Road and Victoria Road will be affected during construction at Construction Area B and C as a result of an increase in traffic due to diversions, traffic management measures and phasing operations.

16.7.196 Based on the above analysis, the construction activities at Construction Areas A, B and C are appraised to have a Temporary High Magnitude Negative Effect on pedestrians and cyclists.

Freight Line

16.7.197 The construction of the Freight Line Bridge at Construction Area C will require 10 track possessions in agreement with Network Rail. Mitigation measures relating to the freight line possessions are described in Section 16.8.

16.7.198 Based on the above analysis, the construction activities at Construction Area C will have a Temporary Moderate Magnitude Negative Effect on Rail Freight users.

Area D, Mersey Gateway Bridge

Strategic and Local Highway Traffic

16.7.199 The effects of construction and waste disposal activities at Area D is calculated to result in the addition of a maximum of 3323 vehicle movements per month (11 vehicle movements per hour) on the Halton road network for a period of 3 months during construction.

16.7.200 The approach crossings, abutments and the main bridge will be constructed away from the existing highway but the effect of the construction operations on the Halton highway network has taken into account the cumulative effects due to construction at other work areas as a worst case assessment.

16.7.201 Although the existing highway network locally has sufficient capacity to be able to absorb the additional traffic generated by the construction operations at Construction Area D the cumulative effect due to traffic management and phasing of works at Areas A, B and C as well as D will result in additional traffic on the road network near to the Construction Area D. This will cause significant delays to all road users using the Ditton Roundabout, Ashley Way West, Speke Road, Astmoor Road, Central Expressway, Bridgewater Expressway, Daresbury Expressway and the SJB links.

16.7.202 Based on the above analysis the construction activities at Construction Area D will have a Temporary High Magnitude Negative Effect on strategic and local highway network users and bus users.

Pedestrians, Cyclists and Equestrians

16.7.203 The PRoW along the Manchester Ship Canal and the Desire Lines along Wigg Island will be closed for pedestrian and cyclist access whilst construction work is taking place on the approach structure. However, both the PRoW and Desire Lines will not be closed to pedestrians and cyclists at the same time thus enabling diversions to take place between via PRoW and Desire Lines.

16.7.204 Based on the above, it is judged that the construction activities at Construction Area D will have a Temporary High Magnitude Negative Effect on pedestrians and cyclists.

Construction Areas E, F, G and H

16.7.205 The effects of construction and waste disposal activities at Construction Areas E, F, G and H is calculated to result in the addition of a maximum of 583 vehicle movements per week on the Halton road network for a period of 3 months during construction. The construction work at Areas E, F, G and H will be carried out in phases using extensive traffic management measures.

Traffic Management at Construction Area E

16.7.206 During construction work at Area E temporary closures of the Busway along the Astmoor Road stretch and Astmoor Road will be necessary whilst work is carried out on the approach structure piers and deck in the vicinity of Astmoor Road and Busway. Both the Busway and Astmoor Road will not be closed at the same time. This will enable Astmoor Road to be used as a diversion for busway traffic and the Busway to be used as a diversion for Astmoor Road traffic. The closure of the busway will require the siting of temporary bus stops along Astmoor Road and an increase in journey times for buses using the diversion.

Traffic Management at Construction Area F

16.7.207 During the first phase of construction at Area F a contra-flow is planned to be in operation on the existing eastbound carriageway to provide for the two-way traffic flow between the Bridgewater Expressway and Daresbury Expressway whilst construction work is carried out on the New Bridge north abutment, Mersey Gateway eastbound off-slip, part of the circulatory carriageway of the southern section of the new Bridgewater Junction and on two new canal bridges. The slip roads to the north and south will also be constructed offline during this phase.

16.7.208 During phase two, both the eastbound and westbound links between the Daresbury Expressway and Bridgewater Expressway will be removed and traffic diverted via the existing one-way links and the partly constructed Mersey Gateway eastbound off-slip. During this phase work on the abutments and high-level bridges over the Bridgewater Expressway and Bridgewater Canal will be carried out.

16.7.209 During phase three the existing bridge over the Bridgewater Expressway carrying the westbound traffic will be demolished and structural work undertaken on the central section of the junction.

16.7.210 A 20 miles per hour speed limit and traffic management measures using extensive signing, coning and temporary lights (when required) will be implemented in order to provide for safe traffic access to all movements between Daresbury Expressway, Bridgewater Expressway and Central Expressway. The carriageway provision will be downgraded from dual two lanes to a single carriageway for each link. This will result in significant delay to all vehicles using the

junction and will increase the bus journey times for all local and regional (Warrington) routes through the junction.

Traffic Management at Construction Area G

16.7.211 Distributor roads running parallel to the Central Expressway, Lodge Lane Junction and Weston Link Junction will be constructed in Construction Area G. The distributor roads will be constructed offline within the existing highway boundary. Traffic management and a 20 miles per hour speed restriction will be in operation between the Halton Brow Junction to Halton Lea Junction section of the Central Expressway.

16.7.212 The construction of the Lodge Lane junction will be carried out in two phases.

16.7.213 During the first phase the existing the existing link between Weston Link and the Southern Expressway, and the northbound carriageway linking the Southern Expressway with the Central Expressway will be removed. Weston Link to Southern Expressway traffic will be diverted via Halton Lea Interchange and the Southern Expressway northbound traffic will be diverted via a contra-flow with 20 miles per hour speed restriction on traffic on narrow lanes using the southbound carriageway. The first phase will involve the construction of a new southbound link between Central Expressway and Weston Link.

16.7.214 During phase two the new southbound link between the Central Expressway and Weston link will be opened to traffic whilst the old southbound link is demolished and a new southbound link between the Central Expressway and Southern Expressway is constructed. There will be two-way contra flow traffic with a 20 miles per hour speed restriction on the traffic on the Southern Expressway to Central Expressway link during this phase of the work.

Traffic Management at Area H

16.7.215 The remodelling work on the M56 Junction 12 will mostly be carried out off line and without any direct effects to road users. However, a 20 miles per hour speed restriction will be in operation during the duration of the work.

16.7.216 Based on the above, it is judged that the construction activities and traffic management measures at Construction Areas E, F, G and H will have a Temporary High Magnitude Negative Effect on strategic and local highway network users and bus users.

Pedestrians, Cyclists and Equestrians

16.7.217 At Area E the PRoW along Astmoor Road will be closed temporarily during construction of the piers and deck of the approach structure.

16.7.218 At Area F the PRoW (No: 16) along the Bridgewater Canal will be closed during construction of the Astmoor Junction. A diversion to the south side of Bridgewater Canal will use the existing footbridge across Bridgewater Canal situated to the east of Bridgewater Junction to divert the footpath along the southern bank of the canal and join up with PRoW to the south of Bridgewater Junction. (Figure 16.29, Appendix 16.1) The diverted footpath will result in a longer journey for pedestrians.

16.7.219 PRoW access across three footbridges on the Central Expressway will be affected during the works. Three new footbridges will be built prior to the closure and demolition of the old footbridges to minimise the effect on pedestrians and cyclists during construction. A short length of PRoW situated to the east of the new Lodge Lane Junction will be diverted prior to construction.

16.7.220 The existing bridleway along the Weston Point Expressway will be diverted prior to the commencement of work on the Weston Link Junction and therefore minimise the effect on equestrians.

16.7.221 Based on the above, it is judged that the construction activities at Construction Areas E, F, G and H will have a Temporary High Magnitude Negative Effect on pedestrians, cyclists and equestrians.

Construction Area I, SJB and Widnes De-linking

16.7.222 The proposed works in this area will be undertaken after the opening of the Mersey Gateway and will comprise of the activities relating to downgrading the existing SJB from two lanes in each direction to a single lane in each direction.

16.7.223 A tolling plaza will also be constructed on the existing of Queensway. The embankment and viaduct link to the Widnes Eastern Bypass would be removed by excavation and demolition operations. The link to the re-modelled Ditton Junction will be downgraded to comprise just the existing slip road and the existing carriageway and structures between Queensway toll booths and Ditton Junction will be removed.

16.7.224 The effects of construction and waste disposal activities at Area I are predicted to result in the addition of a maximum of 116 vehicle movements on the Halton road network for a period of 6 months during construction.

High***w***ay Traffic, Pedestrians, Cyclists and Equestrians

16.7.225 The construction work at Area I will be carried out after the new Bridge is opened and the SJB will be closed to all vehicular traffic.

16.7.226 Access to this area for construction traffic is predicted to be from Speke Road, Ditton Junction, and the SJB (once the deck reconfiguration work has been completed).

16.7.227 The SJB will be closed to all traffic other than construction traffic during the duration of the works in this area. This would result in. Cross river bus journeys will be subject to an increase in journey times. The effects of the de-linking work all vehicular traffic will therefore result in High Magnitude Temporary Effect with High Negative Significance for strategic and local highway network users and bus users.

16.7.228 River crossing traffic will be diverted via the Bridgewater Expressway and Central Expressway in Runcorn, and Ditton Junction and Widnes Loops Junction in Widnes to the New Bridge.

16.7.229 The existing footway located to the east of the SJB will remain open to pedestrians and cyclists whilst the reconfiguration work is carried out. The footway will be closed when the reconfigured deck is opened to traffic bearing a combined footway and cycleway.

16.7.230 Based on the above, it is judged that the construction activities at Area I will have a Temporary High Magnitude Negative Effect on strategic and local highway network users and bus users.

16.7.231 It is judged that the construction activities at Area I will have a Temporary Low Magnitude Negative Effect on pedestrians, cyclists and equestrians.

Site Operatives Assessment

Construction Areas A, B and C

16.7.232 It is estimated that construction activities at Construction Areas A and B would require 80 operatives and Construction Area C would require 50 operatives. This is calculated to generate a maximum of 3380 vehicle movements per month on the Halton road network for a period of 18 months.

16.7.233 A site compound area will be sited in Area B and access for site operatives will be gained via Ashley Way for Construction Areas B and C and via Ditton Roundabout for Construction Area A.

16.7.234 A proportion of the travel to work trips made by the site operatives will use Speke Road, Ashley Way West, SJB and Ditton Road for trips originating from Liverpool, Warrington, Manchester and Chester areas.

Construction Area D

16.7.235 It is estimated that construction activities at Area D would require 150 operatives. This is calculated to generate a maximum of 3897 vehicle movements per month on the Halton road network for a period of 33 months.

16.7.236 A site compound area will be sited with a frontage to the Manchester Ship Canal and access will be gained via Astmoor Road.

16.7.237 It is assumed that a proportion of the traffic will use Speke Road, Ashley Way West, SJB, Ditton Road, Daresbury Expressway, Central Expressway and Bridgewater Expressway for work based trips originating from Liverpool, Warrington, Manchester and Chester areas.

Construction Areas E, F, G and H

16.7.238 It is estimated that construction activities at Areas E, F, G and H would require 49 operatives for Site E, 40 operatives for Site F, 50 operatives for Site G and 50 operatives for Site H to undertake the construction operations. This would generate a maximum of 4913 vehicle movements per month on the Halton road network for a period of 18 months.

Construction Area I

16.7.239 It is estimated that construction activities at Area I would generate 40 operative to undertake the construction operations. This would generate a maximum of 1040 vehicle movements per month over a period of 8 months.

All Areas

16.7.240 It is assumed that the construction areas will share a site compound with Area D in Runcorn and a proportion of the traffic will use Speke Road, Ashley Way West, SJB, Ditton Road, Daresbury Expressway, Central Expressway and Bridgewater Expressway for work based trips originating from Liverpool, Warrington, Manchester and Chester areas.

16.7.241 Construction workers are likely to arrive and depart outside the normal peak periods, many of them arriving at site early in the morning before the morning peak hour and leaving late after the evening peak hour. Mitigation measures relating to the trips made by site operative are discussed in Section 16.8.

16.7.242 Based on the above, it is judged that the construction work based trips to Construction Areas A, B, C, D, E, F, G and H will have Temporary Low Magnitude Negative Effects on strategic and local highway network users and bus users.

The Construction Assessment Summary

16.7.243 Overall the Construction Phase assessments show that the cumulative effects of additional traffic generated as a result of the construction activities together with the associated traffic management measures due to the phasing of the works will have high significant temporary negative effects at key links and junctions in Runcorn and Widnes.

16.7.244 The traffic generated by the construction activities and the phasing of the works will have moderate significant temporary negative effects on a network key pedestrian and cycle routes and on the rail freight line.

16.7.245 A summary of the effects are tabulated in the Environmental Effect Summary Tables and details of the mitigation measures and residual effects are stated in Sections 16.8 and 16.9 respectively.

Table 16.39: Effect Assessment Table

Effect	Receptor and Importance	Nature of Effect (Permanent / Temporary and Magnitude)	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Areas A, B & C The cumulative effects of traffic generated by construction operations, and waste disposal activities together with traffic management and phasing of the works will result in delays to vehicular traffic.	Strategic Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance
	Local Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance
	Bus User High	Temporary High magnitude Short Term Direct	High Negative Significance
Removal of the PRoW linking Cross Street and Ashley Way with Spike Island and the Trans Pennine Trail and effect of construction works on the cycleway along Ditton Road, Ashley Way and Victoria Road.	Pedestrians High	Permanent High Magnitude Short Term Direct	High Negative Significance
	Cyclists High	Temporary High Magnitude Short Term Direct	High Negative Significance
Stopping up of the PRoW through St Michaels Golf Course and diversion along the western boundary of the golf course to link with the Old Lane PRoW at Ditton Road	Pedestrians High	Permanent Low Magnitude Short Term Direct	Not Significant
Effect on the Freight Line during construction of the Freight Line Bridge will necessitate 10 closures of the Freight Line.	Rail Network User High	Temporary Moderate Magnitude Short Term Direct	Moderate Negative Significance
Area D Traffic generated by construction and waste disposal activities together with the cumulative effects of construction and waste disposal activities at other works areas will result in delays to vehicular traffic.	Strategic Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance
	Local Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance
	Bus User High	Temporary High magnitude Short Term Direct	High Negative Significance
The effect of construction activities on the PRoW along the Manchester Ship Canal and desire lines along Wigg Island will require closures of stretchers of the paths.	Pedestrians High	Temporary High magnitude Short Term Direct	High Negative Significance
	Cyclists High	Temporary High magnitude Short Term Direct	High Negative Significance
Areas E, F, G and H Delays to vehicular traffic as a result of the following: Increase in traffic as a result of construction and waste disposal activity and phasing of the	Strategic Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance
	Local Highway Network User High	Temporary High magnitude	High Negative Significance

Effect	Receptor and Importance	Nature of Effect (Permanent / Temporary and Magnitude)	Significance (High, Moderate, Low and Positive / Negative)
construction work at Astmoor Junction. Construction of distributor roads along the Central Expressway between Halton Brow and Halton Lea. Construction of Western link junction and Weston Point Expressway junction.		Short Term Direct	
	Bus User High	Temporary High magnitude Short Term Direct	High Negative Significance
Effect of the junction remodelling work on the surrounding PRoWs, cycleways and bridleways.	Pedestrians High	Temporary High magnitude Short Term Direct	High Negative Significance
	Cyclists High	Temporary High magnitude Short Term Direct	High Negative Significance
	Equestrians High	Temporary High magnitude Short Term Direct	Not Significant
Areas A to H The effect of the trips made by an estimated 355 site operatives on the road network will result in delays across the network.	Strategic Highway Network User High	Temporary Low magnitude Short Term Direct	Low Negative Significance
	Local Highway Network User High	Temporary Low magnitude Short Term Direct	Low Negative Significance
	Bus User High	Temporary Low magnitude Short Term Direct	Not Significant
	Pedestrians High	Temporary Low magnitude Short Term Direct	Not Significant
	Cyclists High	Temporary Low magnitude Short Term Direct	Not Significant
Area I Closure of the SJB to all vehicular traffic for bridge reconfiguration work after opening of the New Bridge.	Strategic Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance
	Local Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance
	Bus User High	Temporary High magnitude Short Term Direct	High Negative Significance
	Pedestrians High	Temporary Low magnitude Short Term Direct	Low Negative Significance
	Cyclists High	Temporary Low magnitude Short Term Direct	Low Negative Significance
Operational Phase			
Improved journey times and an improved journey ambience for strategic trips.	Strategic Highway Network User High	Permanent High magnitude Direct Long term	High Positive significance

Effect	Receptor and Importance	Nature of Effect (Permanent / Temporary and Magnitude)	Significance (High, Moderate, Low and Positive / Negative)
Improved journey times and an increase in journey ambience for cross-river trips.	Local Highway Network User High	Permanent High magnitude Direct Long term	High Positive significance
No significant change in journey times or journey ambience for non cross-river traffic as a result of MGP.	Local Highway Network User High	Permanent Low magnitude Indirect Long term	Not significant
Improved bus journey times and an increase in journey ambience for cross-river trips.	Bus User High	Permanent High magnitude Direct Long term	Moderate Positive significance
No significant change in bus journey times or journey ambience for non cross-river traffic as a result of MGP.	Bus User High	Permanent Low magnitude Indirect Long term	Not significant
Improved journey ambience and an increase in pedestrian movements for cross-river trips due to dedicated facilities on SJB.	Pedestrian High	Permanent High magnitude Direct Long term	High Positive significance
Overall no significant change in pedestrian movements or access to local facilities for non cross-river trips as a result of MGP, but localised effects at Widnes Loops Junction.	Pedestrian High	Permanent Moderate magnitude Direct Long term	Moderate Negative significance
Improved journey ambience and an increase in cycle movements for cross-river trips due to dedicated facilities on SJB.	Cyclists High	Permanent High magnitude Direct Long term	High Positive significance
Overall no significant change in cycle movements or access to local facilities for non cross-river trips as a result of MGP, but localised effect by Hallwood Park and Widnes Loops junction.	Cyclists High	Permanent Moderate magnitude Direct Long term	Moderate Negative significance
The de-linked SJB will have no equestrian facilities but they may be accommodated in the future.	Equestrians High	Permanent Low magnitude Direct Long term	Not significant
No significant change in equestrian movements for non cross-river trips as a result of MGP but small localised diversions required at Weston Point Expressway junction and near Clifton.	Equestrians High	Permanent Low magnitude Indirect Long term	Low Negative significance

16.8 Mitigation, Compensation, Enhancement and Monitoring

Introduction

16.8.1 This section describes the mitigation measures and enhancement opportunities which are intended to reduce the significance of those effects identified in Section 16.7 and maximise the opportunities presented by the relief of the SJB to enhance transport facilities . The following possible measures have been identified in consultation with Halton Transport and Policy Team.

Construction Mitigation

16.8.2 This section describes the mitigation measures and enhancement opportunities which aim to reduce the significance of those construction effect identified in Section 16.7. It should be noted that, at the outset, a detailed Construction Management Plan will be prepared. This will be drawn up by the Concessionaire through full discussion with Halton Officers, key stakeholders, emergency services and transport operators. The following list, which is not exhaustive, identifies what the CMP will include:

a. Traffic management at key nodes (i.e. Ditton Roundabout);
b. Emergency vehicle routes;
c. Bus routes and stops;
d. Emergency vehicle recovery;
e. Spills;
f. Key contacts;
g. Emergency plans;
h. HGV routes and bans;
i. Worker parking areas and routes;
j. Times of operation (s); and
k. Vehicle washing.

16.8.3 Possible mitigation measures associated with the construction operations at specific construction areas are as follows:

All Construction Areas (Areas A to I)

Strategic and Local Highway Network User and Bus Users

16.8.4 The effectiveness of the traffic management and signing strategy will be monitored regularly and adjustments made to reduce effects to strategic and local highway network user and bus users.

16.8.5 An advanced extensive publicity campaign will also be used to notify strategic and local highway network users of the roadworks in advance of the works.

Abnormal Loads

16.8.6 The routing of all abnormal loads will be agreed with the Police and the Council.

Site Deliveries

16.8.7 All site deliveries will be co-ordinated to ensure that they occur at off-peak periods.

Site Operatives Travel to Work Trips

16.8.8 A workplace travel plan, specific to construction operatives, will be in operation throughout the construction period. Measures to reduce single occupancy car trips to the work sites will be implemented including public transport initiates, measures to encourage car sharing and provision of bus services to the sites. Shift working may be adopted for some operations, such as concrete pours, and will be in accordance with the Working Time Directive regulations and will serve to distribute travel patterns over a working day.

Areas A, B and C

Freight Line

16.8.9 The 10 track possessions required during the construction of the Freight Line Bridge at Construction Area C will be during quiet times (nights or weekends) and will therefore minimise the effect on rail freight.

Pedestrians and Cyclists

16.8.10 Construction and traffic management operations will effect on the cycleway at Ditton Roundabout and Victoria Road cycleways when constructing the Ditton Junction to Freight Line section of the Project.

16.8.11 Traffic management measures and phasing of the construction works that are implemented during construction will take into account the requirements (road widths and signing) needs of cyclists.

16.8.12 The PRoW access that links Ashley Way/Alford Street via the subway underneath the Widnes Eastern Bypass with Spike Island, St Helens Canal and the Trans Pennine Trail will be stopped up to enable the construction of the embankments and bridge structures along the Freight Line to St Helens Canal stretch of the works. An alternative PRoW route through the planned regeneration area near the Catalyst Industrial Park linking Victoria Road to Ashley way will be provided as part of the competed scheme.

Area D

Pedestrians and Cyclists

16.8.13 The construction activities will cause the temporary closures of the PRoW along the Manchester Ship Canal and Desire Lines along Wigg Island.

16.8.14 The effects will be mitigated by employing a staged approach to divert the PRoW using the Manchester Ship Canal or Desire Lines along Wigg Island.

Areas E, F, G and H

Pedestrians and Cyclists

16.8.15 It is likely that the PRoW access along Bridgewater Canal may be closed during the piling and bridge building operations for safety reasons when constructing the Bridgewater Junction in Runcorn.

16.8.16 The PRoW will be diverted via the Canal Bridge to the east of the Bridgewater junction along the south side of the canal to join the PRoW on the south side of the Bridgewater junction.

16.8.17 The existing PRoW accesses across the A533 Central Expressway linking Halton Lea with Halton Lodge are provided via three grade separated footbridges. New footbridges will be provided to footway/cycleway standards as part of the Lodge Lane Junction and A533 Central Expressway improvement work.

16.8.18 The new footbridges will be constructed offline as part of the mitigation work and PRoW will be diverted onto the new footbridges prior to the demolition of the existing footbridges.

16.8.19 Construction traffic and operations when constructing the Weston Point Junction will affect the existing bridleway running along the highway boundary by A557 Weston Point Expressway.

16.8.20 The effect will be mitigated by the provision of a diverted bridleway at Weston Link junction and M56 junction prior to commencing the construction operations.

Area I

16.8.21 Construction activities relating to the reconfiguration work on the SJB and Widnes de-linking will have an important effect on car, bus HGV, pedestrian and cyclist users of the SJB.

16.8.22 The existing footpath/cycleway across the SJB will be kept open during the reconfiguration work.

16.8.23 Car bus and HGV traffic will be diverted onto the New Bridge when the carriageway reconfiguration work is taking place. An extensive advanced publicity campaign will be used to notify vehicle users of the bridge closure and of the diversion route to minimise delay.

Operational Mitigation

Pedestrians and Cyclists

Speke Road Toll Plaza, Widnes

16.8.24 Old Lane Path links Ditton Road and Lower House residential area across the closed (due to contamination) municipal golf course. The path which runs under Speke Road via a subway is now also closed. Figure 16.28 (Appendix 16.1) outlines a proposed route to the west, along the edge of the golf course and under Speke Road via a subway near to St Michael's Road.

Widnes Loops Junction, Widnes

16.8.25 The existing Public Rights of Way (PRoW) between Croft Street and The Trans-Pennine Trail (TPT) and National Cycle Network 62 (NCN 62), and the PRoW between Ashley Way and the TPT and NCN 62 will be unable to remain due to the design of the proposed Widnes Loops Junction. This is considered a significant route which has been identified by HBC to be upgraded to a cycleway.

16.8.26 A proposed alternative route linking Ashley Way to the TPT/NCN 62 will run to the east of the revised junction, replacing the lost PRoW. A second new link will be created from Croft Street to the west of the junction, linking into Victoria Street which has been identified for regeneration, diverting to the south of the junction to link with the TPT/NCN62. This route is shown in Figure 16.30 'PRoW Diversions Widnes Loops' (Appendix 16.1) and aims to replace the closed PRoW, therefore resulting in no loss of access.

Lodge Lane Junction, Runcorn

16.8.27 The proposed diversion of Hallwood Park cycleway near the junction between the Central Expressway and the Southern Expressway is shown in Figure 16.31 'PRoW Diversions Lodge Lane Junction' (Appendix 16.1).

16.8.28 It will also be necessary to extend the existing foot/cycle bridge to cross over the off-slip road as well as the main carriageway to ensure that cycle movements are not affected by any possible increase in traffic flows on the Central Expressway off-slip.

Pedestrians, Cyclists and Equestrians

Weston Link Junction, Runcorn

16.8.29 A small diversion, identified in Figure 16.32 (Appendix 16.1), along this Bridleway will be required both during the construction phase, and once the new infrastructure is in place.

M56 Junction12 (North), Runcorn

16.8.30 The bridleway near Clifton will be retained following a slight diversion. Figure 16.33 (Appendix 16.1) shows the proposed diversion on the bridleway.

Mitigation Summary

16.8.31 All existing PRoW, Footways, Cycleways and Bridleways will be retained, subject to minor diversions with minimal effect.

16.8.32 The Old Lane Path through the closed Municipal Golf Course will be diverted based on Halton Council requirements, and this would contribute an enhancement to the existing situation.

Enhancements

16.8.33 Three of the projects' strategic objectives relate to improving accessibility, improving public transport links across the river (Mersey) and encouraging increased walking and cycling. Halton's UDP (Ref 17) policy S14 states 'A scheme for the crossing of the River Mersey east of the SJB will be promoted to relieve congestion on the existing bridge as part of an integrated transport system for Halton and the wider regional transport network.'

16.8.34 As part of the development of that Integrated transport system Halton commissioned a Mersey Gateway Sustainable Transport Study (Ref 25) which initially investigated public transport options with the results reported in 2007. The key objective of this first phase of investigation was to identify and assess public transport options which would be likely to be commercially viable and practically affordable and which would also be complementary to, and be supported by the Mersey Gateway Project as a whole.

16.8.35 In summary, the report recommended that a bus based transit system, utilising new as well as existing infrastructure and facilities would be the most achievable and affordable way forward and enable step change improvements to be delivered in the short to medium term. The report recognised that the development of a fixed track transit system such as LRT should not however be precluded in the in the long term when the critical mass and overall demand for public transport arising from an integrated, sustainable transport strategy at local, national and regional level will be higher. The Mersey Gateway scheme now includes passive provision for LRT infrastructure to be provided in the future, supported by the potential for a lower deck to the constructed in the New Bridge providing for access and egress through the bridge abutments.

16.8.36 The Mersey Gateway Sustainable Transport Study (Appendix 16.4) has progressed to more detailed consideration of alternative interventions that will deliver the required improvements to bus services, and cycling and walking facilities. The Study is on-going and is based soundly on the relief of SJB and the Mersey Gateway Regeneration Strategy (Ref 26). A series of focused public consultations and group interviews have been undertaken to understand the views of Halton's residents on public transport in Halton now and in the future with the Mersey Gateway Project. The consultations and interviews are currently being analysed.

16.8.37 The Sustainable Transport Study (Appendix 16.4) is aimed at delivering service improvements in 2015. As such there is a long lead time to put in place the delivery process. A series of draft strategy elements have been developed from which specific proposals will emerge and be evaluated. These will be developed, tested against the consultation responses and prioritised but they provide a clear statement of Halton's intent to maximise the opportunities provided by the project to improve integrated and sustainable transport. The following strategy elements are considered in greater detail at Appendix 16.4:

a. Creation of a Sustainable Transport Corridor across the Silver Jubilee Bridge;
b. Connections between SJB and Widnes and Runcorn Centres;
c. Creation of a Halton Transit Network;
d. Quality Partnership or Contracts;

e. High Frequency Strategic Bus Corridor for Local Services;
f. Design and Access Specifications for Interchange Hubs;
g. Enhancement of the Local Distributor Bus Network;
h. Door to Door Service;
i. Halton Hopper upgrade;
j. Non Local Buses;
k. Regeneration of the Runcorn Busway;
l. Expansion of the Real Time Information for Public Transport;
m. Generating Ownership by the community in the busway;
n. Community Stop Initiative for the Runcorn Busway;
o. Raising the Visibility of Bus Services in Employment/Regeneration Areas;
p. Bus to Rail Interchange;
q. Taxis Facilities at all Interchange Hubs; and
r. Cycling and Walking Core Network.

16.8.38 The above options have considerable potential to increase travel choices and to reduce the impact of tolls for local trips. In addition, around thirty percent of Halton residents do not have access to a car or van. Many of these are in deprived social and economic groups. Although tolling the Mersey Gateway will not itself have a direct impact on travel options for the non-car ownership group, any benefits in sustainable transport access will extend to this large group.

16.8.39 Mersey Gateway presents a step change in the prospects for delivering sustainable transport options for Halton residents. The proposed concession arrangements include provisions for The Council to share in the toll revenue, where the revenue passed to the Council could be used to support toll discount schemes and would also provide funding for the preferred sustainable transport programme.

Monitoring Requirements

The Process of Monitoring and Review

16.8.40 Monitoring and review of the effects of the Project should take place at both the construction and operational phases. Baselines should be established by Halton Council in terms of both the operational and environmental effects appraised and a programme of monitoring of these effects established. As well as effects, the applicability and success of any mitigation measure should also be reviewed.

Scope of Monitoring

16.8.41 During the construction period the efficiency of mitigation measures, including diversion of traffic, pedestrian, cycle and equestrian paths will be assessed.

16.8.42 With regard to the operational phase a baseline will be established before commencement of construction and should include the following, based on the predicted operational and environmental effects defined in this report.

a. Junction and link operations within the area of influence on the Project within Halton;
b. Journey times for cars, HGVs and buses;
c. Accident rates on the SJB;
d. Pedestrian counts across the SJB and on routes potentially affected by the Project (such as the Trans Pennine Trail);
e. Cycle counts across the SJB and on cycle routes potentially affected by the Project; and
f. Equestrian counts on bridleways in areas potentially affected by the Project.

Evaluation of Predicted Effects

16.8.43 The monitoring and review process will determine if the previous evaluation of effects remain valid.

16.8.44 In the event that Effects are not as predicted the reasons for the divergences will be established and remedial action identified by Halton Council.

Continual Assessment

16.8.45 The monitoring and review regime established should become part of the overall monitoring regime of Halton's transport system and permit the continual monitoring of the Mersey Gateway as an essential and key element of Halton's transport infrastructure and Local Transport Plan (Ref 18).

16.9 Residual Effects

16.9.1 Mitigation measures can assist in removing or reducing an effect. However it may not always be possible to remove the effect completely, or in some circumstances mitigation of some effects may not be possible at all.

16.9.2 Assuming that all the mitigation measures have been carried out as suggested above, the expected residual effects are outlined below.

Construction Phase Residual Effects

Strategic and Local Highway Network Users and Bus Users

16.9.3 The residual effects relating to the traffic generation due to construction works and traffic management measures will require the effectiveness of the traffic management measures at Areas A to I to be monitored during construction of the New Bridge and the SJB de-linking work.

Pedestrians, Cyclists and Equestrians

a. The diverted PRoWs linking Croft Street and Ashley Way with Spike Island will need to be diverted with minimum of delay to users, but a Moderate Negative Significant Effect will remain;
b. The temporary diversion of the PRoWs along the Manchester Ship Canal and Desire Lines along Wigg Island are to be carried out with minimum delay during construction; with an estimated Moderate Negative Residual Effect; and
c. Temporary diversion of the PRoW Bridgewater Canal to be provided during the work with an estimated remaining Moderate Negative Residual Effect.

Operational Residual Effects

16.9.4 No mitigation measures have been proposed for car users, bus users or HGVs, therefore no residual effects have been identified for these users groups.

Pedestrians and Cyclists

Speke Road Toll Plaza

16.9.5 Although access along Old Lane Path is unlikely to be maintained, a number of alternative routes have been proposed which will retain existing access. These routes are also likely to benefit from improve footway and safety standard. Therefore no change is predicted to the potential effect assessment in Section 16.7.

Widnes Loops Junction

16.9.6 Access between Croft Street to the TPT and NCN 62 may be permanently lost due to the infrastructure of the Widnes Loops Junction. a proposed alternative route linking Ashley Way to the TPT and NCN 62 will run to the east of the revised junction, replacing the lost PROW. A second new link will be created from Croft Street to the west of the junction, linking into Victoria Street, diverting to the south of the junction to link with the TPT/NCN 62. This route aims to replace the closed PRoW therefore resulting in no loss of access.

Lodge Lane Junction

16.9.7 A minor diversion on Hallwood Park cycleway near the junction between the Central Expressway and the Southern Expressway will ensure that all existing access is maintained.

16.9.8 The existing foot/cycle bridge may also be extended to cross the off-clip road as well as the main carriageway, therefore increasing the safety of cyclists using this route.

16.9.9 Overall there are no residual effects resulting from these mitigation measures.

Pedestrians, Cyclists and Equestrians

Weston Point Expressway Junction

16.9.10 A small diversion along this Bridleway will ensure that existing access is maintained, therefore there are no residual effects from mitigation.

M56 Junction 12 (North)

16.9.11 Again, a small diversion on the bridleway near Clifton will ensure that access is maintained, therefore there are no residual effects from mitigation measures.

Table 16.40 - Mitigation and Residual Assessment Table

Effect	Receptor and Importance	Nature of Effect (Permanent / Temporary and Magnitude)	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Areas A, B & C The cumulative effects of traffic generated by construction operations, and waste disposal activities together with traffic management and phasing of the works will result in delays to vehicular traffic.	Strategic Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance	The effectiveness of the traffic management and signing strategy will be monitored regularly and adjustments made to reduce the effect on vehicle users. An extensive publicity campaign will give users advance warning of the road works.	Moderate Negative Significance.
	Local Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance		
	Bus User High	Temporary High magnitude Short Term Direct	High Negative Significance		
Removal of the PRoW linking Cross Street and Ashley Way with Spike Island and the Trans Pennine Trail and effect of construction works on the cycleway along Ditton Road, Ashley Way and Victoria Road.	Pedestrians High	Permanent High Magnitude Short Term Direct	High Negative Significance	The works are to be carried out in phases with the diverted PRoWs planned with minimum additional journey lengths.	Moderate Negative Significance.
	Cyclists High	Temporary High Magnitude Short Term Direct	High Negative Significance	Traffic management and phasing of the works to take into account the requirements for cyclists (road widths and signing).	Moderate Negative Significance.
Stopping up of the PRoW through St Michaels Golf Course and diversion along the western boundary of the golf course to link with the Old Lane PRoW at Ditton Road	Pedestrians High	Permanent Low Magnitude Short Term Direct	Not Significant		
Effect on the Freight Line during construction of the Freight Line Bridge will necessitate 10 closures of the Freight Line.	Rail Network User High	Temporary Moderate Magnitude Short Term Direct	Moderate Negative Significance	The closures will be during quiet periods (weekends/night-time) on the Freight Line.	Low Negative Significance.
Area D Traffic generated by construction and waste disposal activities together with the cumulative	Strategic Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance	The effectiveness of the traffic management, phasing and signing strategy will be monitored and adjusted to	Moderate Negative Significance.

Effect	**Receptor and Importance**	**Nature of Effect** (Permanent / Temporary and Magnitude)	**Significance** (High, Moderate, Low and Positive / Negative)	**Mitigation & Enhancement Measures**	**Residual Significance** (High, Moderate, Low and Positive / Negative)
effects of construction and waste disposal activities at other works areas will result in delays to vehicular traffic.	Local Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance	reduce delays to vehicular traffic. An extensive publicity campaign will give users advance warning of the road works.	
	Bus User High	Temporary High magnitude Short Term Direct	High Negative Significance		
The effect of construction activities on the PRoW along the Manchester Ship Canal and desire lines along Wigg Island will require closures of stretchers of the paths.	Pedestrians High	Temporary High magnitude Short Term Direct	High Negative Significance	Construction activities to be staggered and carried out in two phases. During the first phase the PRoW can be diverted via desire lines along Wigg Island and in phase two the desire lines can be diverted via the Manchester Ship Canal.	Moderate Negative Significance.
	Cyclists High	Temporary High magnitude Short Term Direct	High Negative Significance		
Areas E, F, G and H Delays to vehicular traffic as a result of the following: Increase in traffic as a result of construction and waste disposal activity and phasing of the construction work at Astmoor Junction. Construction of distributor roads along the Central Expressway between Halton Brow and Halton Lea. Construction of Western link junction and Weston Point Expressway junction.	Strategic Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance	The traffic management and phasing of works employed at Astmoor junction, Weston link junction, Weston Point junction, M56 junction 12 and the Central Expressway distributor road works will be monitored and the phasing and traffic management adjusted to reduce delays to vehicular traffic. The Astmoor Road diversion will be via Daresbury Expressway and Bridgewater Expressway. The length of the diversion will be dept to a minimum and closures carried out during quiet periods (weekends, night-time) to reduce overall effect. An extensive publicity campaign will give users advanced warning of the road works.	Moderate Negative Significance.
	Local Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance		
	Bus User High	Temporary High magnitude Short Term Direct	High Negative Significance		

Effect	**Receptor and Importance**	**Nature of Effect** (Permanent / Temporary and Magnitude)	**Significance** (High, Moderate, Low and Positive / Negative)	**Mitigation & Enhancement Measures**	**Residual Significance** (High, Moderate, Low and Positive / Negative)
Effect of the junction remodelling work on the surrounding PRoWs, cycleways and bridleways.	Pedestrians High	Temporary High magnitude Short Term Direct	High Negative Significance	The Astmoor Road and footpath closure to be carried out during quiet periods (weekend, night-time) to minimise effect to pedestrians and cyclists.	Moderate Negative Effect
	Cyclists High	Temporary High magnitude Short Term Direct	High Negative Significance		Moderate Negative Effect
	Equestrians High	Temporary High magnitude Short Term Direct	Not Significant		
Areas A to H The effect of the trips made by an estimated 355 site operatives on the road network will result in delays across the network.	Strategic Highway Network User High	Temporary Low magnitude Short Term Direct	Low Negative Significance	A workplace travel plan will be in operation for each work area with the aim of reducing car based travel to site journeys.	No Residual Significance
	Local Highway Network User High	Temporary Low magnitude Short Term Direct	Low Negative Significance	A workplace travel plan will be in operation for each work area with the aim of reducing car based travel to site journeys.	No Residual Significance
	Bus User High	Temporary Low magnitude Short Term Direct	Not Significant		
	Pedestrians High	Temporary Low magnitude Short Term Direct	Not Significant		
	Cyclists High	Temporary Low magnitude Short Term Direct	Not Significant		
Area I Closure of the SJB to all vehicular traffic for bridge reconfiguration work after opening of the New Bridge.	Strategic Highway Network User High	Temporary High magnitude Short Term Direct	High Negative Significance	Diversions via the New Bridge will be maintained and advance signing used to route traffic onto the New Bridge. An extensive publicity campaign will give advanced warning of	Moderate Negative Significance.
	Local Highway Network User High	Temporary High magnitude Short Term	High Negative Significance		

Effect	**Receptor and Importance**	**Nature of Effect** (Permanent / Temporary and Magnitude)	**Significance** (High, Moderate, Low and Positive / Negative)	**Mitigation & Enhancement Measures**	**Residual Significance** (High, Moderate, Low and Positive / Negative)
		Direct		the road works.	
	Bus User High	Temporary High magnitude Short Term Direct	High Negative Significance		
	Pedestrians High	Temporary Low magnitude Short Term Direct	Low Negative Significance	The footway/cycleway bridge to the east of the SJB will be kept open during the reconfiguration works.	No Residual Significance
	Cyclists High	Temporary Low magnitude Short Term Direct	Low Negative Significance		
Operational Phase					
Improved journey times and an improved journey ambience for strategic trips.	Strategic Highway Network User High	Permanent High magnitude Direct Long term	High Positive significance		
Improved journey times and an increase in journey ambience for cross-river trips.	Local Highway Network User High	Permanent High magnitude Direct Long term	High Positive significance		
No significant change in journey times or journey ambience for non cross-river traffic as a result of MGP.	Local Highway Network User High	Permanent Low magnitude Indirect Long term	Not significant		
Improved bus journey times and an increase in journey ambience for cross-river trips.	Bus User High	Permanent High magnitude Direct Long term	Moderate Positive significance	Enhanced bus journey facilities following SJB de-linking.	High positive
No significant change in bus journey times or journey ambience for non cross-river traffic as a result of MGP.	Bus User High	Permanent Low magnitude Indirect Long term	Not significant	Supports implementation of Halton wide Sustainable Transport Strategy enhancement.	High positive

Effect	**Receptor and Importance**	**Nature of Effect** (Permanent / Temporary and Magnitude)	**Significance** (High, Moderate, Low and Positive / Negative)	**Mitigation & Enhancement Measures**	**Residual Significance** (High, Moderate, Low and Positive / Negative)
Improved journey ambience and an increase in pedestrian movements for cross-river trips due to dedicated facilities on SJB.	Pedestrian High	Permanent High magnitude Direct Long term	High Positive significance		
Overall no significant change in pedestrian movements or access to local facilities for non cross-river trips as a result of MGP, but localised effects at Widnes Loops Junction.	Pedestrian High	Permanent Low magnitude Direct Long term	Low Negative significance	3 PRoW may be affected by construction of Speke Road Toll Plaza (St Michael's Golf Course) and Widnes Loops Junctions. Alternative routes will maintain access. Supports implementation of Halton wide Sustainable Transport Strategy enhancement.	Moderate Positive Significance
Improved journey ambience and an increase in cycle movements for cross-river trips due to dedicated facilities on SJB.	Cyclists High	Permanent High magnitude Direct Long term	High Positive significance		
Overall no significant change in cycle movements or access to local facilities for non cross-river trips as a result of MGP, but localised effect by Hallwood Park and Widnes Loops junction.	Cyclists High	Permanent Low magnitude Direct Long term	Low Negative significance	Proposed diversion of Hallwood Park cycleway near the junction between the Central Expressway and the Southern Expressway due to Lodge Lane Junction infrastructure. Supports implementation of Halton wide Sustainable Transport Strategy enhancement.	Moderate Positive Significance
The de-linked SJB will have no equestrian facilities but they may be accommodated in the future.	Equestrians High	Permanent Low magnitude Direct Long term	Not significant		
No significant change in equestrian movements for non cross-river trips as a result of MGP but small localised diversions required at Weston Point Expressway junction and near Clifton.	Equestrians High	Permanent Low magnitude Indirect Long term	Not significant		

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