

THE MERSEY GATEWAY PROJECT

DELIVERY PHASE

CUMULATIVE EFFECTS ASSESSMENT

CHAPTER 21.0

CUMULATIVE EFFECTS ASSESSMENT

CONTENTS

21. CUMULATIVE EFFECTS ASSESSMENT	21.3
21.1 Introduction	21.3
21.2 Approach.....	21.3
21.3 Study Area	21.4
21.4 Methodology	21.4
21.5 Mitigation.....	21.19
21.6 Conclusions	21.19
21.7 References.....	21.30

APPENDICES

Appendix 21.1	Cumulative Effect Assessment Developments
Appendix 21.2	Detail of Assessed Developments
Appendix 21.3-13	VEC Cumulative Effect Analysis Tables
Appendix 21.14	Cumulative Effect Assessment Developments – Further Applications ES
Appendix 21.15	Detail of Assessed Developments – Further Applications ES.

21. CUMULATIVE EFFECTS ASSESSMENT

21.1 Introduction

21.1.1 Schedule 4 Part I of the Town and Country Planning (Environmental Impact Assessment) Regulations ~~1999~~ 2011 (Ref. 64) requires that all significant environmental effects be taken into consideration, including cumulative effects. This Cumulative Effects Assessment (CEA) fulfils that requirement.

21.1.2 The Proposals comprised in the Further Applications affect the Project specifically as follows:

- a. Adoption of Open Road Tolling Technology from opening, as opposed to the barrier tolling authorised by the Permissions and Orders;
- b. Redesign of the on- and off-slips at the formerly proposed Widnes Loops Junction to remove the loops configuration from the proposals and provide a grade separated roundabout junction;
- c. Changes to the vertical alignment of the mainline of the Project as a result of other design changes;
- d. Adjustments to the alignment at Lodge Lane Junction to remove the need to replace the existing busway bridge; and
- e. Adoption of urban highway standards in some locations where rural standards had been used.

21.1.3 The EIA directive and regulations do not define “cumulative effects”. The Cumulative Effects Assessment Practitioners Guide (Ref. 2) defines what constitutes cumulative effects as “changes to the environment that are caused by an action in combination with other past, present and future human actions. A CEA is an assessment of those effects”. In this CEA the combined effects of different developments within the vicinity of the Mersey Gateway Project are considered. Cumulative effects occur when effects from individual projects have an additive effect to result in an effect which is greater than the individual residual impact of each development when considered in isolation. This effect may be positive or negative.

21.1.4 This Chapter provides an assessment of the environmental effects of the Project [including the Proposals](#) in synergy with the environmental effects from other projects planned within the CEA Study Area. Because “*cumulative effects can result from individually minor but collectively significant actions taking place over a period of time*” (Ref. 3), all significant residual effects from the Project [including the Proposals](#) will be addressed, not just those of high significance.

21.2 Approach

21.2.1 There is no standard methodology in the UK for CEA as part of an EIA and there are no specific requirements in the legislation as to how cumulative effects should be addressed. The EIA Directive, Schedule 4 Part I of the Town and Country Planning (Environmental Impact Assessment) (~~England and Wales~~) Regulations ~~1999 and Amendment 2005~~ 2011 (Ref. 6.) do not specify a methodology for the assessment.

21.2.2 However, there are various publications suggesting how a CEA should be approached. This [assessment was therefore informed by the following published guidance](#):

- a. [Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions \(European Commission 1999\) \(Ref. 4\);](#)
- b. [Cumulative Effects Assessment Practitioners Guide \(Canadian Environmental Assessment Agency 1999\) \(Ref. 2\); and](#)
- c. [Environmental Impact Assessment: A guide to good practice and procedures, A Consultation Paper \(Department for Communities and Local Government 2006\) \(Ref. 5\).](#)

21.2.3 Aspects of the environment that are considered important for inclusion in a CEA may be termed Valued Ecosystem Components (VECs). It is these VECs that are then assessed for the potential to be subjected to cumulative effects. In this case the VECs are defined as the individual discipline chapters that make up the [Further Applications ES](#) (i.e. Chapters 8 to 20: Surface Water Quality, Land Use, Terrestrial and Avian Ecology, Aquatic Ecology, Landscape and Visual Amenity, Cultural Heritage, Contamination of Soils, Sediments and Groundwater, Waste and Materials, Transportation, Noise and Vibration, Navigation, Local Air Quality, and Socio-Economic). Hydrology is not considered in terms of a VEC because it is treated as a pathway and not a receptor in this ES.

21.2.4 There have been no changes to published guidelines on the approach to be taken to the execution of CEA as part of the EIA process. Moreover, the Inspector's Report following the public inquiry which examined the [Orders ES](#) in 2009 did not make specific comment concerning the approach to the CEA. Consequently, the methodology applied to the update of this chapter for the [Further Applications ES](#) is the same as that applied for the [Orders ES](#). Inputs to the CEA, such as details of other projects within the study area which may affect VEC's have been reviewed and updated as appropriate for this [Further Applications ES](#), and these updates are presented in this chapter and it's supporting Appendices.

21.3 Study Area

21.3.1 To ensure all other projects were examined that could potentially have a cumulative effect with the Project [including the Proposals](#) the geographical boundary for obtaining project data was determined by the VEC with the largest geographical study area, which was Transportation. The Study Area for Transportation extended as far, or further in all directions than the study areas of all other VECs. The Study Area for this CEA is therefore the Study Area for Transportation. For details of the geographical area considered see Chapter 16: Transportation. As a result of this approach it is considered that all relevant projects have been considered, including those not in proximity to the Project [including the Proposals](#), but which are linked to the Project [including the Proposals](#) by some other association, such as a water body. [The geographical limits of the study area have been maintained for the Further Applications ES and all relevant developments within this study area have been considered \(paragraph 21.4.4 explains how information on relevant developments has been obtained for the Further Applications ES\).](#)

21.4 Methodology

Collection of baseline data on other proposed developments

21.4.1 The Transportation Assessment (Chapter 16) for the Project [including the Proposals](#) required information on future developments in order to model future traffic flows. In order to rationalise which planning applications should be included in the CEA, and, to ensure consistency with the [TA Transportation Assessment](#) and the other environmental disciplines that relied upon data contained within the [TA Transportation Assessment](#) for their assessments, it was decided that the proposed developments included as part of the [TA Transportation Assessment](#) would be used, in combination with the Project [including the Proposals](#), to assess cumulative effects. This is explained in the Traffic Forecasting Report that accompanies the Transport Chapter of this [Further Applications ES](#). [The Transportation Assessment chapter of the Further Applications ES \(chapter 16\) has been updated to reflect changes to traffic growth forecasts and other variables \(including revised central, regional and local planning policies\) that have come about since the Orders ES was prepared. However, detailed re-modelling of traffic flows has not been undertaken as part of this update and this has influenced the way information on future developments in the CEA VEC has been collated for the Further Applications ES. Further detail is provided in paragraph 21.4.5.](#)

- 21.4.2 Those who undertook the transport modelling which informed the ~~TA~~ [Transport Assessment as presented in the Orders ES](#), consulted the following local authorities in order to gather information on proposed developments:
- a. ~~Cheshire County Council~~ [Cheshire East Borough Council \(at the time of the Orders ES, Cheshire County Council\);](#)
 - b. [Cheshire West and Chester Council \(at the time of the Orders ES, Cheshire County Council\);](#)
 - c. [Halton Borough Council;](#)
 - d. [Knowsley Metropolitan Borough Council;](#)
 - e. [Liverpool City Council;](#)
 - f. [St Helens Metropolitan Borough Council;](#)
 - g. [Sefton Metropolitan Borough Council;](#)
 - h. [Warrington Borough Council;](#) and
 - i. [Wirral Borough Council.](#)
- 21.4.3 The following regional bodies were ~~also consulted in order~~ [as part of the Orders ES](#) to verify the information:
- a. [North West Regional Assembly;](#)
 - b. [Highways Agency;](#)
 - c. [Government Office North West;](#) and
 - d. [North West Development Agency.](#)
- 21.4.4 ~~Meetings~~ [For the Orders ES, meetings](#) were held with each of the authorities listed to ascertain what projects they were aware of in their areas. Further meetings then took place with individual planning and transport departments, singly or together, to gather fuller information on all projects. [Further meetings have not taken place with the regional bodies to inform this update to the CEA. The local planning authorities listed above have each been approached by GVA \(the planning consultant for the Further Applications\) to provide updated lists of relevant planning applications within the CEA study area to inform this update.](#)
- 21.4.5 [The reduced scope of the consultations undertaken as part of the Further Applications ES is justified because at the time of the Orders ES, information on the scale and regional distribution of other developments that were material to the traffic modelling undertaken as part of the Orders ES that was being assembled for the first time. As part of that process, it was necessary to agree with all stakeholders suitable thresholds of size and type of planning application to inform the road traffic modelling process. That process was completed when the Orders ES was published and the overall scope of the traffic modelling has not been altered for the Further Applications ES. Therefore, information on fresh planning applications material to the cumulative effects assessment has been gathered as part of this update by GVA using the same screening criteria \(see paragraph 21.4.8 below\) applied to the Orders ES, but without the input of wider consultations with regional bodies.](#)
- 21.4.6 [The list of planning applications considered in the Further Applications ES supersedes that presented and assessed in the Orders ES. It will be seen that some developments are present on both lists but this is not an error. Typically these are larger, more complex developments that, for numerous reasons, might have been withdrawn and re-submitted, modified or delayed during the course of the planning application and consultation process and have therefore remained 'live' over the three year period since the Orders ES was submitted. The number of applications is significantly lower than that compiled for the Orders ES and this reflects the number of planning applications that are extant and of relevance at the time of the Further Applications ES.](#)

- 21.4.7 There are a large number of planning applications made to local authorities in the Study Area each month. The majority of planning applications are very small, such as a house extension or change of use of a house to multiple flats, and significant environmental effects are extremely unlikely to result. It was therefore considered unnecessary to assess the effects of every planning application made within the Study Area, and this approach has been maintained for the Further Applications ES.
- 21.4.8 For the TA Transport Assessment, in general, residential developments of fewer than 50 units were not considered significant on an individual basis as the overall traffic growth model could reflect these relatively small-scale developments. For non-residential development or redevelopment no cut-off was applied as all of these sites may be considered significant in relation to traffic. Simple 'change of use' planning applications were also not considered. This selection of developments was also used in this CEA. Hereafter these developments will be referred to as the proposed developments.
- 21.4.9 The development information was used to generate a map showing the location of future proposed developments (Appendix 21.1) considered in the Orders ES. Details of these developments are summarised in Appendix 21.2. Appendix 21.14 shows the developments considered as part of the Further Applications ES and Appendix 21.15 summarises them.

Assessment Method

- 21.4.10 Significant effects have been identified throughout the EIA process following a series of technical assessments within Chapters 7 to 20, and are described in greater detail in these chapters. Mitigation measures will be implemented to reduce the significance of effects resulting from the Project including the Proposals, in some cases the effect may become insignificant and need not be considered further.
- 21.4.11 The remaining significant effects are termed the residual effects. It is only these residual effects which could result in cumulative effects when considered alongside effects from other developments. Therefore, only residual effects are discussed in this assessment and are considered to be the starting point of the assessment.
- 21.4.12 Using the geographical location of the developments in relation to the Project including the Proposals and its associated residual effects, screening was undertaken to establish the possibility of cumulative effects occurring for each VEC. Proposed developments for which completion was recorded as "Most likely" for ~~2015~~ 2017 were considered to have the potential for construction phase and operational phase effects with the Project including the Proposals, due for completion ~~2015~~ 2017. Those projects for which completion was recorded as "Most likely" for ~~2030~~ 2032 were only considered to have potential for operational phase cumulative effects. Professional judgement and expertise was used to screen the proposed developments, establishing those that have the potential to produce cumulative effects. A matrix was produced, and where the potential for a cumulative effect was identified, those proposed developments, and the corresponding residual effects, were considered in more detail in the analysis of the VEC. The screening process adopted for the Further Applications ES is exactly the same as that described above, with the exception that the completion years and 15 year design horizon have now been amended to 2017 and 2032 respectively which is why the above years have been modified.
- 21.4.13 The precise approach taken for detailed assessment varied for each VEC. This was necessary due to the varied nature of the VECs. For each VEC expert judgement was sought from the author of the relevant chapter as to how to approach the cumulative assessment.

- 21.4.14 Where screening had established the need to look at individual developments in more detail, the available information on those developments was reviewed. All residual environmental effects identified throughout the EIA for the Project [including the Proposals](#) were examined individually to determine the possibility of a cumulative effect occurring. In instances where significant effects were identified, or in which the relationship between the predicted cumulative effects were unclear, the author of the relevant chapter was consulted, in order to determine the most informed level of significance. The same principles were used to assign significance as were used in the relevant Chapter. Significance is therefore based on the magnitude of that effect and the importance of the receptor.
- 21.4.15 The assessment is recorded in tables of analysis in Appendices 21.3-21.14. These summarise all the residual effects associated with the construction and operation of the Project [including the Proposals](#), as taken from the individual VEC chapters. Residual effects are divided into those that are anticipated to occur during the construction phase and those which are anticipated to occur during the operational phase of the Project [including the Proposals](#). Three columns evaluate the cumulative effect of each residual effect. These state what the effect is, the nature and significance of the effect, and a brief explanation of how this conclusion was reached. Unless otherwise stated the receptor is the same as that of the residual effect. [Because of their comprehensive nature and the detail contained in them, in order to assist the reader in understanding the changes that have taken place between the Orders ES and the Further Applications ES, the tables have not been replaced with new information in new Appendices, but have been added to. The information added indicates the changes to the assessment \(where applicable\) between the Orders ES and the Further Applications ES and refers to the paragraph in this chapter where the reasons for any change are discussed. Where there is no change, this is noted in the table.](#)
- 21.4.16 In some instances a number of residual effects contributed to a single cumulative effect. In such instances the cumulative effect columns are merged to reflect this. This formatting has also been applied in circumstances where an explanation applies to a number of cumulative effects.
- 21.4.17 The objective of the assessment was to determine if the cumulative effect is likely to be significant and if so whether the overall cumulative effect will be worse (or better, in the case of positive effects) than the expected residual effect or effects of the Project [including the Proposals](#).

Scope of Study

- 21.4.18 ~~The~~ [For the Orders ES, the cumulative effects of construction and operation phase road traffic were not assessed, because the TA Transport Assessment already assumes a traffic growth factor. This growth factor includes an estimation of additional traffic generated by other developments that are likely to occur in the area over future years. Therefore, the TA Transport Assessment inherently takes cumulative effects into account by the use of regional and, where appropriate, local growth factors to estimate future traffic flows. The residual effects given for traffic are therefore a worst case cumulative assessment. It ~~is~~ \[was not necessary, therefore, for the purpose of this the assessment presented in the Orders ES, to segregate the effect of the Project including the Proposals from other developments. Given that the updated Transport Assessment has concluded that the assessment presented in the Orders ES represents a worst case assessment as a result of reduced traffic growth forecasts published since the Orders ES was written, this position remains the case and no specific consideration of traffic associated with particular developments is presented in the Further Applications ES.\]\(#\)](#)

- 21.4.19 Likewise, because As the air quality and noise assessments also utilised the transportation modelling for their assessments, the cumulative effects of construction and operational road traffic on those VECs were not assessed within this study as presented in the Orders ES, and this approach has been continued for the Further Applications ES.

Baseline and Screening

Developments

- 21.4.20 The ~~baseline~~ data collection undertaken for the Orders ES identified ~~resulted in~~ details of 100 developments within the study area. The locations of these developments are shown in Appendix 21.1. A total of 62 developments were identified for the Further Applications ES. Appendix 21.14 shows the locations of the further developments considered for the Further Applications ES. ~~For details of these~~ Details of the 100 developments considered as part of ~~this~~ the CEA prepared for the Orders ES are presented in ~~please see~~ Appendix 21.2 and for the 62 developments considered in the Further Applications ES, Appendix 21.15.

Screening

- 21.4.21 The baseline to assess cumulative effects for this project is taken to be the residual effects of the Project including the Proposals for each VEC.
- 21.4.22 Table 21.1 shows the screening of developments to establish those considered to have the potential to produce cumulative effects by discipline. A tick indicates that the development is considered to have the potential to have cumulative effects with the corresponding VEC. These potential effects have then been examined in more detail in the Examination of Cumulative Effects by Discipline. A cross indicates that there is considered to be no potential for a cumulative effect with this VEC, and therefore these have not been examined any further. The table has been updated to reflect the current applications considered for the Further Applications ES, as explained in paragraph 21.4.5 above this includes some schemes that were assessed for the Orders ES and where the planning applications are still extant.

Table 21.1 - Screening of developments with potential to have cumulative effect with the Project – Updated to Show Developments Considered in the Further Applications ES

Developments	Surface Water Quality	Land Use	Terrestrial and Avian Ecology	Aquatic Ecology	Landscape and Visual Amenity	Cultural Heritage	Contamination of Soils, Sediments & Groundwater	Waste and Materials	Transportation	Noise	Navigation	Social Economics	Local Air Quality
	Additional Developments Considered for the Further Applications ES												
101. International Trade Centre, Wirral	x	x	x	x	x	x	x	✓	x	x	x	x	✓
102. Wirral Waters (Wirral)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
103. Omega Phases 1 & 2 (Warrington)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
104. Land At Winwick Street, Tanners, Lane (Warrington)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
105. Land at former Carrington Wire Works & Mayne Coaches	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
106. New World Limited (Warrington)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
107. Britannia Wire Works (Warrington)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
108. Farrell Street South (Warrington)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
109. Chapelford Urban Village (Warrington)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
110. Former Timber Planing Mill off Chester Road (Warrington)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
111. Land at Longbutt Lane, Oughtrington (Warrington)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
112. Tesco Redevelopment, Chalon Way (St. Helens)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
113. St Helens Stadium (St. Helens)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
114. Moss Nook Development Site (St. Helens)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
115. Land Bounded by Washway Road (St. Helens)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
116. Deacon Trading Estate, Earlestown (St. Helens)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
117. Crewe Town Centre (Cheshire East)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
118. Land South of Pochin Way and Cledford Lane (Cheshire East)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
119. Basford West Development Site, Crewe (Cheshire East)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
120. Basford West Development Site, Crewe Road, Crewe	x	x	x	x	x	x	x	✓	x	x	x	x	✓
121. Plots B, I-L & Q Tythertington Business Park. Springwood Way, Macclesfield	x	x	x	x	x	x	x	✓	x	x	x	x	✓
122. Wilmslow Office Park, Stamford Lodge, Wilmslow	x	x	x	x	x	x	x	✓	x	x	x	x	✓
123. BAE Systems Land Systems Munitions, Radway Green, Alsager	x	x	x	x	x	x	x	✓	x	x	x	x	✓
124. The Villas, PSA Land at Dean Row, Wilmslow	x	x	x	x	x	x	x	✓	x	x	x	x	✓
125. Former Fodens Factory, Moss Lane, Sandbach.	x	x	x	x	x	x	x	✓	x	x	x	x	✓
126. Redevelopment Of Victoria Park Flats, Buxton Road, Macclesfield	x	x	x	x	x	x	x	✓	x	x	x	x	✓
127. Ashley Retail Park Widnes (Tesco Store)	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
128. Halton Lea Shopping Centre East Lane Runcorn	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
129. INEOS Chlor Ltd South Parade Runcorn	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
130. Tanhouse Yard Tanhouse Lane Widnes	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
131. Stobart Park	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
132. Stobart Office	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
133. HBC Fields	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
134. Ince Marshes, Land at Ince Marches	x	x	x	x	✓	x	x	✓	x	x	x	x	✓
135. Frodsham Wind Farm	x	x	x	✓	✓	x	x	✓	x	x	x	x	✓
136. Land Opposite Blue Planet Aquarium, Longlooms Road,	x	x	x	x	✓	x	x	✓	x	x	x	x	✓

Developments	Surface Water Quality	Land Use	Terrestrial and Avian Ecology	Aquatic Ecology	Landscape and Visual Amenity	Cultural Heritage	Contamination of Soils, Sediments & Groundwater	Waste and Materials	Transportation	Noise	Navigation	Social Economics	Local Air Quality
	Ellesmere Port.												
137. Cambridge Road, Ellesmere Port	x	x	x	x	x	x	x	✓	x	x	x	x	✓
138. Land at Lees Lane – Great Hall Park, Former McAlpine site, Ellesmere Port	x	x	x	x	x	x	x	✓	x	x	x	x	✓
139. Rossfield Park, Ellesmere Port	x	x	x	x	x	x	x	✓	x	x	x	x	✓
140. Old Port of Chester, Southern Tail, New Crane Street, Chester	x	x	x	x	x	x	x	✓	x	x	x	x	✓
141. City Road and Hoole Way, Chester	x	x	x	x	x	x	x	✓	x	x	x	x	✓
142. Overpool, Land at Netherpool Road, Ellesmere Port (Rivacre Village)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
143. Upton Dene – Countess of Chester Health Park (surplus land to the north), Liverpool Road, Chester	x	x	x	x	x	x	x	✓	x	x	x	x	✓
144. Land South of Chapel Street and East of New Warrington Road, Wincham, Northwich.	x	x	x	x	x	x	x	✓	x	x	x	x	✓
145. Netherpool Road, Land off Overpool Ellesmere Port, Cheshire	x	x	x	x	x	x	x	✓	x	x	x	x	✓
146. Land to the North and South of Cherryfield Drive Kirkby Town Centre, Knowsley.	x	x	x	x	x	x	x	✓	x	x	x	x	✓
147. Land between Cronton Road and M62 Motorway, Hyton, Knowsley.	x	x	x	x	x	x	x	✓	x	x	x	x	✓
148. Land off Thingwall Lane, Huyton	x	x	x	x	x	x	x	✓	x	x	x	x	✓
149. North Huyton Action Area, Huyton (Phases 2-5)	x	x	x	x	x	x	x	✓	x	x	x	x	✓
150. Former Prysmian Cables & Systems Site, Hall Lane, Prescott	x	x	x	x	x	x	x	✓	x	x	x	x	✓
151. Land adjacent to Thingwall Hall, Thingwall Lane, Huyton.	x	x	x	x	x	x	x	✓	x	x	x	x	✓
152. Former Rolls Royce Factory Dunnings Bridge Road, Netherton.	x	x	x	x	x	x	x	✓	x	x	x	x	✓
153. 6 Bridle Road, Netherton.	x	x	x	x	x	x	x	✓	x	x	x	x	✓
154. Ashworth Hospital, Parkbourn Magull	x	x	x	x	x	x	x	✓	x	x	x	x	✓
155. Project Jennifer, Great Homer Street, Liverpool	x	x	x	x	x	x	x	✓	x	x	x	x	✓
156. Edge Lane Retail Park and adjoining sites, Liverpool	x	x	x	x	x	x	x	✓	x	x	x	x	✓
157. Commercial District, Pall Mall, Liverpool	x	x	x	x	x	x	x	✓	x	x	x	x	✓
158. Plot 3B, Princes Dock, Waterloo Road, Liverpool	x	x	x	x	x	x	x	✓	x	x	x	x	✓
159. Central and Northern Docks	x	x	x	x	x	x	x	✓	x	x	x	x	✓
160. Mann Island Site , Liverpool	x	x	x	x	x	x	x	✓	x	x	x	x	✓
161. Central Village 'boardwalk'	x	x	x	x	x	x	x	✓	x	x	x	x	✓
162. Land bounded by Great George Street / Great George Place / St James Street	x	x	x	x	x	x	x	✓	x	x	x	x	✓

Examination of cumulative effects by discipline

Chapter 8: Surface Water Quality

- 21.4.23 There are no residual effects relating to surface water quality associated with the Project including the Proposals. Therefore there is no potential for cumulative effects on surface water quality.

Chapter 9: Land Use

- 21.4.24 Potential for cumulative effects was only identified for those land use types where proposed developments directly impact on the same land use types, which are affected by the Project including the Proposals. This approach was also taken in Chapter 9: Land Use for evaluating land use change.
- 21.4.25 The results of this analysis are displayed in Appendix 21.3. One cumulative effect arises from Land Use. This is severance and disruption to PRoWs across the Borough and is classified as a negative effect of moderate significance. This will occur during the construction phase and is temporary because effective mitigation is proposed. This effect is worse than the residual effect of the Project including the Proposals when considered in isolation but remains within the same classification of significance – low negative.

Chapter 10: Terrestrial and Avian Ecology

- 21.4.26 The Terrestrial and Avian Ecology assessment (Chapter 10) has considered the cumulative effects of developments close to the estuary, this included developments 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 28, 29, 30, 31, 52. The assessment considered the direct and indirect cumulative effects of the developments on the bird interests of the Upper Estuary and the European Site. The Secretary of State agreed with the Inspector that there was no need for an Appropriate Assessment of the Project consisting of the Reference Design. Notwithstanding the Secretary of State's findings this Further Applications ES contains sufficient information to allow an Appropriate Assessment (AA) to be undertaken by the relevant competent authorities. When making a decision on applications supported by this Further Applications ES the competent authority will be required to undertake an assessment of the Project including the Proposals on the integrity of the European Site based on the findings of this Further Applications ES. The Competent Authority is Halton Borough Council and it may review and rely on the the Secretary of State's Findings following the Orders ES. Therefore, this assessment is used to inform the cumulative effects on Terrestrial and Avian Ecology. The exception to this was for Great Crested Newts which were assessed separately based on the location and type of proposed developments near to sites where they were recorded. Screening therefore included all developments in the vicinity of the Upper Estuary, as discussed in the Appropriate Assessment and any sites in the vicinity of known Great Crested Newt locations. Paragraphs 21.4.27 and 21.4.28 have been deleted because they deal with the cumulative effects of the Project including the Proposals on the European Site.
- ~~21.4.27 The following text is deleted because of the conclusions reached by the Planning Inspector and the Secretary of State when the Orders and Permissions were made and / or granted. The effects assessment for Chapter 10 concludes that the Project is unlikely to result in significant effects on the European Site and that this is largely as a result of the fact that there is little interaction between the bird populations in the Upper and Middle Estuary.~~
- ~~21.4.28 Although several of the development sites to the west of the Silver Jubilee Bridge were considered likely to result in potential effects on the European Site, it was concluded that there~~

are not likely to be significant cumulative effects on the European Site. This is as a result of the population dynamics of the birds in the Upper and Middle Estuary as noted above in paragraph 21.4.25. In this sense the effects are not additive: the Project does not worsen effects elsewhere.

21.4.29 ~~The assessment concluded that development 3: The Widnes Waterfront, would result in cumulative effects on the Upper Estuary as a result of human disturbance. As can be seen in Appendix 21.6 this translated into two construction phase cumulative effects of 1) Presence and movements of structures, machinery and personnel: Disturbance to breeding, roosting, feeding, loafing and migrating birds and 2) Noise and pollution by machinery and lighting: Disturbance to breeding, roosting, feeding, loafing and migrating birds. These effects were assessed as being of low negative significance. Although they remain within the same classification of significance as the residual effects, the cumulative effect is worse than the residual effect of the Project when considered in isolation. There are no developments close to the main Project areas in the current list as shown in Table 21.1 and Appendix 21.14, cumulative effects of the nature described in this paragraph are not considered to occur and this text has been deleted.~~

21.4.30 One operational cumulative effect was identified which was the presence of new structures and permanent lighting. This was considered likely to cause disturbance to breeding, feeding, roosting and flying birds. For the Project [including the Proposals](#) this is a result of the New Bridge. For other nearby developments the effects are from buildings and associated lighting. This effect is considered to be of low negative cumulative significance. This effect is worse than the residual effect of the Project [including the Proposals](#) when considered in isolation but remains within the same classification of significance.

Chapter 11: Aquatic Ecology

21.4.31 Potential developments were considered to have a potential for cumulative effects if they were located near to or in waterways. The likely range of the residual effects was then qualitatively estimated using the results of modelling from Chapter 7: Hydrodynamics and Estuarine Processes and Chapter 8: Water Quality. The potential for the range of residual effects to overlap with those of other proposed developments and the overall effects on receptors was then assessed.

21.4.32 The results of this analysis are displayed in Appendix 21.5. One cumulative effect of a potential decrease in water quality damaging to aquatic organisms was identified, and was assessed of being of low negative significance. This effect is worse than the residual effects but remains in the same significance classification. [This potential effect \(during both construction and operation\) remains the same in the Further Applications ES as was reported in the Orders ES because of the requirement of all new developments to ensure the protection of water quality through all stages of the development process.](#)

Chapter 12: Landscape and Visual Impact

21.4.33 The visual characteristics known about the proposed developments were considered in combination with the residual effects on landscape and visual amenity of the Project [including the Proposals](#). The potential effect was then considered for the receptors at which each residual effect was identified.

~~21.4.34 The results of this analysis are displayed in Appendix 21.6. Although six construction phase cumulative effects were identified these were all concerning the same potential negative cumulative effect but acting on different receptors. This was a low negative effect of increased visual intrusion, which could occur if construction of proposed developments occurs the same time as that of the Project. These effects would be worse than the residual effects but remain in the same significance classification. One operational phase effect was identified: a high positive~~

~~cumulative effect on landscape and townscape through improvement to the poor quality landscape from regeneration projects and from reducing the obtrusiveness of the Project's lighting. The high positive effect did not change in significance classification from the associated residual effect.~~

- 21.4.35 Overall the outcomes of the landscape and visual impact assessment have not altered significantly, however, the format of the chapter has altered and so Appendix 21.6 has been amended to reflect this and ensure that it replicates the residual effects described in the chapter.
- 21.4.36 Similar potential negative cumulative impacts were identified for construction in the Further Applications ES as were reported in the Orders ES, these could occur if construction of the proposed developments took place at the same time as that of the Project. These relate to proposed developments 127, 128, 130, 131 and 132.
- 21.4.37 In the operation phase cumulative effects were not considered to be significant because the scale of projects in the vicinity of the Project including the Proposals is generally the same or similar to the current developments. It was noted that regeneration projects could have a beneficial cumulative effect on improving the landscape and reducing the obtrusiveness of the Project's lighting. A wind farm scheme is proposed at Frodsham Marshes some 8 to 10 km to the south west of the Project including the Proposals. The New Bridge has been assessed as having a beneficial effect though it was noted in the chapter that this could vary with individual perception. The higher ground around Runcorn lies between the New Bridge and the proposed wind farm and combined with the fact that both developments lie in a landscape heavily influenced by man it was considered that there was a low negative cumulative impact.

Chapter 13: Cultural Heritage

- 21.4.38 Potential for cumulative effects was identified using expert judgement of the author of the Cultural Heritage chapter and the locations of the proposed developments in relation to known archaeological and heritage features identified in Chapter 13: Cultural Heritage.
- 21.4.39 The results of this analysis are displayed in Appendix 21.7. Four cumulative effects arise from Cultural Heritage. These are the effects of construction works on the quality of setting of Listed Buildings in both the construction phase and operation phase, and effect of operation works on setting of a Conservation Area in both the construction phase and operation phase. These effects are considered to be of low negative significance. These effects are worse than the residual effects of the Project **including the Proposals** when considered in isolation but remain within the same classification of significance. **The assessment of significance has not altered because the difference between the Project and the Project including the Proposals are such that the differences in effect on the areas described above are negligible.**

Chapter 14: Contamination of Soils, Sediments and Groundwater

- 21.4.40 The Project **including the Proposals** will not result in any residual effects relating to contamination of soils, sediments and groundwater. Therefore, there is no potential for cumulative effects relating to contamination of soils, sediments and groundwater. **The Project including the Proposals does not alter this assessment.**

Chapter 15: Waste and Materials

- 21.4.41 The residual effects for waste were assessed using expert judgement considering the characteristics of the residual effects in conjunction with the possible effects of the proposed developments.
- 21.4.42 The results of the analysis are given in Appendix 21.8. Two cumulative effects were identified. In the construction phase dust from the handling of wastes is expected to have a temporary low negative effect if construction ~~from~~ at other nearby developments occurs at the same time as construction of the Project [including the Proposals](#). Also in the construction phase there is expected to be a cumulative permanent reduction in available landfill and treatment capacity. All proposed developments are considered to have the potential to generate waste and this will occur regardless of when the other developments are constructed. However, it is of low negative significance because it is assumed that the waste management infrastructure within the North West Region is able to cope with any new developments that have been given planning permission in the area. Therefore, the two cumulative effects are worse than the residual effects of the Project [including the Proposals](#) when considered in isolation but remain within the same classification of significance. [The assessment of the Project including the Proposals does not alter this conclusion.](#)

Chapter 16: Transportation

- 21.4.43 The possibility of cumulative effects relating to transport was assessed through consideration of the potential of other proposed developments to interfere with infrastructure in conjunction with the residual effects from Chapter 16: Transportation. Developments were considered to have potential to interfere with the infrastructure if they were located on or very close to PRoW, the rail network or roads which would be affected during construction of the Project [including the Proposals](#).
- 21.4.44 The results of the analysis are given in Appendix 21.9. Six construction phase cumulative effects were identified. In Areas A, B and C there would be the following cumulative effects: increased traffic; Disruption to the PRoW linking Cross Street and Ashley Way with Spike Island; ~~Disruption to the PRoW linking Cross Street and Ashley Way with Spike Island~~, and to the cycleway on Ashley Way. In Construction Area D there would be a cumulative effect of increased traffic. In Construction Areas E, F, G there would be a cumulative effect of increased traffic.
- 21.4.45 All of the aforementioned effects would be of moderate negative significance and be temporary. Whilst all the cumulative effects are worse than the residual effects when considered in isolation, the effects are still considered to lie within the same significance category. There would be one cumulative operational effect of improved bus journey times and an increase in journey ambience for cross river trips which is considered to be of moderate positive significance and would be permanent. As the residual effects include the effects of other developments it is impossible to state how these effects compare to the Project [including the Proposals](#) considered in isolation. It should be noted once more that traffic growth associated with future developments is considered as part of the Transport chapter in any case. For this reason cumulative traffic effects have been assessed already. [The review of traffic forecasts completed for the Further Applications ES concluded that the assessment presented in the Orders ES was based on higher growth forecasts than recently published updates suggest will now occur. Thus, the forecasts in the Orders ES are a robust worse case and effects determined based upon these will also be conservative.](#)

- 21.4.46 The cumulative effects associated with the Project including the Proposals may be slightly improved from those reported in the Orders ES as a result, but would still remain within the same significance category due largely to the sensitivity of the receptors. The changes associated with the Project including the Proposals do not materially alter this position.

Chapter 17: Noise and Vibration

- 21.4.47 Cumulative noise and vibration from changes in traffic levels as a result of the Project including the Proposals have already been assessed within Chapter 17: Noise. The residual effects for traffic in both the construction and operational phases are in fact cumulative effects as the data used in calculations included proposed developments and their associated traffic. Traffic is the cause of all residual operational effects and therefore the cumulative effect has already been assessed. As described in paragraph 21.4.42 above the assessment presented in the Orders ES is considered to be a worst case assessment, now that revised traffic growth forecasts have been published which suggest lower growth than previously assessed and this principle has been carried through to the noise assessment.
- 21.4.48 Noise from construction is assessed by counting the number of residential houses within a 100m radius of the works as the primary source of noise is unlikely to be traffic. In order to assess the potential for cumulative effects, other developments within a 200m zone around the Project including the Proposals are therefore considered. This means that any potential overlap of noise from construction of the Project including the Proposals and other developments can be identified. There were no residual effects on the construction phase relating to vibration and this conclusion does not change for the Project including the Proposals, as the range of potential construction techniques remain within the parameters previously considered.
- 21.4.49 The results of this analysis are given in Appendix 21.10. There is one cumulative effect during the construction phase, this is disturbance to dwellings from general construction activities and is considered to be of high negative significance. This is an increase in significance from moderate, when the Project including the Proposals was considered in isolation as the same receptors would potentially be exposed to noise from multiple sources of moderate negative significance. There are 11 operational residual effects, and therefore cumulative effects relating to noise. As the residual effects include the effects of other developments it is impossible to state how these effects compare to the Project including the Proposals considered in isolation. This remains the case for the Project including the Proposals, because the assessment is based on the same approach and data.

Chapter 18: Navigation

- 21.4.50 The possibility of cumulative effects relating to navigation was assessed through consideration of other proposed developments with the potential to interfere with navigation in conjunction with the residual effects from Chapter 18: Navigation. The only residual effects relating to navigation are concerned with users of the River.
- 21.4.51 The results of this analysis are given in Appendix 21.11. ~~The only development with the potential to interfere with navigation of the River is the Port of Liverpool Post Panamax terminal development (development 26) which will install additional container ship capacity. This is likely to involve considerable disruption to users of the Port of Liverpool during its construction and is awaiting public inquiry decision. However as discussed in Appendix 21.11 there is limited potential for cumulative effects as the number of users effected would be limited as the same receptor would only be affected by both developments if they navigated all the way up the river from the port; approximately 32 km.~~ The potentially cumulative effect of the development of the Port of Liverpool is not considered in the Further Applications ES because the planning application no longer appears on the list of 'live' applications. Developments 2, 3 and 10 131

and 132 are located close to the navigable waterways, but are not likely to involve encroachment into the waterways during the construction phase.

- 21.4.52 ~~Both development 26 and~~The Project **including the Proposals** ~~are likely to~~will result in temporary obstructions to navigation. ~~Therefore one cumulative effect was identified for the construction phase of the Project which was partial obstruction to navigation. The~~The temporary obstruction caused by the New Bridge would be caused by the cofferdams, piled jetty and amphibious craft, **as well as limited clearance over the canals during parts of the construction process**. ~~Details of any obstruction resulting from the construction of development 26 are not known. This cumulative effect is considered to be of low negative significance. This effect is worse than the residual effect of the Project when considered in isolation but remains within the same classification of significance. As there are no other developments considered likely to cause disruption to navigation in the river close to the project, no cumulative effects have been identified for the Project including the Proposals.~~ No operational cumulative effects were identified.

Chapter 19: Air Quality

- 21.4.53 Air quality receptors are considered for significant effects if they are within 200m of the Project **including the Proposals** in Chapter 19: Local Air Quality. This logic is applied to cumulative effects and receptors identified in Chapter 19 are considered to have potential for significant cumulative effects if they are within 200m of the Project **including the Proposals** and within 200m of any proposed development. This means that situations where the receptor could be affected by more than one development including the Project **including the Proposals** are identified. Expert judgement was then sought from the author of Chapter 19: Local Air Quality as to the nature and significance of any potentially cumulative effects.
- 21.4.54 The results of this analysis are given in Appendix 21.12. When considering those receptors that have been identified as part of the Local Air Quality Assessment, there are a number of receptors within 200 m of both the Project **including the Proposals** and at least one of the proposed developments listed in Table 21.1. These are proposed developments ~~1, 2, 3 and 6~~ **127, 128, 130, 131 and 132**. As such, should construction of the Project **including the Proposals** and ~~proposed development 1, 2, 3 or 6~~ **these developments** coincide, there is potential for three negative cumulative effects in terms of construction dust (low negative significance), construction traffic emissions (low negative significance) and disruption to traffic during construction (moderate negative significance). Although the cumulative effects would be worse than the related residual effects of the Project **including the Proposals** when considered in isolation they remain within the same classification of significance and would be temporary and of short term duration.
- 21.4.55 For operation phase, there are a number of receptors that lie within 200 m of proposed developments ~~1, 2, 3 and 6~~ **127, 128, 130, 131 and 132**. However, since the traffic data modelled as part of the Local Air Quality assessment has included traffic from these proposed developments (as well as all the remaining developments listed in Table 21.1), the significance of cumulative effects remains unchanged from the residual significance.

Chapter 20: Socio-Economic Impacts

- 21.4.56 Socio economic effects evaluate the human effects of the residual effects identified in other chapters and from other sources not identified in other chapters. The residual effects for other chapters are therefore the starting point for many of the effects evaluated in the socio-economics assessment. For example, Chapter 9: Land Use considers direct change of land use whereas socio-economics consider the effect any land use changes have on the local population. Consequently Chapter 20: Socio Economic Impact Assessment is closely related to

other chapters. There are however effects which are identified only in Chapter 20, such as those relating to job opportunities.

21.4.57 As a result it follows that the cumulative effects assessment is also similar to other chapters. Where for example, the health effects of noise are assessed, the cumulative effect of noise as an effect in itself is used to give the basis as to which developments may contribute to a cumulative effect. The interpretation of the data is then specifically focused on evaluating any social or economic effects, in relation to the residual effects from Chapter 20. Expert judgement was then used to assign significance to any cumulative effects identified. Where the residual effects were identified only in Chapter 20: Socio Economic Impact Assessment, for example effects on jobs available, the potential for cumulative effects was assessed by considering the characteristics and locations of the proposed developments in conjunction with the residual effects identified in Chapter 20.

21.4.58 The results of this analysis are given in Appendix 21.13. Fifteen potential cumulative effects were identified for the construction phase, thirteen potential cumulative effects were identified for the operation phase as listed below in Table 21.2. Of particular note is the potential for regeneration and other proposed developments to bring employment to the area and an increased quality of life. The combined effect of these developments is also likely to improve public perception of Halton. A potential negative effect that is likely to accompany such population growth would be the additional pressure to community facilities, many of which, such as health centres, do not have planned expansion.

Table 21.2 - Summary of potential cumulative effects relating to Socio-Economics

Cumulative Effect	Significance (and Nature) of Cumulative Effect
Construction Phase	
Change in Population structure: Increased pressure to community facilities and services (e.g. health centres, hospitals, leisure facilities).	Low Negative (Temporary, Short term Indirect)
Change in Population structure: Increased feeling of insecurity amongst residents (associated with an influx of workers to the area)	Low Negative (Temporary, Short term Indirect)
Change in Population structure: Economic benefits through increased expenditure within Halton (e.g. through local shops, leisure centres, private renting sector)	Low Positive (Temporary, Short term Indirect)
Change in Employment Opportunities: Increase in job opportunities available to local residents	High Positive (Temporary, Medium term, Direct).
Change in Perception of, or actual, health: Health implications through disruption in access to health facilities and increased traveller stress	Low Negative (Temporary, Short term, Indirect).
Change in Perception of, or actual, health: Change in exercise uptake through disruptions to footpaths and cycleways with resulting effects on health	Moderate Negative (Temporary, Short term, Indirect).
Change in Perception of, or actual, health: Creation of Project related Wastes (Dust) to Individuals and families within communities and LSOAs near to proposed developments or the Project	Low Negative (Temporary, Short term, Direct)
Change in Perception of, or actual, health: Creation of Project related Wastes (Dust) affecting employees working within or adjacent to proposed developments or the Project	Low Negative (Temporary, Short term, Direct)
Change in Perception of, or actual, health: Changes in Air quality resulting from construction traffic emissions (NO ₂ and PM ₁₀)	Low Negative (Temporary, Short term, Direct)
Change in Perception of, or actual, health: Changes in Air Quality resulting from road traffic emissions (NO ₂ and PM ₁₀)	Moderate Negative (Temporary, Short term, Direct)
Change in access to facilities and social networks: Effects to existing employers/ employees within Halton resulting from disruption from Project construction activities	Low Negative (Temporary, Short Term, Direct)

Cumulative Effect	Significance (and Nature) of Cumulative Effect
Change in access to Further Education establishments and special schools	Low Negative (Temporary, Short term Indirect)
Partial obstruction to navigation by some users of the River	Low Negative (Temporary, Short term Direct)
Change in access to facilities and social networks: Change in daily movements by Car Users	Low Negative (Temporary, Short term Indirect)
Change in access to facilities and social networks: Change in daily movements by pedestrians and cyclists	Moderate Negative (Temporary, Short term, Indirect)
Operational Phase	
Change in Population Structure: Regeneration attracting individuals/families to remain/ immigrate to Halton	High Positive (Permanent, Long term, Indirect)
Change in Population Structure: Increased pressure to community facilities and services (e.g. health centres, hospitals, leisure facilities).	High Negative (Permanent, Long term, Indirect)
Change in Employment Opportunities: Creation of new jobs for individuals within Halton	Moderate Positive (Permanent, Long term, Direct and Indirect)
Improvement of pedestrian and cycling facilities with potential for health benefits, specifically within Riverside and Mersey.	High Positive (Permanent, Long term, Direct)
Improvement of pedestrian and cycling with potential for health benefits within the rest of Halton.	Moderate Positive (Permanent, Long term, Direct)
Change in perception or actual health and safety issues for Halton individuals Changes in Air Quality – emissions of NO ₂ to Users of the SJB and Greenway Road	High Positive (Permanent, Long term, Indirect)
Change in perception or actual health and safety issues for Halton individuals Changes in Air Quality – emissions of NO ₂ to Individuals and families within the rest of Halton	Moderate Positive (Permanent, Long term, Indirect)
Change in perception or actual health and safety issues for Halton individuals Changes in Air Quality – emissions of NO ₂ , PM ₁₀ and CO ₂ to Individuals and families within the North West	Low Positive (Permanent, Long term, Indirect)
Change in perception or actual health and safety issues for Halton individuals Changes in Noise and Vibration to Individuals at Weston Point and West Bank School	High positive (Permanent, Long term, Indirect)
Change in perception or actual health and safety issues for Halton individuals Changes in Noise and Vibration to Individuals and families residing in close proximity to the SJB	High positive (Permanent, Long term, Indirect)
Change in perception or actual health and safety issues for Halton individuals Changes in Noise and Vibration to Individuals and families residing in close proximity to construction areas F, G and H	Low negative (Permanent, Long term, Indirect)
Change in access to facilities and social networks: Improved access routes for pedestrians and cyclists	High positive (Permanent, Long term, Indirect)
Change in access to facilities and social networks: Disruption and closure of footpaths and cycleways	Low Negative (Permanent, Long term Direct)

21.4.59 In almost all instances the cumulative effects identified increased the significance compared to the related residual effect but not sufficiently to raise it to a higher band of significance. There are two exceptions. Firstly a 'change in exercise uptake through disruptions to footpaths and cycleways' with resulting effects on health, and secondly a 'change in access to facilities and social networks: a change in daily movements by pedestrians and cyclists', both increased from low negative to moderate negative significance. [The socio-economic effects of the Project including the Proposals have not altered substantially as a result of the modifications to the scheme and therefore the assessments presented in Table 21.2 above remain unchanged.](#)

21.5 Mitigation

21.5.1 This cumulative effects assessment has considered residual effects from the VECs. The residual effects for this Project **including the Proposals** by definition are those that remain after taking account of any practical mitigation. Therefore mitigation is beyond the control of the Project **including the Proposals**. Mitigation could be achieved through ensuring that the proposed developments considered also mitigate their impacts as far as is feasible. The majority of significant cumulative effects would occur only if construction of the Project **including the Proposals** and other developments coincided. The Council could potentially influence the timing of construction works so that multiple construction works do not affect the same areas simultaneously. In addition the negative socio-economic cumulative effects could be reduced if public services (i.e. Schools, GPs and Health Centres) were improved or more services provided to accommodate the demand resulting from the expected increase in population.

21.6 Conclusions

21.6.1 A number of significant cumulative effects have been identified. A summary of the significant cumulative effects is given in Table 21.3, below.

Table 21.3 - Summary of Cumulative Effects

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Construction Phase				
Land Use	Severance and Disruption to PRowS across the Borough	Low Negative Significance	Moderate Negative (Temporary, Short Term, Direct)	Moderate Negative (Temporary, Short Term, Direct)
Terrestrial and Avian Ecology	Presence and movements of structures, machinery and personnel: Disturbance to breeding, roosting, feeding, loafing and migrating birds	Low Negative Significance	Low Negative (Short term, temporary)	Low Negative (Short term, temporary)
Terrestrial and Avian Ecology	Noise and pollution by machinery and lighting: Disturbance to breeding, roosting, feeding, loafing and migrating birds.	Low Negative Significance	Low Negative (Short term, temporary)	Low Negative (Short term, temporary)
Aquatic Ecology	Potential decrease in water quality damaging to aquatic organisms	Low Negative Significance	Low Negative (Temporary, Medium term, Direct)	Low Negative (Temporary, Medium term, Direct)
Landscape and Visual Amenity	Area of Special Landscape Value and Greenbelt – visual change	Moderate Negative Significance	n/a	High negative (Temporary, short term, direct)

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Landscape and Visual Amenity	Landscape of Intertidal estuary, linear waterways and Runcorn slopes – visual change	High Negative Significance	n/a	Medium negative (Temporary, short term, direct)
Landscape and Visual Amenity	Settlements of West Bank Widnes and Runcorn Slopes – visual change	Moderate Positive Significance	n/a	High negative (Temporary, short term, direct)
Landscape and Visual Amenity	Recreational receptors Spike Island and Wigg Island – visual change	High Negative to Moderate Positive Significance (varies)	n/a	High negative (Temporary, short term, direct)
Landscape and Visual Amenity	Areas B and E demolition and construction works – visual change	Moderate Negative Significance	n/a	Low negative (Temporary, short term, direct)
Landscape and Visual Amenity	Areas C and D construction works – visual change	Moderate Negative to High Negative Significance	n/a	High negative (Temporary, short term, direct)
Landscape and Visual Amenity	Area F construction works – visual change	Moderate Negative Significance	n/a	Lpw - High negative (Temporary, short term, direct)
Landscape and Visual Amenity	Intermediate area receptors 1: Visual change (middle distance views).	Low Negative Significance	Low Negative (Short term, Temporary, Direct)	n/a
Landscape and Visual Amenity	Intermediate area receptors 2: Visual change (Middle distance views).	High Negative Significance	High Negative (Short term, Temporary, Direct)	n/a
Landscape and Visual Amenity	Intermediate area receptors 3: Visual change (middle distance views).	Low Negative Significance	Low Negative (Short term, Temporary, Direct)	n/a
Landscape and Visual Amenity	Local area receptors 1: Visual change (local views).	Part low negative part moderate negative.	Low Negative (Short term, Temporary, Direct)	n/a
Landscape and Visual Amenity	Local area receptors 2: Visual change (local views).	Part moderate negative part high negative.	Moderate Negative (Short term, Temporary, Direct)	n/a
Landscape and Visual Amenity	Local area receptors 3: Visual change (local views).	Low Negative Significance	Low Negative (Short term, Temporary, Direct)	n/a

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Cultural Heritage	Effect of construction works on the quality of setting of Listed Buildings	Low Negative Significance	Low Negative (Temporary, Short Term, Indirect)	Low Negative (Temporary, Short Term, Indirect)
Cultural Heritage	Effect of construction works on setting of a Conservation Area	Low Negative Significance	Low Negative (Temporary, Short Term, Indirect)	Low Negative (Temporary, Short Term, Indirect)
Waste and Materials	Dust from handling of wastes	<i>Low Negative Significance</i>	Low Negative Significance (Short term, Temporary, Direct)	Low Negative Significance (Short term, Temporary, Direct)
Waste and Materials	Reduction in available landfill and treatment capacity	Low Negative Significance	Low Negative Significance (Short term, Permanent, Direct)	Low Negative Significance (Short term, Permanent, Direct)
Transportation	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.	Moderate Negative Significance	Moderate Negative (Short term, Temporary, Direct)	Moderate Negative (Short term, Temporary, Direct)
Transportation	Areas A, B & C Disruption to the PRow linking Cross Street and Ashley Way with Spike Island.	Moderate Negative Significance	Moderate Negative (Short term, Temporary, Direct)	Moderate Negative (Short term, Temporary, Direct)
Transportation	Areas A, B & C Disruption to the PRow linking Cross Street and Ashley Way with Spike Island, and to the cycleway on Ashley Way.	Moderate Negative Significance	Moderate Negative Significance (Short term, Temporary, Direct)	Moderate Negative Significance (Short term, Temporary, Direct)
Transportation	Areas A, B & C Effect on the Freight Line.	Low Negative Significance	Low Negative (Short term, Temporary, Direct)	Low Negative (Short term, Temporary, Direct)

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Transportation	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.	Moderate Negative Significance	Moderate Negative (Short term, Temporary, Direct)	Moderate Negative (Short term, Temporary, Direct)
Transportation	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.	Moderate Negative Significance	Moderate Negative (Short term, Temporary, Direct)	Moderate Negative (Short term, Temporary, Direct)
Noise and Vibration	Disturbance to dwellings from general construction activities	Moderate Negative Significance	High Negative (Temporary, Short Term, Direct)	High Negative (Temporary, Short Term, Direct)
Noise and Vibration	Noise from general construction activities including canal bridge	Moderate Negative Significance	Moderate Negative (Temporary, Short Term, Direct)	Moderate Negative (Temporary, Short Term, Direct)
Navigation	Partial obstruction to navigation	Low Negative Significance	Low Negative (Temporary, Short term, Direct)	Low Negative (Temporary, Short term, Direct)
Local Air Quality	Construction Dust	Low Negative Significance	Low Negative (Temporary, Short term, Direct)	Low Negative (Temporary, Short term, Direct)
Local Air Quality	Construction traffic emissions	Low Negative Significance	Low Negative (Temporary, Short term, Direct)	Low Negative (Temporary, Short term, Direct)
Local Air Quality	Disruption to Traffic during Construction	Moderate Negative Significance	Moderate Negative (Temporary, Short term, Indirect)	Moderate Negative (Temporary, Short term, Indirect)

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Socio Economics	Change in Population structure: Increased pressure to community facilities and services (e.g. health centres, hospitals, leisure facilities).	Low Negative Significance	Low negative (Temporary, Short term Indirect)	Low negative (Temporary, Short term Indirect)
Socio Economics	Change in Population structure: Increased feeling of insecurity amongst residents (associated with an influx of workers to the area)	Low Negative Significance	Low negative (Temporary, Short term Indirect)	Low negative (Temporary, Short term Indirect)
Socio Economics	Change in Population structure: Economic benefits through increased expenditure within Halton (e.g. through local shops, leisure centres, private renting sector)	Low Positive Significance	Low Positive (Temporary, Short term Indirect)	Low Positive (Temporary, Short term Indirect)
Socio Economics	Change in Employment Opportunities: Increase in job opportunities available to local residents	High Positive Significance	High Positive (Temporary, Medium term, Direct).	High Positive (Temporary, Medium term, Direct).
Socio Economics	Change in Perception of, or actual, health: Health implications through disruption in access to health facilities and increased traveller stress	Low Positive Significance	Low Negative (Temporary, Short term, Indirect).	Low Negative (Temporary, Short term, Indirect).
Socio Economics	Change in Perception of, or actual, health: Change in exercise uptake through disruptions to footpaths and cycleways with resulting effects on health	Low Negative Significance	Moderate negative (Temporary, Short term, Indirect).	Moderate negative (Temporary, Short term, Indirect).

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Socio Economics	Change in Perception of, or actual, health: Creation of Project related Wastes (Dust) to Individuals and families within communities and LSOAs near to proposed developments or the Project	Low Negative Significance	Low Negative (Temporary, Short term, Direct)	Low Negative (Temporary, Short term, Direct)
Socio Economics	Change in Perception of, or actual, health: Creation of Project related Wastes (Dust) affecting employees working within or adjacent to proposed developments or the Project	Low Negative Significance	Low Negative (Temporary, Short term, Direct)	Low Negative (Temporary, Short term, Direct)
Socio Economics	Change in Perception of, or actual, health: Changes in Air quality resulting from construction traffic emissions (NO ₂ and PM ₁₀)	Low Negative Significance	Low Negative (Temporary, Short term, Direct)	Low Negative (Temporary, Short term, Direct)
Socio Economics	Change in Perception of, or actual, health: Changes in Air Quality resulting from road traffic emissions (NO ₂ and PM ₁₀)	Moderate Negative Significance	Moderate Negative (Temporary, Short term, Direct)	Moderate Negative (Temporary, Short term, Direct)
Socio Economics	Change in access to facilities and social networks: Effects to existing employers/ employees within Halton resulting from disruption from Project construction activities	Low Negative Significance	Low negative (Temporary, Short Term, Direct)	Low negative (Temporary, Short Term, Direct)
Socio Economics	Change in access to Further Education establishments and special schools	Low Negative Significance	Low Negative (Temporary, Short term Indirect)	Low Negative (Temporary, Short term Indirect)
Socio Economics	Partial obstruction to navigation by some users of the River	Low Negative Significance	Low Negative (Temporary, Short term Direct)	Low Negative (Temporary, Short term Direct)

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Socio Economics	Change in access to facilities and social networks: Change in daily movements by Car Users	Low Negative Significance	Low Negative (Temporary, Short term Indirect)	Low Negative (Temporary, Short term Indirect)
Socio Economics	Change in access to facilities and social networks: Change in daily movements by pedestrians and cyclists	Low Negative Significance	Moderate negative (Temporary, Short term, Indirect)	Moderate negative (Temporary, Short term, Indirect)
Operation Phase				
Terrestrial and Avian Ecology	Presence of new structures and permanent lighting: disturbance to breeding, feeding, roosting and flying birds	Low Negative Significance	Low Negative (Long-term, Permanent, Direct)	Low Negative (Long-term, Permanent, Direct)
Landscape and Visual Amenity	Area of Special Landscape Value and Greenbelt – visual change	Moderate Negative Significance	n/a	Neutral to Low Positive (Long term, permanent, indirect)
Landscape and Visual Amenity	Landscape of Intertidal estuary, linear waterways and Runcorn slopes – visual change	High Negative Significance	n/a	Neutral to Low Positive (Long term, permanent, indirect)
Landscape and Visual Amenity	Settlements of West Bank Widnes and Runcorn Slopes – visual change	Moderate Positive Significance	n/a	Neutral to Low Positive (Long term, permanent, indirect)
Landscape and Visual Amenity	Recreational receptors Spike Island and Wigg Island – visual change	High Negative to Moderate Positive Significance (varies)	n/a	Neutral to Low Positive (Long term, permanent, indirect)
Landscape and Visual Amenity	Intermediate area receptors 2: Effect on landscape and townscape	Moderate negative, low negative, part moderate positive part high positive.	High Positive Significance (Long term, Permanent, Direct)	High Positive Significance (Long term, Permanent, Direct)
Cultural Heritage	Effect of operation works on the quality of setting of Listed Buildings	Low Negative Significance	Low negative (Permanent, Indirect)	Low negative (Permanent, Indirect)
Cultural Heritage	Effect of operation works on setting of a Conservation Area	Low Negative Significance	Low Negative (Permanent, Short Term, Indirect)	Low Negative (Permanent, Short Term, Indirect)
Transportation	Improved journey times and an improved journey ambience for strategic trips.	High Positive Significance	High Positive (Permanent, Long-term, Direct)	High Positive (Permanent, Long-term, Direct)

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Transportation	Improved journey times and an increase in journey ambience for cross-river trips.	High Positive Significance	High Positive (Permanent, Long-term, Direct)	High Positive (Permanent, Long-term, Direct)
Transportation	Improved bus journey times and an increase in journey ambience for cross-river trips.	High Positive Significance	High Positive (Permanent, Long-term, Direct)	High Positive (Permanent, Long-term, Direct)
Transportation	Support of the implementation of Halton wide Sustainable Transportation Strategy enhancement	High Positive Significance	High Positive (Permanent, Long-term, Direct)	High Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 1 – industrial and commercial areas	Low Negative Significance	Low Negative (Permanent, Long-term, Direct)	Low Negative (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise Area 1 – St Helens Canal	Moderate Negative Significance	Moderate Negative (Permanent, Long-term, Direct)	Moderate Negative (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 2 – residential areas adjacent to northern approach to SJB	Moderate Positive Significance	Moderate Positive (Permanent, Long-term, Direct)	Moderate Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 3 – SPA	High Positive Significance	High Positive (Permanent, Long-term, Direct)	High Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 4 – residential areas adjacent to the southern approach to SJB	Moderate Positive Significance	Moderate Positive (Permanent, Long-term, Direct)	Moderate Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 5 – residential areas adjacent to the Weston Point Expressway	Moderate Positive Significance	Moderate Positive (Permanent, Long-term, Direct)	Moderate Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 6 – Wigg Island	High Negative Significance	High Negative (Permanent, Long-term, Direct)	High Negative (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 6 – Manchester Ship Canal	Moderate Negative Significance	Moderate Negative (Permanent, Long-term, Direct)	Moderate Negative (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 7 – Astmoor industrial estate	Low Negative Significance	Low Negative (Permanent, Long-term, Direct)	Low Negative (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 8 – residential areas adjacent to Bridgewater junction	Low Negative Significance	Low Negative (Permanent, Long-term, Direct)	Low Negative (Permanent, Long-term, Direct)

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Noise and Vibration	Road traffic noise- Area 8 – Bridgewater Canal	Moderate Negative	Moderate Negative (Permanent, Long-term, Direct)	Moderate Negative (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 9 – residential areas adjacent to the Central Expressway	Low Negative Significance	Low Negative (Permanent, Long-term, Direct)	Low Negative (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Area 10 – residential areas adjacent to the Weston link to M56	Low Negative Significance	Low – Negative (Permanent, Long-term, Direct)	Low – Negative (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise	Low Positive Significance	Low Positive (Permanent, Long-term, Direct)	Low Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Cavendish School – high importance	Low Positive Significance	Low Positive (Permanent, Long-term, Direct)	Low Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- West Bank Primary School	High Positive Significance	High Positive (Permanent, Long-term, Direct)	High Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Weston Point Community School	High Positive Significance	High Positive (Permanent, Long-term, Direct)	High Positive (Permanent, Long-term, Direct)
Noise and Vibration	Road traffic noise- Woodside Primary School	Low Negative Significance	Low Negative (Permanent, Long-term, Direct)	Low Negative (Permanent, Long-term, Direct)
Local Air Quality	Silver Jubilee Bridge, levels of NO ₂ and PM ₁₀	High positive significance (NO ₂) Moderate positive significance (PM ₁₀)	High positive significance (NO ₂) Moderate positive significance (PM ₁₀) (Long term, Direct)	High positive significance (NO ₂) Moderate positive significance (PM ₁₀) (Long term, Direct)
Local Air Quality	A557 Weston Point Expressway, levels of NO ₂ and PM ₁₀	Moderate positive significance (NO ₂) Low positive significance (PM ₁₀)	Moderate positive significance (NO ₂) Low positive significance (PM ₁₀) (Long term, Direct)	Moderate positive significance (NO ₂) Low positive significance (PM ₁₀) (Long term, Direct)
Local Air Quality	Changes in regional NO _x , PM ₁₀ and CO ₂ emissions from the modelled road network	Low Positive Significance	Low Positive Significance (Long term, Direct)	Low Positive Significance (Long term, Direct)
Socio Economics	Change in Population Structure: Regeneration attracting individuals/ families to remain/ immigrate to Halton	High Positive Significance	High Positive (Permanent, Long term, Indirect)	High Positive (Permanent, Long term, Indirect)

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Socio Economics	Change in Population Structure: Increased pressure to community facilities and services (e.g. health centres, hospitals, leisure facilities).	High Negative Significance	High Negative (Permanent, Long term, Indirect)	High Negative (Permanent, Long term, Indirect)
Socio Economics	Change in Employment Opportunities: Creation of new jobs for individuals within Halton	Moderate Positive Significance	Moderate positive (Permanent, Long term, Direct and Indirect)	Moderate positive (Permanent, Long term, Direct and Indirect)
Socio Economics	Improvement of pedestrian and cycling facilities with potential for health benefits, specifically within Riverside and Mersey.	High Positive Significance	High Positive (Permanent, Long term, Direct)	High Positive (Permanent, Long term, Direct)
Socio Economics	Improvement of pedestrian and cycling with potential for health benefits within the rest of Halton.	Moderate Positive Significance	Moderate Positive (Permanent, Long term, Direct)	Moderate Positive (Permanent, Long term, Direct)
Socio Economics	Change in perception or actual health and safety issues for Halton individuals Changes in Air Quality – emissions of NO ₂ to Users of the SJB and Greenway Road	High Positive Significance	High Positive (Permanent, Long term, Indirect)	High Positive (Permanent, Long term, Indirect)
Socio Economics	Change in perception or actual health and safety issues for Halton individuals Changes in Air Quality – emissions of NO ₂ to Individuals and families within the rest of Halton	Moderate Positive Significance	Moderate Positive (Permanent, Long term, Indirect)	Moderate Positive (Permanent, Long term, Indirect)
Socio Economics	Change in perception or actual health and safety issues for Halton individuals Changes in Air Quality – emissions of NO ₂ , PM ₁₀ and CO ₂ to Individuals and families within the North West	Low Positive Significance	Low Positive (Permanent, Long term, Indirect)	Low Positive (Permanent, Long term, Indirect)

VEC	Cumulative Effect	Significance of related Project Residual Effect	Significance (and nature) of Cumulative Effect (Project as assessed in the Orders ES, 2008)	Significance (and nature) of Cumulative Effect (Project including the Proposals)
Socio Economics	Change in perception or actual health and safety issues for Halton individuals Changes in Noise and Vibration to Individuals at Weston Point and West Bank School	High Positive Significance	High positive (Permanent, Long term, Indirect)	High positive (Permanent, Long term, Indirect)
Socio Economics	Change in perception or actual health and safety issues for Halton individuals Changes in Noise and Vibration to Individuals and families residing in close proximity to the SJB	High Positive Significance	High Positive (Permanent, Long term, Indirect)	High Positive (Permanent, Long term, Indirect)
Socio Economics	Change in perception or actual health and safety issues for Halton individuals Changes in Noise and Vibration to Individuals and families residing in close proximity to construction areas F, G and H	Low Negative Significance	Low negative (Permanent, Long term, Indirect)	Low negative (Permanent, Long term, Indirect)
Socio Economics	Change in access to facilities and social networks: Improved access routes for pedestrians and cyclists	High Positive Significance	High positive (Permanent, Long term, Indirect)	High positive (Permanent, Long term, Indirect)
Socio Economics	Change in access to facilities and social networks: Disruption and closure of footpaths and cycleways	Low Negative Significance	Low Negative (Permanent, Long term Direct)	Low Negative (Permanent, Long term Direct)

21.6.2 Although almost all the construction phase effects are negative, as can be seen the majority of these would occur during the construction phase and be temporary. In addition very few of the cumulative effects increased in significance sufficiently to warrant being classified in the next significance class. In many instances whether they occur at all depends on the timing of other construction projects.

21.6.3 Operational cumulative effects are mainly positive. The mitigation of any cumulative effects is outside of the control of the Project [including the Proposals](#) and opportunities rest with the Council and the individual proposed developments to minimise the effects.

21.7 References

- Ref 1 ~~Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 and Amendment 2005.~~
- Ref 2 Hegmann, G., C. Cocklin, R. Creasey, S. Dupuis, A. Kennedy, L. Kingsley, W. Ross, H. Spaling & D. Stalker, 1999. Cumulative Effects Assessment Practitioners Guide. The Cumulative Effects Assessment Working Group AXYS, Environmental Consulting Ltd. Canadian Environmental Assessment Agency.
- Ref 3 Council on Environmental Quality. 1978. National Environmental Policy Act.
- Ref 4 Walker, L.J. & J. Johnston, 1999. Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions. European Commission.
- Ref 5 Department for Communities and Local Government, 2006. Environmental Impact Assessment: A guide to good practice and procedures.
- Ref 6 [Town and Country Planning \(Environmental Impact Assessment\) Regulations 2011](#)