

Warrington Local Plan Review

Pre-submission

Sustainability Appraisal: SA Report

August 2021

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Table of Contents

1	Introduction	1
1.1	Background.....	1
1.2	The Local Plan.....	2
2	Scoping	5
2.1	Background.....	5
2.2	Key issues	5
2.3	SA Framework.....	9
3	Consideration of alternatives	16
3.1	Introduction.....	16
4	Alternatives appraisal: Spatial strategy	19
4.1	Introduction.....	19
4.2	The evolution of spatial options.....	21
4.3	Preferred Development Option Stage (2017).....	23
4.4	Reasonable alternatives at Regulation 19 stage (2019).....	26
4.5	Reconsideration of Reasonable Alternatives (2021).....	32
5	Alternatives appraisal: Employment	43
5.1	Introduction.....	43
5.2	Consideration of alternatives: Proposed Submission (2019).....	43
5.3	Consideration of alternatives: Pre Submission (2021).....	48
6	Appraisal findings: Site options	51
6.1	Introduction.....	51
6.2	Outline reasons for the selection of site allocations.....	77
7	Meeting the needs of gypsies, travellers and travelling showpeople	81
7.1	Introduction.....	81
7.2	Considering alternatives.....	81
8	Options for the Garden Suburb	84
8.1	Concept Options	84
8.2	South East Warrington Urban Extension Options.....	86
9	APPRAISAL OF THE PLAN	93
9.1	Introduction.....	93
9.2	Housing	94
9.3	Climate Change.....	104

9.4	Natural Resources: Flooding.....	114
9.5	Economy and Regeneration:.....	121
9.6	Natural Resources: Soil	129
9.7	Natural Resources: Water Quality.....	137
9.8	Natural Resources: Air Quality	146
9.9	Health and Wellbeing.....	157
9.10	Built and Natural Heritage: Landscape.....	167
9.11	Built and natural heritage: Historic environment.....	177
9.12	Biodiversity and Geodiversity	186
9.13	Accessibility	197
9.14	Resource use and efficiency	206
9.15	Summary of Plan effects.....	213
10	Mitigation and enhancement	216
10.1	Introduction.....	216
11	Monitoring and next steps	225
11.1	Monitoring.....	225
11.2	Next Steps	230

APPENDIX A: SITE APPRAISAL FRAMEWORK

APPENDIX B: APPRAISAL OF STRATEGIC ALTERNATIVES: HIGH LEVEL OPTIONS
(PREFERRED DEVELOPMENT OPTION)

APPENDIX C: APPRAISAL OF STRATEGIC ALTERNATIVES: HIGH LEVEL OPTIONS
(PRE-SUBMISSION)

APPENDIX D: APPRAISAL OF STRATEGIC ALTERNATIVES – URBAN EXTENSION
OPTIONS (PREFERRED DEVELOPMENT OPTION STAGE)

APPENDIX E: URBAN EXTENSION OPTIONS MAPS

APPENDIX F: APPRAISAL OF STRATEGIC ALTERNATIVES – URBAN EXTENSION
OPTIONS (PRE-SUBMISSION)

APPENDIX G: APPRAISAL OF BROAD EMPLOYMENT AREAS

APPENDIX H: APPRAISAL OF EMPLOYMENT GROWTH OPTIONS

APPENDIX I: HIGH LEVEL APPRAISAL OF GARDEN SUBURB OPTIONS

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Introduction

01

1 INTRODUCTION

1.1 Background

1.1.1 AECOM has been commissioned by Warrington Council to undertake a sustainability appraisal (SA) in support of the Warrington Local Plan Review (the 'Plan').

1.1.2 The new Local Plan will set out the amount of housing and employment land that needs to be planned for, where and where not it will be acceptable in principle, and policies for assessing planning applications. The review focuses primarily upon three strategic issues:

- The provision of land and level of housing development that can be accommodated within Warrington, taking into account Objectively Assessed Needs (OAN);
- The provision of land for economic development and a growing local economy, taking into account Objectively Assessed Needs (OAN); and
- Ensuring the timely delivery of new and improved physical and social infrastructure required to meet the needs of new development and mitigate the impacts on existing communities.

1.1.3 The Council has identified a strategy for the delivery of growth, having commissioned a number of supporting studies to inform this decision. The SA is one such piece of evidence.

1.1.4 This SA Report reports on the findings of the sustainability appraisal process at this point in time. It includes:

- The scope of the SA (i.e. the background information and methodology)
- Consideration of alternative approaches to the key issues of housing growth and distribution
- Appraisal of reasonable site options
- Appraisal of the Plan (the strategy, allocations and policies considered together)

1.1.5 This SA Report constitutes an 'SA Report' as defined by the SEA Regulations (i.e. the SA Report that should be prepared and consulted upon alongside the draft Local Plan at Regulation 19 stage of the Planning Regulations).

1.2 The Local Plan

1.2.1 The new Local Plan for Warrington has been prepared over the last five years. The key milestones in the Plan-making process are summarised below:

- October 2016 - Council's Executive Board agree to commence a review of the existing Warrington Local Plan Core Strategy
- Winter 2016 - Consultation on the scope of the review was undertaken.
- A preferred Development Option was consulted upon in 2017
- The first proposed Submission Version Local Plan was consulted upon between April and June 2019.
- The Local Plan work was put on pause in October 2020 due to Covid 19 and the Governments proposed amendments to the standard housing methodology.
- Work on the Plan recommenced at the end of 2020. The council updated its evidence base to re-establish Warrington's future development needs.
- The current version of the Proposed Submission Version Local Plan has been prepared and will be subject to a further round of consultation in Autumn 2021.

1.2.2 The new Local Plan will set out how the Borough and the places within it should develop. The strategic objectives for the new Plan are set out in the table below.

<p>W1 To enable the sustainable growth of Warrington through the ongoing regeneration of Inner Warrington, the delivery of strategic and local infrastructure, the strengthening of existing neighbourhoods and the creation of new sustainable neighbourhoods whilst:</p> <ul style="list-style-type: none">• delivering a minimum of 14,688 new homes (equating to 816 per year) between 2021 and 2038, and• Supporting Warrington's ongoing economic success by providing 316 Hectares of employment land between 2021 and 2038.
<p>W2 To ensure Warrington's revised Green Belt boundaries maintain the permanence of Warrington's Green Belt in the long term.</p>
<p>W3 To strengthen and expand the role of Warrington Town Centre as a regional employment, retail, leisure, cultural and transport hub, whilst transforming the quality of the public realm and making the Town Centre a place where people want to live.</p>

W4 To provide new infrastructure to support Warrington's growth; address congestion; promote safer and more sustainable travel; and encourage active and healthy lifestyles.

W5 To secure high quality design which reinforces the character and local distinctiveness of Warrington's urban area, its countryside, its unique pattern of waterways and green spaces and its constituent settlements whilst protecting, enhancing and embracing the Borough's historic, cultural, built and natural assets.

W6 To minimise the impact of development on the environment through the prudent use of resources and ensuring development contributes to reducing carbon emissions and ensuring development is energy efficient, safe and resilient to climate change and makes a positive contribution to improving Warrington's air quality.

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Scoping

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2 SCOPING

2.1 Background

- 2.1.1 The Scoping stage of the SA process is used to establish the key issues that should be the focus of the appraisal, as well as the assessment methodologies.
- 2.1.2 A Scoping Report was prepared and published for consultation in October 2016. Following consideration of the comments received, the scope of the SA has been determined and has provided the baseline position against which appraisals have been undertaken.
- 2.1.3 It should be noted that the scope of the SA is fluid and has been updated throughout the plan making process in light of new evidence. The scope of the SA is presented in full within a separate document (representing an update to the original Scoping Report).

2.2 Key issues

- 2.2.1 The key issues identified through the scoping process are summarised in table 2.1 below.

Table 2.1: Key sustainability issues identified through scoping

Pockets of Deprivation - Deprivation across the borough as a whole is below regional and national averages, though there has been a slight worsening in overall deprivation from 2010-2015. There are stark inequalities, with high levels of multiple deprivation, concentrated mainly in the inner areas of Warrington. Bewsey and Whitecross, Fairfield and Howley, Orford, Poplars and Hulme, Poulton North and Latchford East all have SOAs in the 10% most deprived in England. There are also specific pockets of deprivation in the 'Education, Training and Skills' and Employment' domains; particularly in the inner areas of Warrington.

Employment needs - The 2016 Economic Development Needs Assessment identifies a need for an additional 381 hectares of employment land over the next 20 years. The updated report (2019) identifies a need for 362ha of employment land through to 2037. The updated report (2021) identifies a need for 316.26 of employment land through to 2038.

Economic Growth - There is a need to continue to promote sustainable economic growth in Warrington, building upon its existing strong economy. .

Table 2.1: Key sustainability issues identified through scoping

<p>Town centres - There is a need to promote the vitality and viability of town centres.</p>
<p>Fear of Crime and Antisocial behaviour - Levels of crime within the borough have fallen steadily over the last 5 years and are similar to regional and national averages. However, household surveys show fear of crime at night is higher than national figures, and substantially higher in more deprived neighbourhoods</p>
<p>Pockets of Health Deprivation - Health deprivation relative to other boroughs has worsened since 2010, with approximately 32% of the local population living in areas which are ranked amongst the most health-deprived in the country. Inner areas of the borough are affected most severely, but there are pockets across all Warrington neighbourhoods that are ranked amongst the 20% most deprived nationally.</p>
<p>Green Infrastructure - Green infrastructure provides multi-functional benefits for health and wellbeing and should be protected and enhanced.</p>
<p>Obesity rates - amongst adults are rising and currently exceed the average for England, contributing to actual and forecast increases in a number health conditions. All potential to influence the built environment to maximise opportunities for physical activity, active travel and healthy eating should be fully exploited.</p>
<p>Access to Primary Care - The NHS Strategic Estates Plan has identified that there are areas within the borough that currently have insufficient capacity to accommodate new residents, and will become increasingly more constrained over the plan period with further development.</p>
<p>Accessibility of Employment - Travel to work by public transport / walking / cycling figures for Warrington are lower than regional or national average. Use of car is higher and the problem is exacerbated by the New Town Development pattern.</p>
<p>Increasing car use and dependency - National trend exacerbated by New Town car dependency.</p>
<p>Rising traffic volumes and traffic congestion.</p>
<p>High levels of commuting into and out of the Borough.</p>
<p>Housing delivery - There is a pattern of solid housing completions over the last 5 years, with the majority taking place on brownfield land.</p>

Table 2.1: Key sustainability issues identified through scoping

<p>Housing needs - The 2016 Strategic Housing Market Assessment (SHMA) established that the full objectively assessed need (OAN) for housing in Warrington was 839 new homes per annum up until 2037, increasing to 984 homes per annum to ensure the number of new homes balanced with the Council's economic growth ambitions. The SHMA Update 2017 has subsequently confirmed a higher figure for the OAN of 955 homes per annum rising to 1,113 to ensure balance with the Council's growth ambitions. Further changes to the evidence have since occurred, such as the Governments new Standard Methodology. This gives the most recent need figure of 816 dwellings per year, as evidenced in the Local Housing Needs Assessment 2021.</p>
<p>There remains a shortage of Affordable Housing - As Identified in the Strategic Housing Market Assessment 2016 in the SHMA updates in 2017 and 2019 and in the Local Housing Needs Assessment which has been updated in 2021. Affordable housing needs to reflect local need and increase choice in terms of tenure, in-keeping with the local Housing Strategy.</p> <p>To address the impact of an ageing population there is a need to ensure there are sufficient homes that are accessible, adaptable and support care in the community and independent living.</p>
<p>There remains a shortage of Gypsy and Traveller and Travelling Show people accommodation - As identified in the Cheshire Gypsy and Traveller Accommodation Assessment 2014. This remains the case in updated studies undertaken in 2018.</p>
<p>Pollution, air quality and climate change - Two AQMAs are designated within the Borough. One is related to the motorway network; the other is focussed on the inner ring road network around the town centre and the strategic road network (A49, A5056 and A5061).</p>
<p>Quality of land and waterways in the Borough - A legacy of the towns industrial past, there are a large number of potentially contaminated sites within the Borough and a significant length of Warrington's rivers are graded as having poor chemical and biological quality.</p>
<p>Soil quality - Warrington contains considerable areas of Agricultural Land classified as Grade 2 and 3a (i.e. Best and Most Versatile). The release of Green Belt land could potentially affect such areas.</p>
<p>Mineral resources - There is a need to protect mineral resources and supporting infrastructure from sterilisation.</p>
<p>Protection and enhancement of the historic Environment – There is a significant number of historic assets in the Borough & a number of buildings / monuments have been identified as being in vulnerable or deteriorating condition.</p>

Table 2.1: Key sustainability issues identified through scoping

<p>Landscape character – There is a need to preserve and enhance the character of Warrington’s countryside, whilst recognising the need to release Green Belt land.</p>
<p>Protection & Enhancement of Biodiversity and geodiversity Assets – There are significant nature conservation and wider green infrastructure assets in the borough that need to be protected, enhanced and made more resilient.</p>
<p>Flood protection in the borough – Areas within the Borough are identified on the Environment Agency’s Indicative Floodplain maps.</p>
<p>Renewable energy and energy efficiency – There is a need for a more pro-active approach to energy production and usage.</p>
<p>Amount of waste entering land fill – There are European and National targets for waste reduction and an increase in reuse, recycling and composting.</p>

2.3 SA Framework

2.3.1 Table 2.2 sets out the eighteen SA objectives that have been established as a result of the scoping process. The SA objectives have been grouped into eight SA Themes to present the findings more succinctly and avoid duplication in the discussion of the SA findings (where objectives are very similar or complimentary). Each objective is supported by a list of sub-criteria and indicators for each SA Objective.

Table 2.2: The SA Framework (topics, objectives and supporting questions)

SA Theme	SA objectives	Sub criteria / supporting questions
Economy and regeneration	1. Strengthen the local economy and ensure sustainable economic growth	<ul style="list-style-type: none"> - Will the level and distribution of housing support the local workforce? - Will the development provide a range of jobs appropriate to the skills present in local communities to help ensure those communities derive maximum economic benefit. - Will new employment be supported by a workforce in a wider travel to work area? - Will the infrastructure support sustainable modes of travel to new employment sites - Will development support small local businesses as well as larger businesses
	2. Improve the education and skills of the population overall	<ul style="list-style-type: none"> - Will local schools be able to cope with the proposed level and distribution of housing? - Will new employment growth and types help to support skills development and aspirations for local population, particularly those in areas of greatest need? - Will access to education be equitable for different social groups?
	3. Reduce poverty, deprivation and social exclusion and secure economic inclusion	<ul style="list-style-type: none"> - To what extent will the level and distribution of housing help to regenerate deprived areas and meet the needs of minority groups? - To what extent will new employment growth benefit deprived communities and minority groups? - Will new employment provide an appropriate balance to utilise local skill sets

SA Theme	SA objectives	Sub criteria / supporting questions
Health and Wellbeing	5. Improve physical and mental health and reduce health inequalities	<ul style="list-style-type: none"> - Will new housing and employment have good access to open space and active transport options? - Will local health services be able to cope with proposed levels of housing? - Will new development have good access to a range of services; including community facilities, shops and local amenities.
	7. Reduce crime, disorder and the fear of crime	<ul style="list-style-type: none"> - Will development be designed to reduce crime and the fear of crime?
	<p>8. Enable groups to contribute to decision making and encourage a sense of community identity and welfare.</p> <p>10. Provide, protect or enhance leisure opportunities, recreation facilities, green infrastructure and access to the countryside</p>	<ul style="list-style-type: none"> - Will new housing have good access to open space, sport and recreational facilities on foot and by public transport - Will there be opportunities for local communities to be involved in the planning and design of developments - How will the levels and distribution of housing and employment affect community cohesion? - Will the development encourage mixed use of buildings and space in order to stimulate the creation of social networks and interaction between different social groups? - How will development help to protect and enhance a network of multi-functional green infrastructure that encourages active travel and recreation? - Will the development include provision for adequate usable open space including areas for equipped play.
Accessibility	4. Reduce the need to travel, especially by car, improve choice and the use of more sustainable modes	<ul style="list-style-type: none"> - Will new housing and employment be close to public transport links, or be capable of supporting / delivering new services?

SA Theme	SA objectives	Sub criteria / supporting questions
	<p>9. Protect and enhance accessibility for all the essential services and facilities.</p>	<ul style="list-style-type: none"> - Will new housing development be within walking distance of essential services such as schools and health facilities? - Do these essential services have capacity? Are buildings fit for purpose and able to accommodate increased population? - Will the new development support or facilitate the integration of a range of services in a single location (neighbourhood hub) to increase accessibility and reduce the need to travel. - Will new housing and employment be in areas that are likely to encourage car usage? - Will new development increase congestion on key routes? - Is the infrastructure in place/planned to minimise impact of increased population on traffic issues? - Will the future use of footpaths and cycleways be maximised by ensuring connectivity and useability?
<p>Housing</p>	<p>6. Ensure access to good quality, sustainable, affordable housing</p>	<ul style="list-style-type: none"> - Is new housing likely to be affordable given the viability of available land? - Will there be enough homes of the right size, type and tenure to meet identified needs of all social groups? - Does the new housing meet likely future needs in terms of occupants, given the ageing population. - Will homes be accessible and easily adaptable in order to enable current and future occupants to remain in their homes as their needs change? - Is housing likely to be of a high quality design? - Will housing be designed in a way to help reduce noise pollution, energy waste, fuel poverty and flood damage risk.

SA Theme	SA objectives	Sub criteria / supporting questions
		<ul style="list-style-type: none"> - Will construction allow passive cooling and adequate air exchange to reduce overheating risk and promote good indoor air quality?
Natural Resources	<p>14. Protect, manage and improve local environmental quality including land, air and controlled waters and reduce the risk of flooding.</p> <p>16. Ensure the sustainable and prudent use and management of natural resources including the promotion of natural resources including the promotion of sustainable drainage and water conservation.</p>	<ul style="list-style-type: none"> - Will new development contribute to air quality problems, particularly within Warrington's two AQMAs. - Can waste water treatment plants cope with proposed levels of housing and employment growth? - Could there be a loss of Grade 1, 2 or 3 agricultural land? - What effect will the level of development proposed have on surface water run-off? - Could development need to be allocated in areas at risk of flooding? - Could development sterilise potential or known reserves of minerals?
Built and natural heritage	<p>11. Protect and where possible enhance the significance of historic assets and their setting.</p>	<ul style="list-style-type: none"> - How will new development affect designated and locally important heritage assets and their settings? - How will development affect the historic environment?

SA Theme	SA objectives	Sub criteria / supporting questions
	<p>12. Protect and improve the quality and character of places, landscapes, townscapes and wider countryside whilst maintaining and strengthening local distinctiveness and sense of place.</p>	<ul style="list-style-type: none"> - Will development alter the character of landscapes and the countryside? - Will development affect the tranquillity of areas? - Will new development affect the function of the Green Belt and strategic green infrastructure networks?
	<p>19. Ensure high quality and sustainable design for buildings, spaces and the public realm that is appropriate to the locality.</p>	<ul style="list-style-type: none"> - Is development likely to be of a high quality design?
<p>Biodiversity and Geodiversity</p>	<p>13. Protect, maintain and enhance biodiversity and geodiversity.</p>	<ul style="list-style-type: none"> - To what extent are different levels of housing and employment development likely to affect biodiversity? - To what extent does new development provide opportunities to enhance green infrastructure (including benefits for wildlife). - To what extent can potential effects on wildlife be mitigated at strategic sites? - Will there be a net gain in biodiversity? - What effect will development have upon Geodiversity?
<p>Climate Change and resource use</p>	<p>15. Limit, mitigate and adapt to the impacts of climate change.</p> <p>17. Increase energy efficiency and production of renewable energy.</p>	<ul style="list-style-type: none"> - To what extent can household waste be managed locally? - Does development present opportunities to establish decentralised energy networks? - Could development 'sterilise' areas that are suitable for wind energy? - Are there opportunities to enhance green infrastructure networks?

SA Theme	SA objectives	Sub criteria / supporting questions
	18. Minimise waste and maximise reuse, recovery and recycling.	

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Consideration of alternatives

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3 CONSIDERATION OF ALTERNATIVES

3.1 Introduction

- 3.1.1 A critical stage of the SA process is the consideration of alternative approaches and options for delivering the objectives of the Plan.
- 3.1.2 Appraisal of reasonable alternatives allows for a fair comparison of different policy approaches and site allocations to be undertaken. The findings of appraisal can then help to inform decisions about the preferred Plan approaches.
- 3.1.3 An important aspect of an effective SA is to help stakeholders (i.e. businesses, communities, developers, statutory bodies) understand the benefits, constraints and opportunities associated with different policy approaches / site options.
- 3.1.4 The Regulations¹ are not prescriptive, stating only that the SA Report should present an appraisal of the plan and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme.
- 3.1.5 Alternatives have been explored for the following Plan elements:
- Alternative high-level options for housing growth and distribution. Alternative options for the main development locations for housing and employment in the Warrington urban area
 - Appraisal of employment growth options
 - Appraisal of broad employment locations
 - Site options for housing and employment development
 - Options for meeting the needs of Gypsies and Travellers, and Travelling Showpeople.
 - Appraisal of concept options for the South East Warrington Urban Extension
- 3.1.6 The following chapters in this section deal with the alternative approaches that have been identified and assessed for each of the Plan elements listed above.
- 3.1.7 Importantly, for each Plan issue a discussion is provided to clarify which approaches the Council considers to be reasonable for inclusion in the SA (and those that are considered to be unreasonable).

¹ Environmental Assessment of Plans and Programmes Regulations 2004

3.1.8 Outline reasons are also provided to explain why the Council has decided to pursue or reject particular approaches to the growth and distribution of housing and employment land. Given that plan-making is an iterative process, the options were revisited several times to ensure they remained up to date and reasonable.



**Alternatives appraisal:
Spatial strategy**

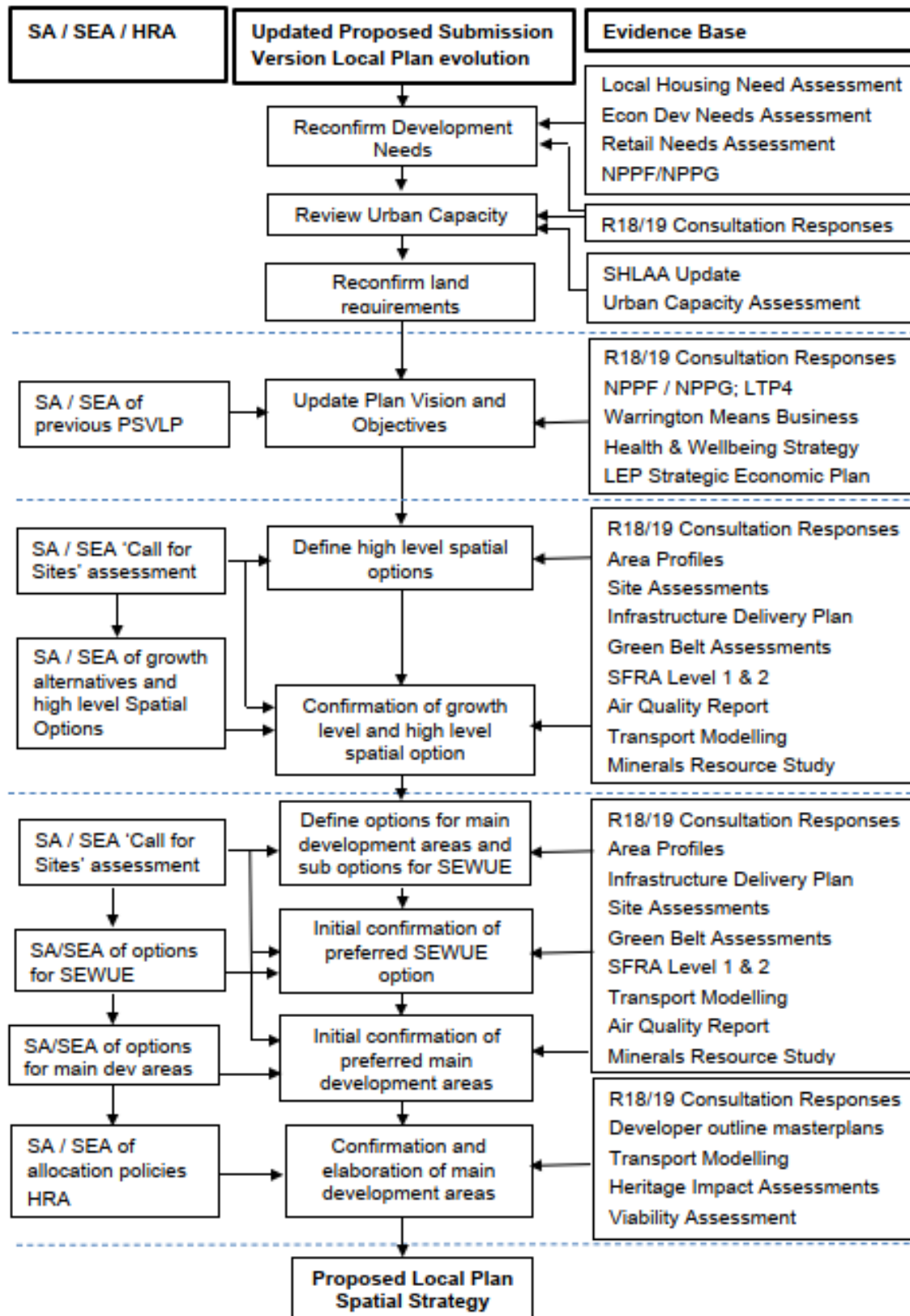
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4 ALTERNATIVES APPRAISAL: SPATIAL STRATEGY

4.1 Introduction

- 4.1.1 Setting the strategy for the amount and distribution of housing and employment development is a crucial element of the plan-making process. The Warrington Local Plan Review in particular is focused on identifying land for homes, employment and ensuring the delivery of supporting infrastructure. The need to maintain the current Plan approach of unlocking regeneration opportunities in inner Warrington is also important.
- 4.1.2 A robust approach to plan-making should involve testing different approaches as to how these plan objectives can be achieved. Therefore, there is a need to examine the evidence behind housing and employment needs and understand the implications of meeting such needs in a range of different (but reasonable) ways.
- 4.1.3 Figure 4.1 below sets out an overview of the process undertaken in the identification and selection of a preferred spatial strategy for the updated Proposed Submission Version Local Plan (i.e. this describes the process following the completion of the previous Proposed Submission Version Local Plan Consultation); demonstrating how key pieces of evidence fed into the process as well as key stages of the SA.
- 4.1.4 This section of the SA Report sets out a more detailed discussion of the alternatives identification and assessment tasks that have been undertaken as part of the SA.
- 4.1.5 The Plan making process has been an iterative process, and has responded to changing circumstances and evidence. As a result, alternatives have been explored and tested at several stages. The key milestones in relation to the development of the Plan and the testing of alternatives are summarised below:
- A preferred Development Option was consulted upon in 2017 – *Options for the scale and distribution of growth were tested*
 - The first proposed Submission Version Local Plan was consulted upon between April and June 2019 – *Refined options were tested in relation to the scale and distribution of growth*
 - The Local Plan work was put on pause in October 2020 due to Covid 19 and the Governments proposed amendments to the standard housing methodology. Work on the Plan recommenced at the end of 2020. The council updated its evidence base to re-establish Warringtons future development needs.
 - The current version of the Proposed Submission Version Local Plan has been prepared and will be subject to a further round of consultation in Autumn 2021. *Additional detailed options have been tested to reflect the latest evidence.*

Figure 4.1: Flow chart setting out the plan-making process following the previous Proposed Submission Version Local Plan Consultation



4.2 The evolution of spatial options

- 4.2.1 Plan-making and SA are iterative processes. Therefore, it is common practice to establish and appraise options at several stages of plan-making. This has been the case for the Warrington Local Plan and the accompanying sustainability appraisal.
- 4.2.2 Alternatives have been considered at each key milestone in the development of the Plan, and the following sections describe each in turn.
- 4.2.3 Figure 4.2 below presents a summary of the options appraisal process and how the preferred approach has evolved over time. It can be noted that the preferred scale of growth changed over time with Alternative B2 involving 1,113 dwellings per annum, whilst Alternative G2 only involves 816 dwellings per annum. Despite the different scale of growth, the overall strategy (Focus on Warrington with incremental growth at the outer settlements) has remained the same throughout. The location of growth around the main urban areas of Warrington has changed over time.

Figure 4.2: Evolution of the spatial strategy options

	Preferred Options Stage (2017-2018)	Pre Submission (2019-20)	Pre Submission (2020-2021)
	Appraisal of 3 options for growth combined with 3 distribution options. Options A1 through to C3	Appraisal of 9 additional options to ensure the high level spatial strategy remains appropriate Appraisal of 6 refined options for the main urban area	Additional high level growth scenario appraised. New urban options appraisal.
High level strategy options	Alternative B2 Focus on Warrington with incremental growth at outer settlements - 1,113 dwellings per annum - 8,791 Green Belt requirement	Alternative F2 Focus on Warrington with incremental growth at outer settlements - 945 dwellings per annum - 7,064 Green Belt requirement	Alternative G2 Focus on Warrington with incremental growth at outer settlements - 816 dwellings per annum - 4372 Green Belt requirement
Options for growth in Warrington main urban area	PO Option 2 (of 5) A Garden City Suburb of approximately 6,000 homes & an urban extension to the south west of Warrington of up to 2,000 homes.	REG19a Option 1 (of 6) Garden Suburb to the south east of Warrington of around 4,200 homes & urban extension to the south west of around 1,600 homes;	Reg19b Option 3 (of 5) South East Warrington Urban Extension of 2400 homes, Fiddlers Ferry Redevelopment (1700 homes), plus Thelwall Heys (310 dwellings)
Site options appraisal	Incremental growth in the outer settlements 1100 dwellings	Incremental growth in the outer settlements 1100 dwellings	Incremental growth in the outer settlements 801 dwellings

4.3 Preferred Development Option Stage (2017)

4.3.1 A key step was the identification of options for housing growth and distribution at the Preferred Development Option (PDO) stage. At this point in time, the options were developed in light of the best available evidence, and led to the identification of three growth options and three distribution options.

4.3.2 These are described briefly below, with a summary of the findings.

PDO options for housing growth / amount of greenbelt release

4.3.3 Three housing growth options were identified each reflecting different approaches as to how job growth and subsequent housing needs could be accounted for. Following an assessment of land supply and urban capacity, it was clear that meeting housing and employment land needs would require the release of Green Belt land.

Table 4.1: Growth scenarios tested at issues and options stage

	Housing target	Dwellings per annum	Green Belt Requirement
Growth Scenario A: OAN (2017 SHMA)	19,100 (20,902 with 5% flexibility)	955	5,473
Growth Scenario B: Devolution Bid	19,100 (20,902 with 5% flexibility)	1,113	8,791
Growth Scenario C: High growth	19,100 (20,902 with 5% flexibility)	1,332	13,390

PDO options for the distribution of housing across the borough

4.3.4 In order to understand the broad implications of each growth scenario, the Council identified three options for how housing needs could be distributed across the borough.

4.3.5 It was important at this stage to understand and consider the 'Call for sites' submissions, particularly the broad locations of these to gain an understanding as to where future development could potentially be located. It was apparent from this exercise that there would be spatial options to assess adjacent to the main urban area and around the outlying settlements.

4.3.6 In order to help inform the options identification and appraisal process the Council prepared 'area profiles' for each of the main urban area of Warrington (central, north, south, east and west) and for each of the outlying settlements.

4.3.7 These profiles identified the broad constraints, opportunities and infrastructure capacity in each of the profile areas. This helped to identify where growth of a particular scale would not be reasonable, and would not need to be taken forward in the SA process.

4.3.8 Most notably, the potential for very large settlement extensions to Lymm and/or Culcheth were considered to be unreasonable for the following reasons:

- poor performance against Plan objectives – in particular, the majority of growth would occur away from the main urban area of Warrington.
- the scale of impact on the character of the existing settlements

4.3.9 Informed by the settlement profiles and an understanding of opportunities through the call for sites exercise, three high-level spatial options were established as reasonable alternatives at this stage.

- **Option 1** - Green Belt release only in proximity to the main Warrington urban area;
- **Option 2** - Majority of Green Belt release adjacent to main urban area with incremental growth in outlying settlements; and
- **Option 3** - Settlement extension in one or more settlement with remainder of growth adjacent to the main urban area.

4.3.10 In order to give the appraisal context and meaning, the three growth scenarios were combined with each of the three high-level spatial options. This allowed for a broad understanding of effects to be identified for each of the spatial options, and how these effects would differ should the level of growth be higher or lower.

4.3.11 This combination resulted in nine discrete reasonable alternatives that were tested in the SA at the issues and options stage (see table 4.2).

Table 4.2: High level spatial alternatives tested at PDO stage

A. Meet OAHN needs (GB Requirement 5,473)	B. Economic aspirations / Devolution Bid (GB Requirement 8,791)	C. Past employment trends / Higher growth (GB Requirement 13,390)
A1. Focus entirely on the Warrington urban area	B1. Focus entirely on the Warrington urban area	C1. Focus entirely on the Warrington urban area
A2. Incremental growth in settlements	B2. Incremental growth in settlements	C2. Incremental growth in settlements
A3. Increased dispersal of development	B3. Increased dispersal of development	C3. Increased dispersal of development

4.3.12 An appraisal of each alternative was undertaken and the findings were presented in an Interim SA Report, which was consulted upon alongside the Local Plan Preferred Development Option. The findings have been reproduced for context at Appendix B. In summary, the following conclusions were reached:

- All three alternatives at the highest level of growth (Scenario C) would generate significant negative effects on a range of environmental factors.
- At a lower level of growth (Scenario A), the negative effects upon environmental factors would be lower, but the housing needs may not be met in full, and this could mean fewer positive effects with regards to social factors like health and wellbeing, economic growth and regeneration.
- Scenario B would provide the most appropriate balance between the benefits associated with housing / employment growth and the potential negative effects on environmental factors.
- Of the distribution options under Scenario B, incremental growth would be the most balanced approach. An approach focused entirely on the main urban area of Warrington would not provide a flexible approach to housing and could exclude the outer settlements from any benefits associated with growth. Conversely, an approach that dispersed development away from the urban areas would not be as likely to achieve the Plan objectives relating to regeneration, accessibility and economic growth.

4.3.13 At this stage, the Council identified **Alternative B2** as the preferred approach, which was supported by the SA findings within the interim SA Report.

PDO options for the distribution of housing within the main urban area

4.3.14 Having established the preferred broad spatial option (*growth at the urban fringes, with incremental growth in the outer settlements*), the next stage was to identify and assess reasonable options for the location of development (*i.e. how growth at the edge of the urban area could be distributed*).

4.3.15 At this stage, the alternatives were based upon the evidence available at this point in time. From the call for sites exercise, it was established that incremental growth adjacent to the outlying settlements would be capable of accommodating a minimum of 1,000 dwellings. This left the remainder of approximately 8,000 dwellings to be accommodated adjacent to the main urban area in order to meet the overall housing requirement under the preferred growth strategy.

4.3.16 The Council utilised settlement area profiles to establish approaches to the distribution of development (around the urban area) that could accommodate approximately 8000 dwellings. As a result of this process five reasonable options were identified that were tested in the SA at this stage.

PDO Option 1 - A Garden City Suburb to the south east of the Warrington main urban area of approximately 8,000 homes.

PDO Option 2 - A Garden City Suburb of approximately 6,000 homes & an urban extension to the south west of Warrington of up to 2,000 homes.

PDO Option 3 - A Garden City Suburb of approximately 6,000 homes & an urban extension to the west of Warrington of up to 2,500 homes.

PDO Option 4 - A Garden City Suburb of approximately 4,000 homes & an urban extension to the south west of Warrington of up to 2,000 homes & urban extension to west of Warrington of up to 2,500 homes.

PDO Option 5 - A dispersed pattern of Green Belt release immediately adjacent to the main urban area

4.3.17 An appraisal of each alternative was undertaken and the findings were presented in an Interim SA Report, which was consulted upon alongside the Local Plan Preferred Development Option. These are reproduced for context at Appendix D.

4.3.18 At this stage, the Council identified **PDO Option 2** as the preferred approach, which was supported broadly by the SA findings within the interim SA Report.

4.4 Reasonable alternatives at Regulation 19 stage (2019)

4.4.1 Following consultation on the Preferred Development Option (which was accompanied by an Interim SA Report), the Council undertook a fundamental review of the technical evidence underpinning the Plan. This included the following:

- There were changes to the methodology for calculating housing needs (i.e. the Government Standard Methodology).
- Updated job forecasts which post-date the EU Referendum were showing a reduced rate of job growth compared to the forecasts which informed the Preferred Development Option.
- The application of a 10% flexibility factor was identified as a suitable benchmark to ensure the delivery of the housing target.
- The Council reviewed the capacity within the existing urban area, using higher density assumptions for the town centre and surrounding area whilst acknowledging that some sites identified in its town centre masterplanning work may not come forward in the Plan Period.
- A substantial number of representations made upon the Preferred Development Option stated that an extension to the north had been ruled out prematurely. Likewise, there was a body of respondents that suggested a more dispersed approach ought to be tested.
- The Council revised the estimate of new homes that can be built within the Plan period in the Garden Suburb.

4.4.2 In response to these changes it was deemed necessary to establish revised options for the growth and distribution of housing.

High level strategic options for growth

- 4.4.3 With regards to housing growth, three scenarios were identified. These are described below with the targets summarised in **Table 4.3** (further detail can be found in the **Development Options and Site Assessment Technical Report**). To provide a comparison with the original growth options (at preferred options stage), these follow sequentially and are labelled as Scenarios D, E and F in this SA Report.

Scenario D: Standard Methodology (2016 base): This is the minimum requirement using the standard methodology but using the 2016 based household projections rather than the 2014 based projections.

Although this scenario runs contrary to Government guidance, it does enable an assessment of a lower level of growth and help in consideration of whether the exceptional circumstances exist for Green Belt release.

Scenario E: Standard Methodology (2014 base): This is the minimum level of housing that the Council needs to Plan for in accordance with the Government's new National Planning Policy Framework (NPPF) (2019) and Planning Practice Guidance (PPG). This uses the 2014 based household projections in accordance with the PPG. This is therefore a clear reasonable alternative.

Scenario F: Economic Growth Scenario: This reflected the Council's growth aspirations and its commitment to address the increasing problem of affordability of housing, particularly for Warrington's younger people and young families.

Table 4.3: Housing targets and associated green belt release for the growth options

	D.Standard Methodology (2016 base)	E.Standard Methodology (2014)	F.Economic Growth scenario
Annual requirement	735	909	945
2017 to 2037 (2022-2039 for option G)	14,700	18,180	18,900
Flexibility @ 10%	1,470	1,818	1,890
Total Requirement	16,170	19,998	20,790
Urban Capacity	13,726	13,726	13,726
Green Belt Requirement	2,444	6,272	7,064

- 4.4.4 These three scenarios were considered to be the reasonable alternatives at this stage. However, additional growth scenarios were tested at an earlier stage of plan making (i.e. those in Table 4.2) which therefore provides an understanding of a much wider range of growth options.
- 4.4.5 This included an assessment of a much higher release of Green Belt (13,390 dwellings), which was considered to be unreasonable at this latter stage.
- 4.4.6 As per the initial growth scenarios (A, B and C), three distribution approaches have been tested for each of the new growth scenarios (D, E and F), to gain a better understanding of the potential sustainability effects.

Table 4.4: The reasonable alternatives for housing growth and distribution Reg19

D. Government Standard Methodology (2016 base)	E. Government Standard Methodology (2014 base)	F. Proposed Plan target (SEP Uplift, 2017-2037)
D1. Focus entirely on the Warrington urban area <i>2,444 dwellings to the urban fringes of Warrington</i>	E1. Focus entirely on the Warrington urban area <i>6,272 dwellings to the urban fringes of Warrington</i>	F1. Focus entirely on the Warrington urban area <i>7,064 dwellings to the urban fringes of Warrington</i>
D2. Incremental growth in settlements <i>1,100 dwellings in the outer settlements, 1344 dwellings to the urban fringes</i>	E2. Incremental growth in settlements <i>1,100 dwellings in the outer settlements</i> <i>5172 homes to the urban fringes</i>	F2. Incremental growth in settlements <i>1,100 dwellings in the outer settlements</i> <i>5'964 homes to the urban fringes</i>
D3. Increased dispersal of development to settlements <i>2,444 dwellings at the outer settlements</i>	E3. Increased dispersal of development to settlements <i>3500 dwellings at the outer settlements</i> <i>2772 dwellings to the urban fringes</i>	F3. Increased dispersal of development to settlements <i>4200 dwellings at the outer settlements</i> <i>2864 dwellings to the urban fringes</i>

The Councils rationale for selecting the preferred high level strategy

4.4.7 The Council set out a detailed justification for the selection of the preferred approach in the Development Options and Site Assessment Technical Report (March 2019). Its selection of the preferred approach at this stage was informed by the SA/SEA process. The justification is summarised below, including outline reasons why the alternatives were discarded.

- The Council considered that Growth Scenario F provided the best strategy for the Local Plan.
- All three options under growth Scenario E were considered to be inappropriate as they would not meet the full housing needs of the borough (at this time).
- With regards to the broad distribution of development, the Councils strategy remained the same as the preferred option stage (i.e. that the majority of development should be located at the edges of the main urban area, but alongside incremental growth in the outer settlements).

This will achieve the sustainability of Warrington's growth as a whole, whilst supporting the long term vitality of the outlying settlements

- Focusing entirely on the Warrington inner area would not provide the same benefits for the outlying settlements, and the additional growth in the urban area would not be likely to generate significantly different impacts in terms of socio economic development.
- Greater dispersal to the outlying settlements would result in greater character impacts in the settlements, would promote a less sustainable form of growth and provides a weaker contribution to supporting the growth of the main urban area.

4.4.8 The preferred strategy for the Borough at this stage was therefore in broad alignment with **Alternative F2**.

4.4.9 The detailed appraisal findings are presented in full at **Appendix C**.

Consideration of main urban development locations

4.4.10 As discussed in Section 4.3, three new growth scenarios were identified as reasonable alternatives following a review of the evidence base. These options re-evaluated the implications of different levels of growth in the urban area compared to the outlying settlements.

4.4.11 The Council concluded that the focus of development should still be within the urban area / fringes of Warrington and that there would be a requirement for approximately 7000 dwellings to be released in the Greenbelt in total (i.e. **Alternative F2**). However, several factors led to the distribution of growth in the urban areas to be explored again:

1. The scale of growth was different to the previous level outlined in the draft spatial strategy as the preferred approach (i.e. the draft strategy proposed 1113dpa with 8,791 located on green belt land; but the final Plan proposes 945dpa, with approximately 7000 homes on Green Belt land). There may be different ways in which a lower level of growth could be distributed, and the implications may be different.
2. Comments received from consultation suggest that there are alternative approaches to distribution that ought to be tested as reasonable alternatives. Notably, this includes the approach of focusing some growth to the north of Warrington.

4.4.12 Consequently, the following options were established for appraisal. Several options propose broadly the same configurations of development across the urban area to corresponding options that were assessed at preferred development options stage. However, the quantum of development is different, and so the effects were re-considered.

REG19a Option 1 - Garden Suburb to the south east of the Warrington of around 4,200 homes & urban extension to the south west of around 1,600 homes;

REG19a Option 2 - Garden Suburb of around 4,200 homes & an urban extension to the west of Warrington of around 1,600 homes;

REG19a Option 3 - Garden Suburb of around 4,200 homes & an urban extension to the north of around 1,600 homes;

REG19a Option 4 – Garden Suburb of around 4,200 homes & dispersed Green Belt release adjacent to main urban area;

REG19a Option 5 – Garden Suburb of around 2,400 homes, urban extension to the south west of around 1,600 homes and dispersed Green Belt release adjacent to main urban area; and

REG19a Option 6 - A more dispersed pattern of Green Belt release adjacent to the main urban area.

4.4.13 A map has been prepared illustrating the broad locations for growth for each of these options, and can be found at Appendix E.

Unreasonable options

4.4.14 Before the Preferred Development Option was consulted upon, the Council determined that development options to the north and east of the borough would be unreasonable approaches to strategic development.

4.4.15 This was determined through the area profile assessments and more detailed site assessment work, which demonstrated that:

- The sites in the east are subject to a number of environmental constraints, including the location of Peat, Rixton Moss Local Wildlife Site and part of the area being within Flood Zone 3.
- The sites in the north raised environmental concerns given their proximity to the M62 and would effectively result in the urban area merging with Winwick, impacting on the character of the settlement.

4.4.16 The individual sites in these areas were however considered as potential development locations under the dispersed pattern of Green Belt release.

4.4.17 Following consultation on the Preferred Development Option, there were numerous comments suggesting that an urban extension to the north was considered to be a reasonable alternative. Additional site options were also proposed, which would allow for growth to the north.

4.4.18 In light of these factors, the Council deemed it appropriate to test such an approach (as per **Reg19a Option 3** on the previous page).

4.4.19 The Council still considers that strategic growth to the east is unreasonable for the same reasons identified at draft spatial strategy stage.

The Councils rationale for selecting the preferred approach at this stage

4.4.20 The Councils preferred approach, taking into account the SA/SEA was broadly in-line with **Reg19a Option 1** (Garden Suburb to the south east of the Warrington of around 4,200 homes & urban extension to the south west of around 1,600 homes).

4.4.21 The Council concluded that this option performs strongly across the majority of Local Plan Objectives. It is capable of meeting development needs and delivering infrastructure needed to support the development itself and contribute to the wider sustainable development of Warrington as a whole. Green Belt release can be facilitated without comprising the strategic importance of Warrington's Green Belt as a whole, with revised boundaries likely to be robust and durable beyond the Plan period.

4.4.22 The Council rejected the alternative options for the following outline reasons.

4.4.23 **Reg19a Option 2** did not perform as strongly due to concerns around the fragmented nature of available sites which may make infrastructure delivery more difficult and that development is likely to impact on the strategic importance of the Green Belt between the main urban area of Warrington and Widnes. There are also concerns regarding the robustness of the revised Green Belt boundaries that would be created from development in the west.

4.4.24 **Reg19a Option 3** did not perform as well due to concerns around the fragmented nature of available sites, which may make infrastructure delivery more difficult, the significant impact on the character of Winwick, transport issues in respect of Junction 9 of the M62/A49 and potential noise and air quality impacts from the motorway. Given the location and fragmented nature of the sites in the north, there is less scope to mitigate these impacts without a significant reduction in development capacity.

4.4.25 **Reg19a Options 4, 5 and 6**, with more dispersed forms of development are less likely to be able to deliver the strategic and local infrastructure needed to support the development itself and contribute to the wider sustainable development of Warrington as a whole.

4.4.26 The SA was broadly supportive of the preferred approach, which concluded that an approach involving a Garden Suburb is more likely to achieve significant positive effects upon socio-economic factors when compared to the more dispersed approaches.

4.4.27 For further detail, the appraisal findings for the options assessment are presented in full at **Appendix F**.

4.5 Second Regulation 19 Consultation – Reconsideration of Reasonable Alternatives (2021)

4.5.1 In the period since the Local Plan was published in 2019, a number of factors combined to result in the Council seeking to re-establish its housing requirement. This includes the economic impacts of Covid19 and Brexit, the Governments review of the standard Housing Methodology and responses to the Regulation 19 consultation in 2019. As a consequence, the Council considered it helpful to revisit strategic options for growth and distribution.

High-level growth options

4.5.2 A fourth growth option has been included to reflect the housing position in the lead up to the second Regulation 19 consultation. This allows a consistent comparison with the Regulation 19 reasonable alternatives. This growth option is referred to as follows:

Scenario G: This option has been prepared to represent the latest position in terms of housing need and supply. As a result, the Plan has been rebased to 2021 with the Plan Period extending to 2038. Though the total requirement for Option G is very similar to Option E (16,157 compared to 16,170), it would require a greater amount of Green Belt release due to a lower urban capacity at this stage of plan-making.

	D.Standard Methodology (2016 base)	E.Standard Methodology	F.Economic Growth scenario	G.Standard Methodology Rebased
Annual requirement	735	909	945	816
2017 to 2037 (2022-2039 for option G)	14,700	18,180	18,900	14,688
Flexibility @ 10%	1,470	1,818	1,890	1,469
Total Requirement	16,170	19,998	20,790	16,157
Urban Capacity	13,726	13,726	13,726	11,785
Green Belt Requirement	2,444	6,272	7,064	4,372

4.5.3 To allow a consistent comparison with the previous growth options, an appraisal of the three high level distribution options has been undertaken for Growth Scenario G. The table below sets out the assumptions made when undertaking the appraisals.

D. Government Standard Methodology (2016 base)	E. Government Standard Methodology (2014 base)	F. Proposed Plan target (SEP Uplift, 2017-2037)	G. Latest figures (2021-2038)
<p>D1. Focus entirely on the Warrington urban area <i>2,444 dwellings to the urban fringes of Warrington</i></p>	<p>E1. Focus entirely on the Warrington urban area <i>6,272 dwellings to the urban fringes of Warrington</i></p>	<p>F1. Focus entirely on the Warrington urban area <i>7,064 dwellings to the urban fringes of Warrington</i></p>	<p>G1. Focus entirely on the Warrington urban area <i>4,372 to the urban fringes of Warrington</i></p>
<p>D2. Incremental growth in settlements <i>1,100 dwellings in the outer settlements, 1344 dwellings to the urban fringes</i></p>	<p>E2. Incremental growth in settlements <i>1,100 dwellings in the outer settlements 5172 homes to the urban fringes</i></p>	<p>F2. Incremental growth in settlements <i>1,100 dwellings in the outer settlements 5'964 homes to the urban fringes</i></p>	<p>G2. Incremental growth in settlements <i>1,100 dwellings outer settlements 3,272 homes to the urban fringes</i></p>
<p>D3. Increased dispersal of development to settlements <i>2,444 dwellings at the outer settlements</i></p>	<p>E3. Increased dispersal of development to settlements <i>3500 dwellings at the outer settlements 2772 dwellings to the urban fringes</i></p>	<p>F3. Increased dispersal of development to settlements <i>4200 dwellings at the outer settlements 2864 dwellings to the urban fringes</i></p>	<p>G3. Increased dispersal of development to settlements <i>2500 dwellings at the outer settlements 1872 dwellings to the urban fringes</i></p>

Outline reasons for the preferred growth strategy at this stage

- 4.5.4 The Council's rationale for the selection of the preferred growth strategy is set out in the Development Options and Site Assessment Technical Report (September 2021). The Council considers that growth Scenario G is most appropriate with regards to the scale of housing growth as it will meet the minimum amount of housing required and is balanced with economic growth. It is considered necessary to incorporate a degree of flexibility into the housing supply to ensure that needs are met in full.
- 4.5.5 With regards to the distribution of growth, the Council still considers that focusing the majority of Green Belt release adjacent to the main urban area will provide the best development option.

Reconsideration of distribution options for residual development around the Warrington Urban Area

- 4.5.6 At Regulation 19 Stage, the Council (re)confirmed that the approach to development would be to support a focus on the Warrington urban area, with incremental growth in the outer settlements. Residual growth would be focused at the periphery of the Warrington urban area. The scale of growth being planned is broadly correlated to **Alternative G2**.
- 4.5.7 As discussed in sections 4.3 and 4.4, a comprehensive range of options for distributing residual growth around the Warrington urban area has been considered and appraised at both the Preferred Options stage and the first Regulation 19 consultation. It is not necessary to re-appraise all these options or revisit approaches that have been deemed inappropriate. However, it is useful to explore what the detailed reasonable alternatives are at this stage in the context of the latest evidence.
- 4.5.8 The choices to be made at this point are more focused compared to previous stages, and essentially consist of different combinations of strategic development sites around the urban area. The following locations have been considered alongside growth in the urban areas and incremental growth at outer settlements.
- South East Warrington Urban Extension- 2,400 dwellings in the Plan period²
 - South West Urban Extension - 1,700 dwellings
 - Thelwall Heys – 310 dwellings
 - Fiddlers Ferry – 1,300 dwellings
- 4.5.9 Five options have been established at this stage, consisting of a combination of these strategic sites (to meet residual needs to varying degrees).

² Prior to the appraisal of the detailed urban area options, an appraisal of four location options for the South East Warrington Urban Extension was undertaken. This allowed for a more accurate comparison of the broad locations of growth to be undertaken, rather than assumptions being made about the exact location of the SEWUE (See Section 8 for more detail).






4.5.10 All of the options share the following ‘constants’, which have been established throughout the plan-making process.

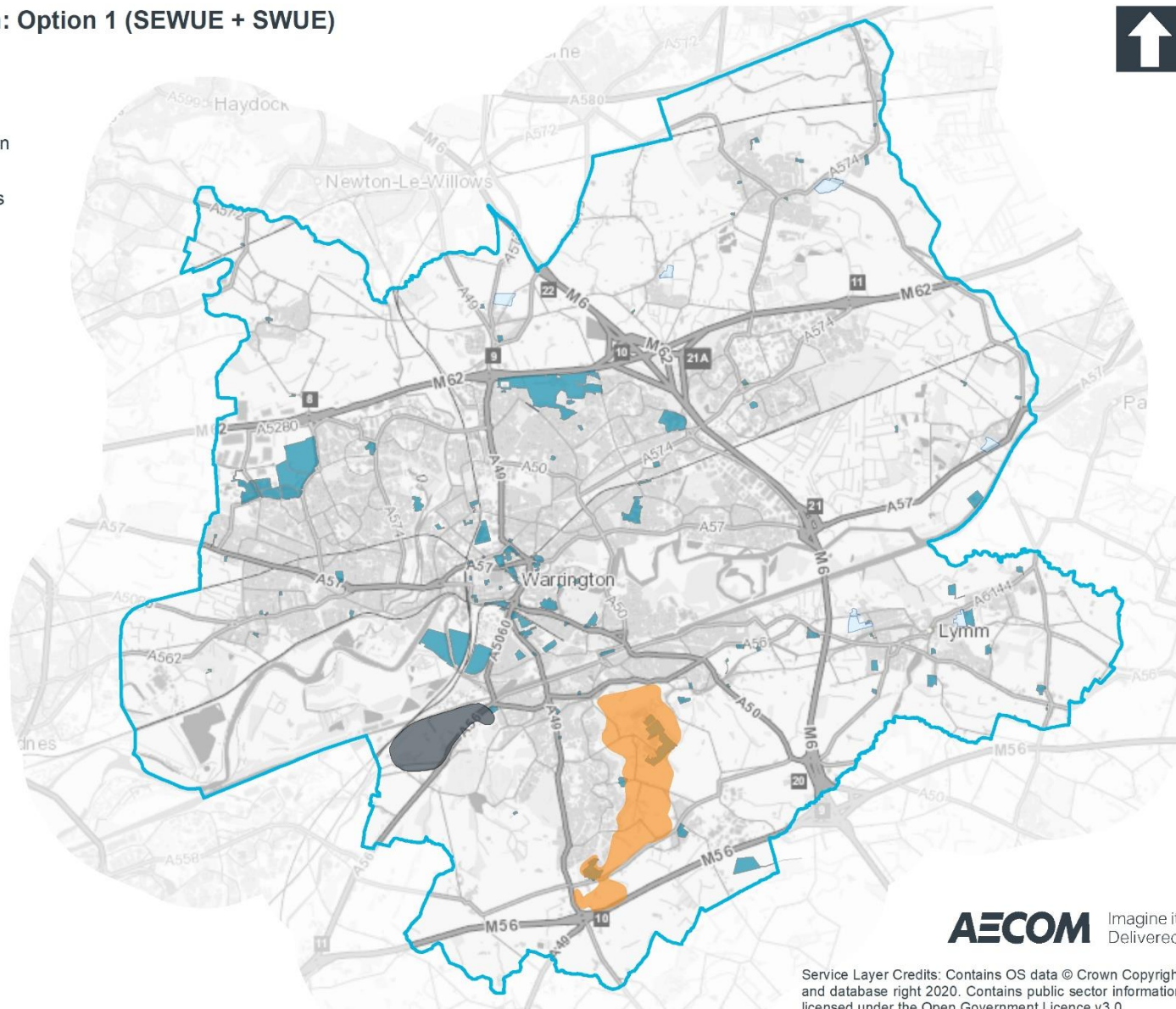
- Urban capacity: 11,750 dwellings
- Incremental growth in the outer settlements: 801 dwellings

4.5.11 The range of growth spans from 15,551 dwellings in total (representing a lower degree of flexibility) through to 16,651 dwellings in total (representing a higher degree of flexibility).

	Reg19b Option 1	Reg19b Option 2	Reg19b Option 3	Reg19b Option 4	Reg19b Option 5
Urban Constant	11,750	11,750	11,750	11,750	11,750
Outer Settlements	801	801	801	801	801
South East Warrington Urban Extension	2400	2400	2400	/	/
South Warrington Urban Extension	1700	/	/	1700	1700
Fiddlers Ferry	/	1300	1300	1300	1300
Thelwall Heys	/	/	310	310	/
Total	16,651	16251	16,561	15,861	15,551

Warrington Local Plan: Option 1 (SEWUE + SWUE)

-  Warrington LA
-  SWUE
-  South East Warrington Urban Extension
-  Outer settlement sites (constant)
-  Urban capacity sites

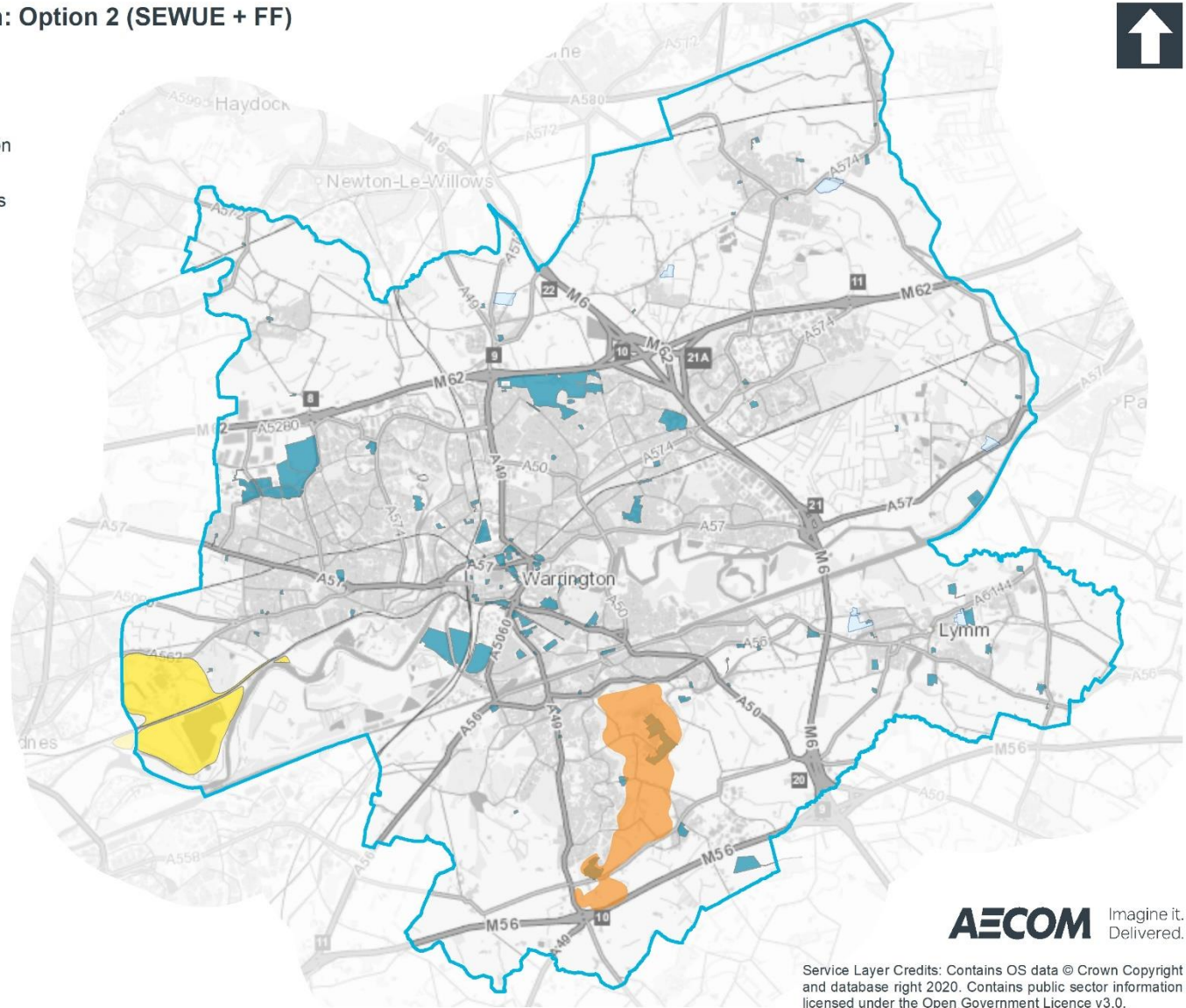


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Warrington Local Plan: Option 2 (SEWUE + FF)

- Warrington
- Fiddlers Ferry
- South East Warrington Urban Extension
- Outer settlement sites (constant)
- Urban capacity sites

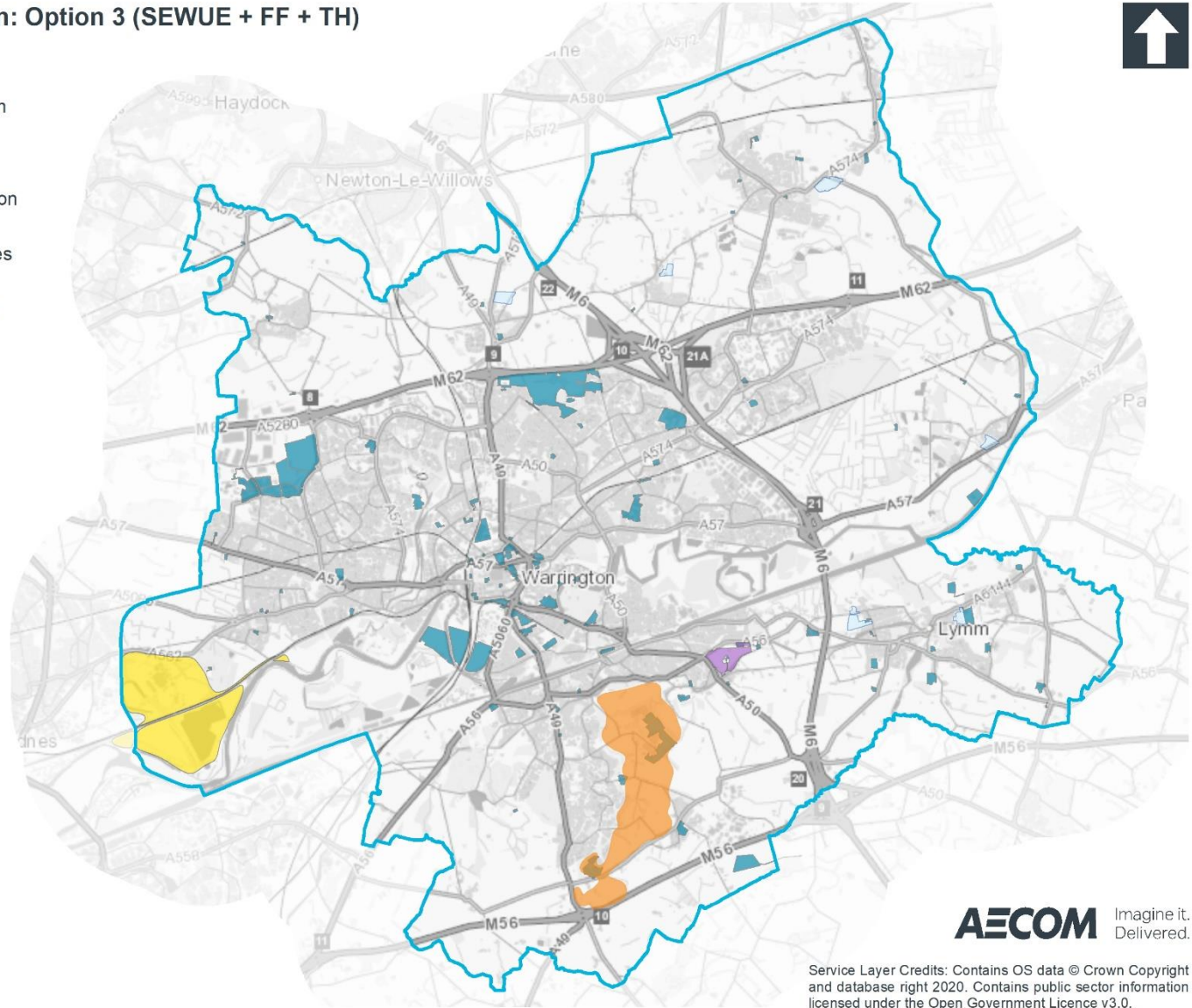


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Warrington Local Plan: Option 3 (SEWUE + FF + TH)

- Warrington
- Thelwall Heyes Farm (Top-up site)
- Fiddlers Ferry
- South East Warrington Urban Extension
- Outer settlement sites (constant)
- Urban capacity sites

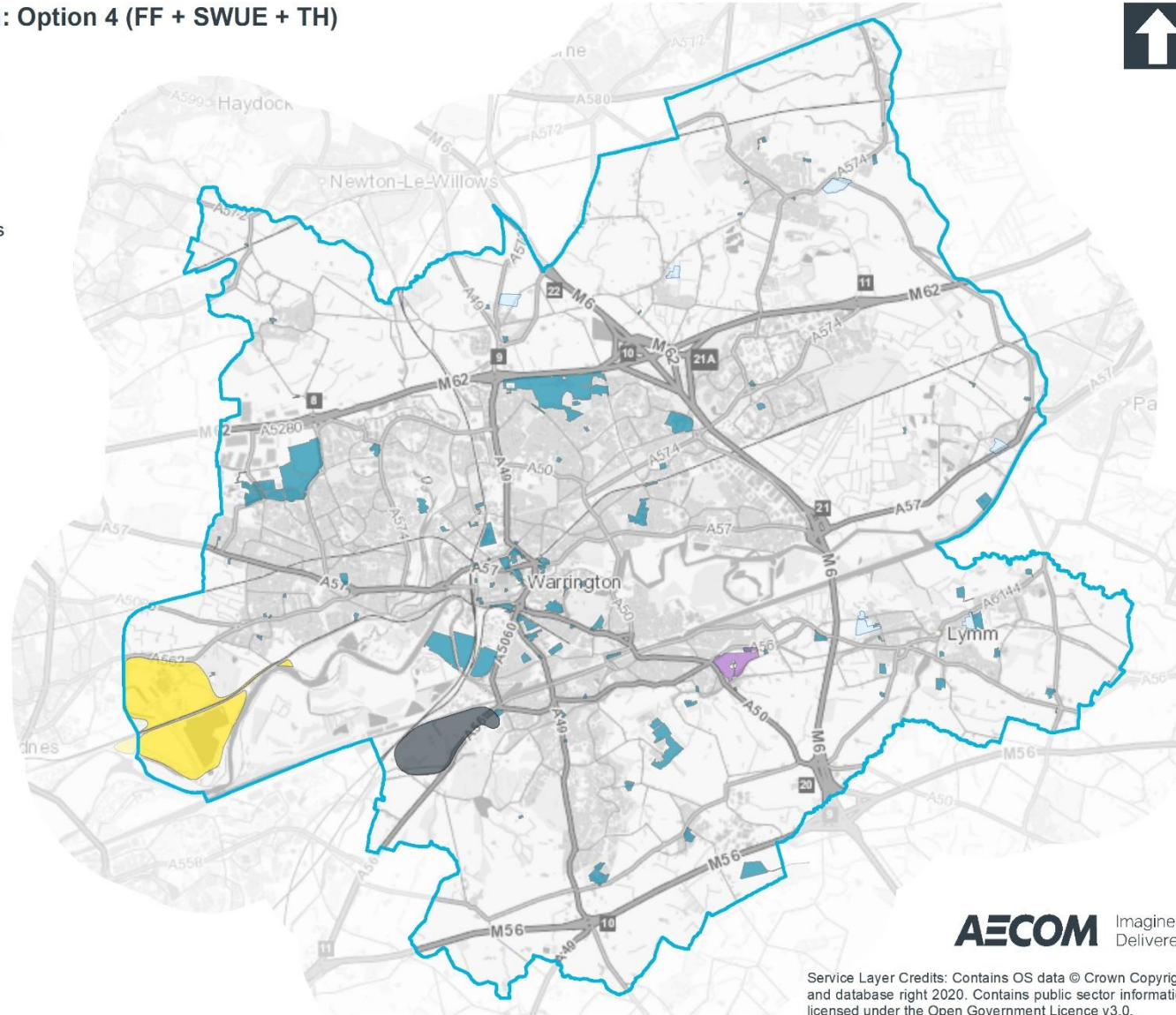


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Warrington Local Plan: Option 4 (FF + SWUE + TH)

- Warrington
- SWUE
- Thelwall Heyes Farm (Top-up site)
- Fiddlers Ferry
- Outer settlement sites (constant)
- Urban capacity sites



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Summary of findings

- 4.5.12 Each option performs virtually the same with regards to the urban area and outer settlements, which is to be expected given the sites involved are constant. Broadly speaking, growth in the urban areas is predicted to have major positive effects with regards to economy, housing, and soil objectives, with moderate positives arising for health and accessibility. There are no major negative effects likely to arise in the urban area for any of the SA Objectives, though there could be some moderate negative effects in particular locations (alongside positives) in terms of biodiversity, flooding, soil and accessibility.
- 4.5.13 Option 1 is most likely to bring about cumulative effects given that all residual growth is directed to the south of Warrington. In particular, this could affect air quality. Combining the SEWUE and the SWUE is the only approach that gives rise to such negative cumulative effects.
- 4.5.14 Options that involve Fiddlers Ferry perform much more favourably with regards to soil, water and landscape when compared to the other locations. However, biodiversity impacts are more likely to be of greater significance.
- 4.5.15 Options involving the SEWUE are most likely to generate negative effects in terms of soil and landscape. However, in the longer term, there would be greater protection afforded to Green Belt given that this area involves considerable development beyond the Plan period.
- 4.5.16 Option 5 involves the lowest amount of growth, and an element of the residual growth is not as strong with regards to housing delivery. As such, this option is the least favourable from a housing perspective.
- 4.5.17 The addition of Thelwall Heys doesn't make much difference to any of the overall scores, with the exception of built heritage, but mitigation ought to be possible. Therefore, this site can be added to any of the larger site combinations to achieve additional flexibility without major negative effects arising.

Outline reasons for the preferred strategy at this stage

- 4.5.18 The Council's rationale for the selection of the main urban area development locations is set out in the Development Options and Site Assessment Technical Report (September 2021).
- 4.5.19 In summary, the preferred option allows housing needs to be met in full whilst avoiding significant effects on the strategic importance of the Green Belt; and taking advantage of a unique opportunity on the boroughs largest brownfield site at Fiddlers Ferry.

4.5.20 The inclusion of the Fiddlers Ferry location is considered to be desirable as it reduces pressure on the need for Green Belt release, and promotes the reuse of brownfield land in a sustainable way. This site also performs relatively well across the range of SA objectives and is unlikely to generate cumulative effects alongside any other strategic growth locations.

4.5.21 To meet remaining residual needs, it is considered most beneficial to include the SEWUE as a strategic growth location, primarily as it will provide comprehensive infrastructure, and critically, a new secondary school. Though the SWUE performs comparably to the SEWUE across the full range of SA objectives, it would not bring the same level of social infrastructure benefits both within and beyond the Plan period. In particular, it would lead to pressure on secondary school places to the south of Warrington, and would not provide as strong protection to Green Belt in the longer term.

5 ALTERNATIVES APPRAISAL: EMPLOYMENT

5.1 Introduction

- 5.1.1 In order to contribute to the achievement of economic growth aspirations, it is important that the Local Plan identifies the need for employment land and an appropriate distribution strategy for meeting such needs.
- 5.1.2 It is crucial that housing and employment needs are well balanced, and for the plan to promote a strategy that supports good accessibility to job opportunities for communities.
- 5.1.3 This section discusses how the Council has considered the evidence, and explored potential alternatives relating to Warrington’s spatial strategy for employment.

5.2 Consideration of alternatives: Proposed Submission (2019)

Employment land needs

- 5.2.1 In determining the amount of employment land needed for the Plan period, the Economic Development Needs Assessment (2019) concluded that the preferred forecasting method for establishing need, is a projection forward of past take-up rates that considers both strategic and local needs, resulting in a need of 362 hectares of employment land up to 2037. This represents the Council’s economic aspirations and ensures that Warrington captures the opportunities for growth offered by strategic development sites.
- 5.2.2 A lower growth option was tested that looked only at local employment needs. The Council considers that this approach would not support the economic aspirations of the Borough. However, given that Green Belt release is required it is helpful to understand the implications of a lower level of growth. Table 5.1 below sets out how employment land needs would be met under these two levels of growth.

Table 5.1 – Meeting Employment Land Requirements

	Option 1 - Meeting Strategic and Local Needs	Option 2 - Meeting Local Needs only
Total Requirement	361.71 ha	223.71 ha
Existing supply	83.91 ha	83.91 ha
Masterplan additional	31.46 ha	31.46 ha
St Helens Omega Extension	31.20 ha	31.20 ha
Green Belt Requirement	215.14 ha	74.52 ha

- 5.2.3 There are common elements to each option, namely; the existing supply, town centre masterplan land, and a proposed extension to Omega in St Helens which will contribute to meeting Warrington’s employment needs. The residual sites suitable for employment land release would need to be released from the Greenbelt.
- 5.2.4 There are a range of broad employment locations that form the ‘building blocks’ of the strategy for employment growth.
- 5.2.5 These broad locations have been identified by determining the availability of suitable sites. The EDNA update (2019) in particular categorises employment sites according to their feasibility, viability and deliverability as strategic and local employment sites.
- 5.2.6 Taking into account the site size and locational requirements for future needs (and in the context of the spatial options for housing development). At this stage, three broad employment locations were found to be good candidates for employment growth.
- 5.2.7 The broad locations and total amount of land available are set out in table 5.2 below.

Table 5.2 – Broad locations for strategic employment land (2019-2020)

Potential employment locations	Total in Ha
Land at M56 Junction 9	116ha
Land at Warrington Waterfront	
• Port Warrington	75
• Wider land within waterfront	25
Land adjacent to Omega	
• Call for sites • Westward extension (within St Helens)	14
	30

- 5.2.8 The Council considered that each of these locations were (in principle) appropriate for the delivery of identified employment needs (as evidenced by the EDNA update in 2018). These areas also meet the locational requirements for the employment land that is needed. As such, these broad locations have been identified as key components in the development of the spatial strategy.
- 5.2.9 Each of these broad employment areas has been appraised against the SA Framework, with the findings presented in full at **Appendix H**.
- 5.2.10 Building upon the assessment of available and suitable employment land, the preferred employment option is to meet strategic and local needs in the following way:

Option 1a – Meet local and strategic needs (215.14 ha Green Belt):

- Existing supply - 83.91
- Town Centre and masterplanning areas – 31.46 ha
- St Helens Omega Extension - 31.2ha
- Garden village - 116ha
- Waterfront business hub - 25.47ha
- Port Warrington - 74.36ha

5.2.11 This option would achieve the level of growth identified to meet local and strategic needs. However, it would include areas with sensitivities including Port Warrington (Local Wildlife Site) and the proposed Garden Village (Loss of Grade 3a land / landscape impacts).

5.2.12 Therefore, to determine if any further locations were more suitable for development, the Council considered further broad locations for growth, which included:

- Smaller scale strategic development at Burtonwood
- Smaller scale development at Winwick
- Development focused on sites clustered around Rixton to the east of the urban area
- Development focused on sites clustered to the South of Lymm adjacent to the M6.

5.2.13 When taken into consideration alongside all the other employment locations, alternative strategies for distribution were explored to determine if there were other reasonable approaches to the delivery of local and strategic needs (215.14ha). These are outlined below.

1. *Reduce the scale of growth at the Garden village in favour of dispersed growth to Burtonwood, Winwick, Rixton in particular*
2. *Remove Port Warrington in favour of dispersed growth*
3. *Deliver a dispersed approach to employment land provision across the borough (resulting in smaller developments at Port Warrington and the Garden Suburb).*
4. *Reduce growth at the Garden Village and / or Port Warrington and include strategic growth to the east of the M6 (South of Lymm) instead.*
5. *Reduce growth at the Garden Village and / or Port Warrington and include substantial strategic growth at Rixton instead.*

5.2.14 All these approaches were determined to be unreasonable by the Council as they involve sites that are less suitable for the delivery of strategic distribution and logistics.

5.2.15 With regards to the first three approaches, whilst there are numerous mixed-use development site options which have been put forward as part of the call for site

exercise, these are more suitable for smaller employment sites, and do not possess the same locational and strategic advantages that the three preferred broad locations do. Therefore, the strategic approach does not focus on the delivery of smaller scale employment sites across the borough. However, these sites have been considered in detail to ensure that the Council has sufficient land to meet its needs, including any requirement for potential safeguarding.

5.2.16 The fourth approach was discounted by the Council as unreasonable for a variety of reasons. Firstly, it involves land that makes a strong contribution to Green Belt. The EDNA update also categorises much of this land as having greater questions about deliverability. With regards to location, large scale growth could potentially lead to coalescence with Lymm having significant impacts upon this settlements form and character.

5.2.17 The fifth approach was also discounted by the Council as unreasonable for a variety of reasons. This location is aligned less well with the proposed housing strategy (which avoids growth to the east of the urban area due to potential significant effects upon environmental factors). The sites are also classified as either Grade D or E in the EDNA Update (2018) which suggest that large parts if the area are either unlikely to be deliverable or would have limited value for B class uses. Furthermore, Green Belt release in this area would be challenging without having a significant impact, and areas are at a high risk of flooding.

5.2.18 The Council therefore concluded that there are no other reasonable strategies for the broad distribution of employment land to meet both strategic and local needs.

Lower levels of growth

5.2.19 With regards to the amount of employment land to be planned for, the Council believes that planning for 'local needs' only would not meet a key objective of the Plan (i.e. sustainable economic growth).

5.2.20 However, for completeness, the Council considered it helpful to outline the effects that would be generated should only local needs be met (given the desire to minimise Green Belt release as much as possible). There are a number of ways in which a lower level of growth could be configure; and so several options have been explored as follows.

Option 2a – Meet local needs only through the Waterfront (220.93 ha)

- Existing supply - 83.91 ha+ 31.46 ha
- St Helens Omega Extension - 31.2ha
- Port Warrington - 74.36ha

Option 2b – Meet local needs only at a Garden Village (223.57 ha)

- Existing supply - 83.91 ha + 31.46 ha
- St Helens Omega Extension - 31.2ha
- Smaller scale Garden Village – 77 ha

Option 2c - Meet local needs only through dispersal (223.61 ha)

- Existing supply - 83.91 ha + 31.46 ha
- St Helens Omega Extension - 31.2ha
- Dispersal to Waterfront Business Hub (25.47ha), Burtonwood (11.5ha), Winwick (8.77ha) Rixton (9.3ha) and Barleycastle (22ha)

5.2.21 Each of these approaches is considered to be a reasonable form of distribution at this lower scale of growth. Therefore, each has been tested through the SA. The appraisal findings are presented at **Appendix I**.

The preferred approach (Pre Submission, 2019)

5.2.22 Having reviewed the broad development sites in the context of the EDNA and the wider development options, the Council proposed Land at Warrington Waterfront and the Land at M56 Junction 9 for inclusion in the Proposed Submission Version Local Plan. These sites would have met the majority of Warrington's employment land requirement.

5.2.23 The Council as also accepted the principle of a western extension to Omega proposed in the emerging St Helens Local Plan, as being able to contribute to meeting Warrington's employment land needs. This is however dependent on demonstrating that the development can be accommodated by the improvements to Junction 8 of the M62 which are being undertaken to facilitate the development of the Omega site based on its current extent. A further extension to Omega could also be provided to the north of the existing employment location through a call of site submission. However, the Council is not proposing to take this forward as it is considered further development at Omega will require major new connections to the M62.

5.2.24 Further work was undertaken looking at individual site options to help inform the decision making process with regards to the specific distribution of employment land (see section 6 below).

5.2.25 Other than the site specific options, there were not considered to be any further strategic alternatives to the distribution of employment land at the preferred level of growth at this stage (as discussed above).

5.3 Consideration of alternatives: Pre Submission (2021)

5.3.1 Following consultation on the Plan in 2019, the situation with regards to employment needs has changed. The Council recognised that its growth aspirations needed to be re-considered following the onset of the pandemic and the UK’s withdrawal from the European Union. As such the Council has undertaken a full review of its Economic Development Needs Assessment (EDNA).

5.3.2 The supply position has changed, meaning that residual needs equate to 246.17 ha (after subtracting an allowance for the Omega Extension).

5.3.3 As a result a third growth option has been identified as reasonable.

Table 5.3: Updated Employment Needs

	Option 3
Total Requirement	316.26
Existing supply	38.87
St Helens Omega Extension	31.20 ha
Shortfall	246.17

5.3.4 With regards to distribution, the broad locations for employment growth were explored again. At this stage, two more locations were deemed to be reasonable options:

- Changes to Environment Agency flood zone classifications meant that an additional broad location at Birchwood was considered to be a reasonable option.
- Opportunities for the redevelopment of Fiddlers Ferry became apparent, which would involve an element of employment land

5.3.5 The initial three broad locations were still considered reasonable at this stage, though the site boundaries / scale of growth differs slightly.

Table 5.4: Broad locations for employment growth (Pre-Submission 2021)

<p>Option 1: Land at M56 Junction 9 (Total provided is based on consolidation of a number of individual sites into a strategic employment location,). Approximately 145ha, with a potential further 70ha at a northern extension.</p>
<p>Option 2: Land at Warrington Waterfront</p> <ul style="list-style-type: none"> • Port Warrington site • ‘Wider land’ within waterfront
<p>Option 3: Land adjacent to Omega</p> <ul style="list-style-type: none"> • Call for sites • Westward extension (within St Helens) • Further extension in Green Belt 42ha

Option 4: Fiddlers Ferry – Approximately 100ha non greenbelt, but requires enabling housing development in the Green Belt

Option 5: Birchwood – Total of 47ha of employment land in the Green Belt

5.3.6 The full appraisal of the broad locations is presented at **Appendix H**.

Rationale for the preferred approach

5.3.7 The Councils preferred growth strategy is to meet the full employment needs for the Borough, with a 3 year buffer and allowance for business displacement.

5.3.8 The Council consider a lower scale of growth to be less appropriate, as it would not meet the Borough's full needs.

5.3.9 With regards to the distribution of employment land, the Council have assessed a range of site options, and considers that two strategic sites should be brought forward to meet identified needs.

- Fiddlers Ferry should be the priority for additional employment given it is a brownfield site in need of remediation and redevelopment following the closure of the power station.
- A range of sites have been proposed at one strategic location to the South East of Warrington.

5.3.10 The broad locations at Port Warrington and Rixton / Birchwood have been discounted, as has further expansion of the South East Warrington Employment Area.

- A number of objections were raised to the inclusion of Port Warrington, primarily due to issues associated with the Western Link and impacts on Moore Nature Reserve.
- The Council does not consider this Rixton / Birchwood site performs as well as Fiddlers Ferry and the South East Warrington Employment area, given its strong Green Belt performance and concerns regarding intervening landownership which could place limitations on the scale and location of employment that could be developed on the site.
- Further growth at the South East Warrington Employment Area has been discounted due to concerns about cumulative impacts on both the Green Belt and road networks.



Appraisal findings: Site Options

06

6 APPRAISAL FINDINGS: SITE OPTIONS

6.1 Introduction

6.1.1 The Council considers that there is a need to allocate strategic sites for employment and housing land development in the Plan. This is necessary to ensure that housing and employment needs will be met in the Plan period.

6.1.2 A key element of the spatial strategy is to maximise brownfield redevelopment, but this does not satisfy the overall demand for land identified in the evidence. Therefore, there was a need to consider Green Belt sites and whether they can make a contribution to these needs without having unacceptable effects on Green Belt.

The site options

6.1.3 In order to inform the plan making process a range of site options have been appraised throughout the SA process. These are outlined in table 6.1 below, which also summarises how the site assessments have influenced the decision making process.

Table 6.1: Summary of the site assessment process

Site options	Details	Input to decision making
All of the 'call for sites' and SHLAA Green Belt sites adjacent to the main urban area.	Undertaken by AECOM in support of the LPPO consultation (additional sites received during/following the LPPO consultation were appraised using the same methodology.	Helped to understand the implications of each of the strategic spatial options from the 'bottom up'. To guide the allocation of specific sites with regards to the focus on the main urban area of Warrington.
Strategic sites in the urban area (i.e. Peel Hall).	Undertaken by AECOM following the LPPO consultation.	To demonstrate the high level constraints and opportunities of the site to allow for a consistent comparison with other site options throughout the borough.
All of the 'call for sites' and SHLAA Green Belt sites at the outer settlements.	Undertaken by ARUP in addition to their Green Belt assessment. The SA site appraisal framework was applied consistently as part of the wider review process.	To guide the allocation of specific sites at each of the outer settlements.

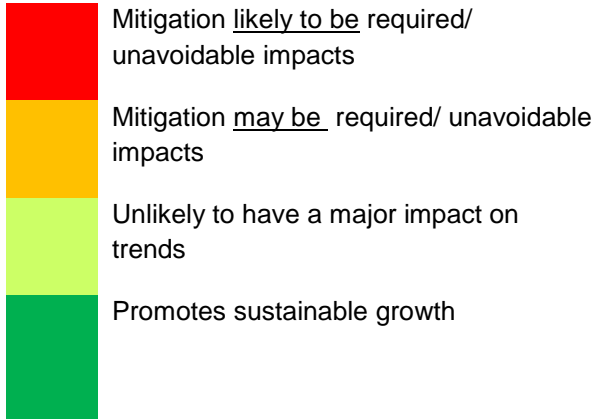
Site options	Details	Input to decision making
Employment site options	Undertaken by AECOM and the Council.	<p>Helped to understand the implications of the growth options at a site specific level.</p> <p>Guided the allocation of specific sites / parcels of land at key employment locations.</p>

- 6.1.4 It is important to note that whilst these are individual site options (and have been appraised as such), understanding their characteristics, constraints and opportunities is considered to be helpful in understanding the potential effects of the strategic options. However, it is also important to acknowledge that the issues identified at a site specific level do not necessarily reflect the effects that would occur with strategic growth in a particular location. For example, site specific issues (such as poor access to a school) could possibly be dealt with through the infrastructure improvements that would likely accompany strategic growth (i.e. development at multiple sites).
- 6.1.5 Each site option has been appraised against the site appraisal framework as set out in **Appendix A**.
- 6.1.6 The findings of the appraisals are summarised below in a series of matrices.
- 6.1.7 Detailed proformas for each site option, including a map of the site location and boundaries are contained within separate reports.

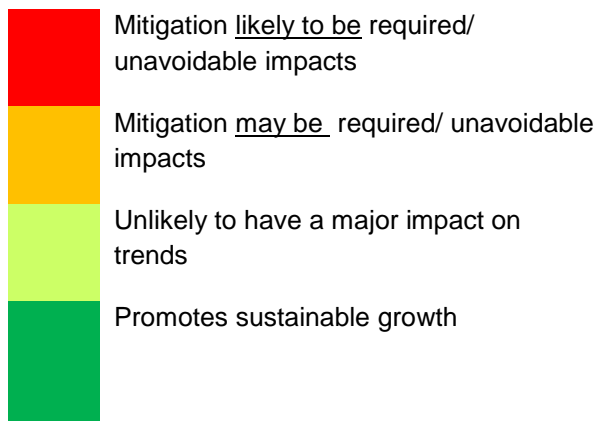
Summary of site appraisal findings

- 6.1.8 Tables 6.2, 6.3 and 6.4 below illustrate the scores for each site option against the site appraisal criteria.
- 6.1.9 Figures 6.1 and 6.2 which follow the summary tables present maps of all the housing and employment sites that have been considered throughout the SA process, differentiating between those that have been proposed for allocation and those that have not.

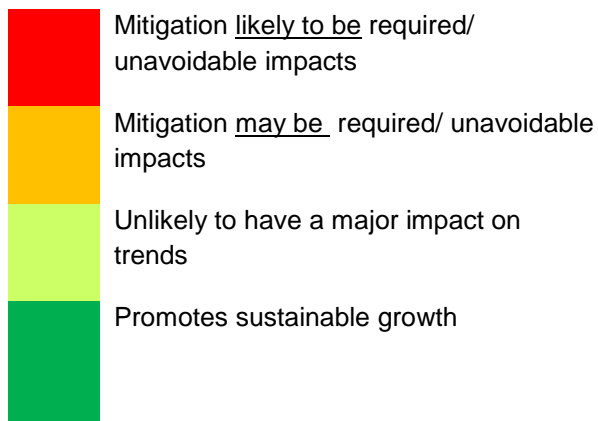
Table 6.2: Housing site options (Main urban area of Warrington)



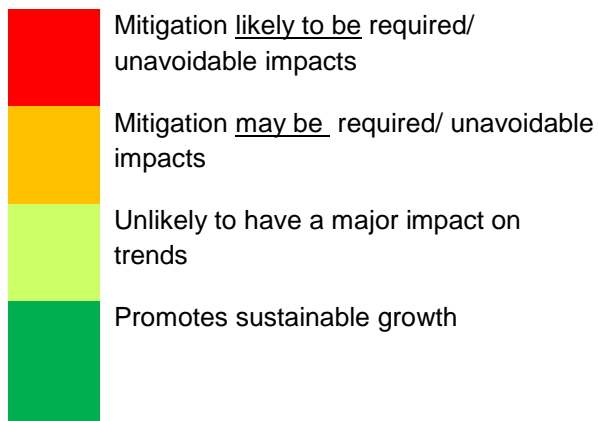
AECOM ID	Site ID	Site Name	Urban location	EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC	
19	013001	Stocks Lane/ Laburnum Lane	West	Green	Green	Green	Green	Orange	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
31	R18/013	Stocks Lane/ Friends Lane	West	Green	Green	Green	Green	Orange	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
62	R18/044	Land at Penketh Hall Farm	West	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
73	R18/057	Long Meadow, Chapel Road	West	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
83	R18/067	Land at Penketh Hall Farm	West	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
85	R18/069	Land at Gullivers World	West	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
154	R18/138	Stocks Lane, Penketh	West	Green	Green	Green	Green	Orange	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
195	1630	Penketh Hall Farm Site C	West	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
219	2415	Laburnum Farm	West	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
23	R18/005	Land off Walton Street, Moore	Central	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
75	R18/059	Stonecroft, Chester Road, Walton	Central	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
89	R18/073	Land rear of Alcan factory	Central	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green



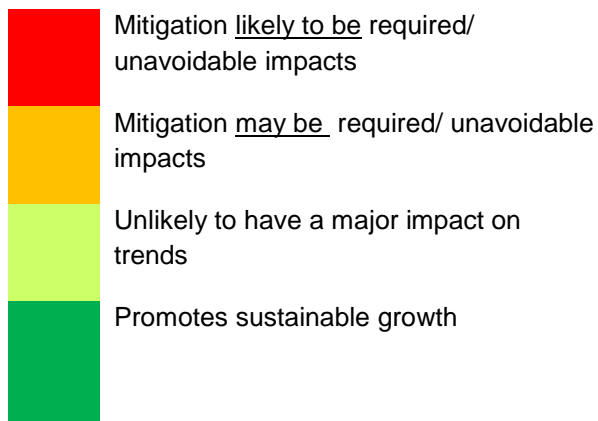
				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC	
103	R18/087	Land off Stanley Street	Central												/																
119	R18/103	Spectra Park	Central												/																
120	R18/104	Disused Railway Line, Latchford	Central												/																
124	R18/108	Land at Walton Lea Road	Central												/																
137	R18/121	Arpley Meadows	Central												/																
138	R18/122	Black Bear Bridge	Central												/																
140	R18/124	Common Lane, Latchford	Central												/																
141	R18/125	Land at High Walton	Central												/																
152	R18/136	Land at Thelwall Lane East	Central												/																
153	R18/137	Land at Thelwall Lane West	Central												/																
181	1563	Arpley Meadows (southern former landing stage)	Central												/																
33	R18/015	Ramswood Nursery	East												/																
37	R18/019	Sites east of Jctn 21 M6 (Site 4690)	East												/																
38	R18/020	Sites east of Jctn 21 M6 (Site 4449)	East												/																
39	R18/021A	Sites east of Jctn 21 M6 (Site 6919)	East												/																



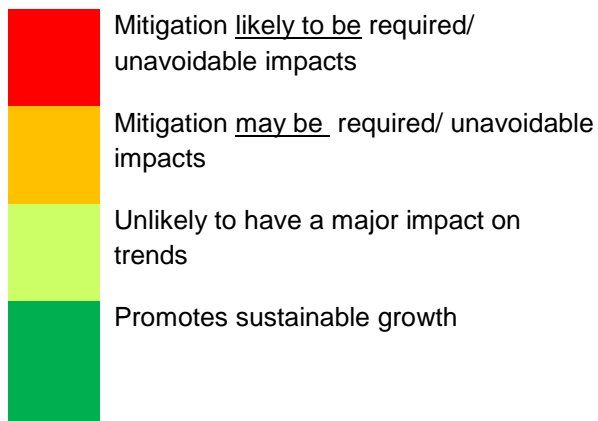
				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC		
40	R18/021B	Sites east of Jctn 21 M6 (Site 8160)	East																													
41	R18/022	Sites east of Jctn 21 M6 (Site 8979)	East																													
42	R18/023	Sites east of Jctn 21 M6 (Site 8939)	East																													
43	R18/024	Sites east of Jctn 21 M6 (Site 9624)	East																													
44	R18/025	Sites east of Jctn 21 M6 (Site 1833)	East																													
45	R18/026	Sites east of Jctn 21 M6 (Site 5636)	East																													
46	R18/027	Sites east of Jctn 21 M6 (Site 6318)	East																													
47	R18/028	Sites east of Jctn 21 M6 (Site 5371)	East																													
48	R18/030	Sites east of Jctn 21 M6 (Site 3174)	East																													
93	R18/077	Land south of Birchwood train station	East																													
150	R18/134	Rixton New Hall	East																													
151	R18/135	Statham Meadows (Junction 21 M6)	East																													
254	2863	Sandycroft	East																													
63	R18/045	Land N of Townsfield Lane, Winwick	North																													
64	R18/046	Land S of Townsfield Lane, Winwick	North																													



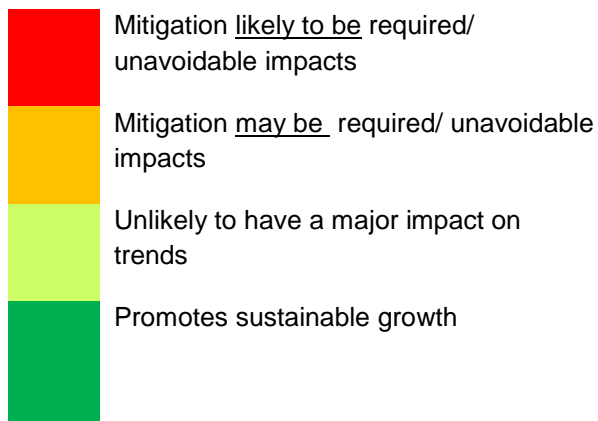
				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC	
156	R18/140	Land north of Arbury Court, Winwick	North												/																
157	R18/141	Land west of Delph Farm, Winwick	North												/																
202	1810	Greenlea House	North												/																
231	2590	Land west of Delph Fm/ Hollins Park	North												/																
20	R18/002	Land at Fir Tree Close/M56	South												/																
21	R18/003	Birch Tree Farm	South												/																
27	R18/009	Land off Hatton Lane, Stretton (Site1)	South												/																
28	R18/010	Land off Hatton Lane, Stretton (Site2)	South												/																
30	R18/012	Land at Warrington Sports Club	South												/																
35	R18/017	Thelwall Heys	South												/																
52	R18/034	Land south of Stockport Road	South												/																
53	R18/035	Dingle Farm, Dingle Lane, Appleton	South												/																
61	R18/043	Land at Barleycastle Lane, Appleton	South												/																
163	R18/047	Land at Carr House Farm	South												/																
65	R18/048	Land at Arley Road, Stretton	South												/																



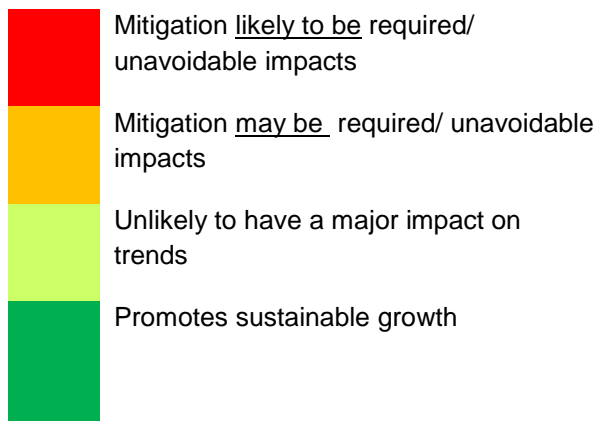
				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC	
158	R18/050	Land at Pewterspear Green	South																												
77	R18/061	Land N of Barleycastle Lane	South																												
78	R18/062	57 Camsley Lane, Lymm	South																												
91	R18/075	Land north of Hall Lane	South																												
94	R18/078	Land south of Hatton Lane	South																												
104	R18/088	Land adjacent to M56, Stretton	South																												
107	R18/091	Land at Stretton Road	South																												
116	R18/100	ADS Recycling, Camsley Lane	South																												
118	R18/102	Land east of Houghs Lane	South																												
121	R18/105	Land south of Westbourne road	South																												
122	R18/106	Land at Bradley Hall Farm, Cliff Road	South																												
126	R18/110	Land north of Grappenhall Lane	South																												
128	R18/112	Land north of Knutsford Road	South																												
130	R18/114	Land SW of Arley Road	South																												
132	R18/116	Land south of Lymm Road, Thelwall	South																												



				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC
139	R18/123	Cliff Lane Aqueduct	South																											
147	R18/131	Land off London Road, Stockton Heath	South																											
268	R18/139	R18/139A	South																											
269	R18/139	R18/139B	South																											
276	R18/139	R18/139C	South																											
275	R18/139	R18/139D	South																											
279	R18/139	R18/139E	South																											
277	R18/139	R18/139F	South																											
270	R18/139	R18/139G	South																											
274	R18/139	R18/139H	South																											
273	R18/139	R18/139I	South																											
282	R18/139	R18/139J	South																											
278	R18/139	R18/139K	South																											
283	R18/139	R18/139L	South																											
284	R18/139	R18/139M	South																											



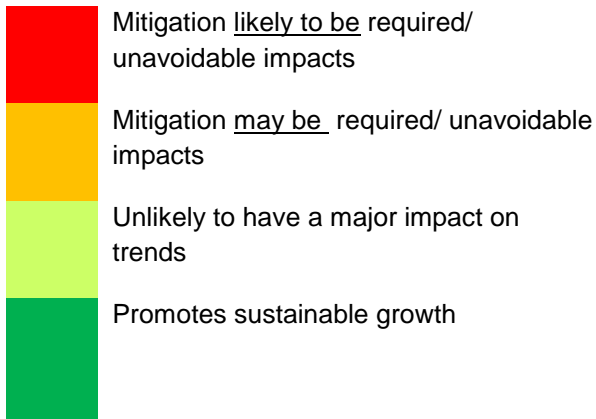
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281	R18/139	R18/139N	South																												
280	R18/139	R18/139O	South																												
271	R18/139	R18/139P	South																												
272	R18/139	R18/139Q	South																												
159	R18/142	Land at Reddish Hall Farm, Grappenhall	South																												
164	R18/146	Land south of Grappenhall Heys	South																												
165	R18/147	Land south of Barleycastle Lane	South																												
166	R18/148	Land at Barleycastle Farm	South																												
170	1511	Land West of Orchard House	South																												
178	1536	Curtilage of Persian Cottage	South																												
185	1613	Barondale Grange	South																												
186	1618	Land south east of Dean's Lane, Thelwall	South																												
189	1623	Land West of Highfield Stables	South																												
190	1624	Land South of Highfield Stables	South																												
191	1625	Land North of Highfield Stables	South																												



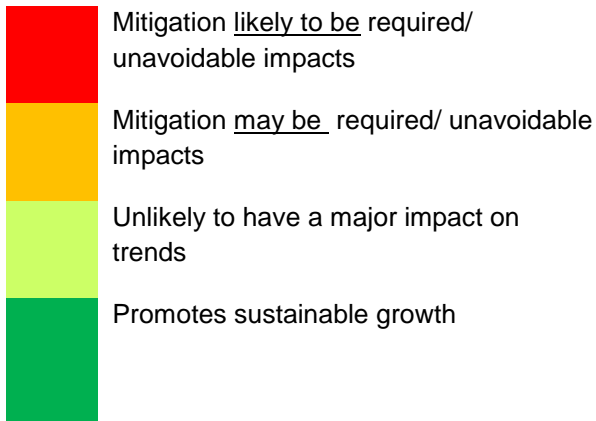
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192	1626	Land south of 128, Weaste Lane	South																												
193	1627	Land north of Weaste Lane	South																												
194	1628	Land to rear of 27-47 Weaste Lane	South																												
199	1738	Fosters Croft	South																												
260	1866	Greater Shepcroft Farm	South																												
211	2177	Grappenhall Hall Residential School	South																												
212	2208	New House Farm Cottages, Hatton	South																												
214	2262	Lock up garages off Bower Crescent	South																												
220	2470	The Old Rectory Nursing Home	South																												
223	2514	Red Barn Farm	South																												
227	2550	Factory Cottage	South																												
257	2564	Dennow Farm	South																												
240	2620	Dorothy Cottages, Stretton Road	South																												
241	2629	Dennow Cottages, Firs Lane	South																												
242	2639	Hatton Hall, Warrington Road	South																												

	Mitigation <u>likely to be</u> required/ unavoidable impacts
	Mitigation <u>may be</u> required/ unavoidable impacts
	Unlikely to have a major impact on trends
	Promotes sustainable growth

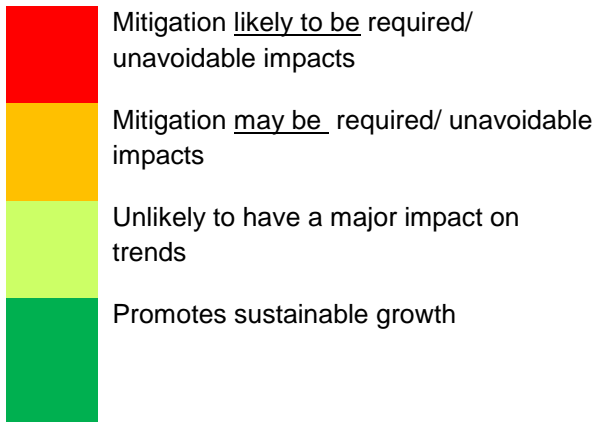
					EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC		
244	2668	Land adjacent to South View	South																														
248	2722	Land at Hillside Farm	South																														
251	2844	The Vicarage	South																														
256	2878	Ceurdon Cottage	South																														



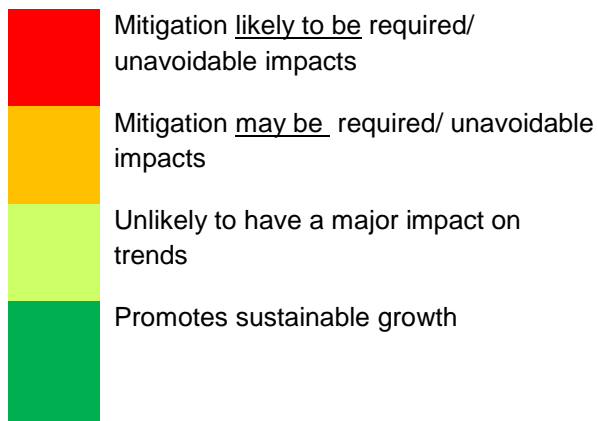
AECOM ID	Site ID	Site Name	Urban location	EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC		
	R18/P2/125A	Land west of Broad Lane	South Warrington																													
	R18/P2/125B	Land East of Broad Lane	South Warrington																													
	R18/P2/125C	Land north of Cliff Lane	South Warrington																													
	R18/P2/147	The Clough, Halfacre Lane	South Warrington																													
	R18/P2/013	Land off J10, M56, Stretton	South Warrington																													
	R18/P2/036	Land at White House Farm, Broad Lane, Grappenhall.	South Warrington																													
	R18/P2/086	Land at Dingle Farm, Grappenhall	South Warrington																													
	R18/P2/100	Land off at Barleycastle Farm, Appleton	South Warrington																													
	R18/P2/110	Land east of Witherwin Avenue, Grappenhall	South Warrington																													



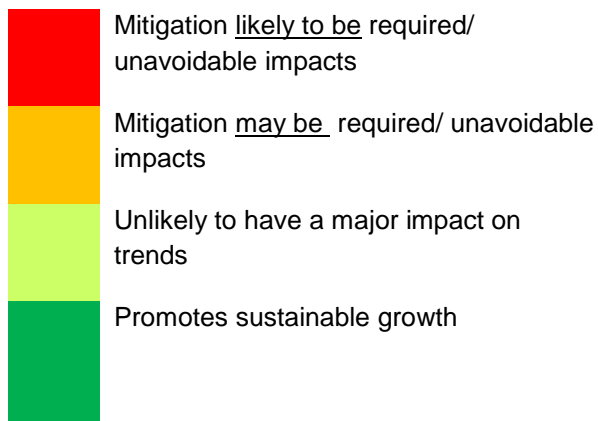
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R18/P2/113	Land North and South of Broad Lane, Grappenhall	South Warrington																													
R18/P2/127A	Land at Delph Lane, Winwick	North Warrington																													
R18/P2/145	Land north of M56 Jct 9 and west of M6 Jct 20 (north of Barleycastle Farm)	South Warrington																													
R18/P2/G&T	Grappenhall Lodge, Land off Cartridge Lane	South Warrington																													
WWDA Parcel K5	Waterfront	Central/West Warrington																													
WWDA Parcel K7	Waterfront	Central/West Warrington																													
R18/P2/009	Land at Massey Brook Farm, Lymm	South Warrington																													
R18/P2/012	Land adj Haresfield, Stockton Lane	South Warrington																													
R18/P2/015	Land south of Hatton Lane, Stretton	South Warrington																													
R18/P2/017	Land north of Hatton Lane, Stretton	South Warrington																													



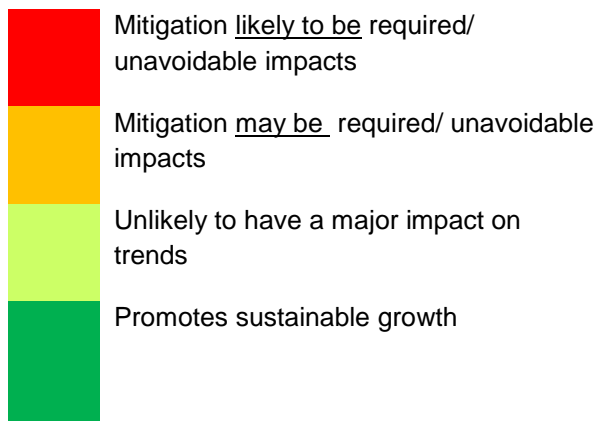
				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC	
	R18/P2/039	Field behind Hunters Moon, Barleycastle Lane	South Warrington																												
	R18/P2/051	Land at Nook Farm, Arley Road	South Warrington																												
	R18/P2/052	Land at Barondale Grange, Stockport Road	South Warrington																												
	R18/P2/077	Land NE of Knutsford Road	South Warrington																												
	R18/P2/083	Peel Hall, south of the M62	North Warrington																												
	R18/P2/094	Land north and south of Weaste Lane	South Warrington																												
	R18/P2/102	Land at Deans Wharf, Thelwall	South Warrington																												
	R18/P2/105	Old Rectory, Church Lane, Grappenhall	South Warrington																												
	R18/P2/116	Land adj Yew Tree Farm, Grappenhall	South Warrington																												
	R18/P2/119	Land at Broad Lane, Grappenhall	South Warrington																												
		Fiddlers Ferry													/																



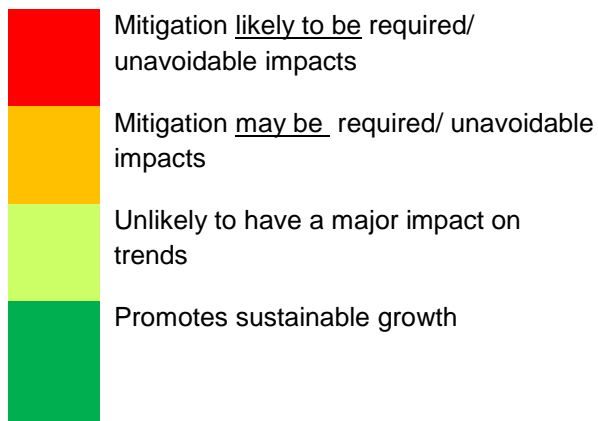
				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC	
	1635	East of Spring Lane (south west of Croft Riding School)	Croft												/																
	3132	Land at rear of Smithy Brow	Croft												/																
	2155	Land to the North and East of Croft Primary School	Croft												/																
	3155	Land at Heathcroft Stud, Croft	Croft												/																
	3159	Land off Smithy Brow	Croft												/																
	R18/115, R18/P2/091	Land North of Eaves Brow Road	Croft												/																
	R18/P2/06 R18/P2/121	Land at Heath Lane	Croft												/																
	1519	Howards Transport Limited, Robins Lane	Culcheth												/																
	1522	Land at Kirknall Farm, Culcheth	Culcheth												/																
	1567	Land at Warrington Road/ Hawthorne Avenue	Culcheth												/																
	2157	Land between Glaziers Lane and Warrington Road	Culcheth												/																
	2588	Taylor Business Park	Culcheth												/																
	2593	Land south of Newhall Lane (Plot 1)	Culcheth												/																
	2595	Land at Junction Warrington Road/ Glaziers Lane (Plot 3)	Culcheth												/																



				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC	
2596	Land east of Warrington Road (Plot 4)	Culcheth																													
2597	Land south of disused railway line (Plot 5)	Culcheth																													
2598	Land at NW corner of Taylor Business Park (Plot 6)	Culcheth,																													
2656	Land adj Petersfield Gardens	Culcheth																													
3151	Glazebury Depot	Glazebury																													
3157	Land at Warrington Road	Culcheth																													
3337	Land at Lion's Den	Culcheth																													
R18/P2/033	Kenyon Railway Junction	Culcheth																													
R18/P2/071	Land at Warrington Road, Culcheth (Parcel 2)	Culcheth																													
1505	Land at the junction of Warrington Road/ Jennet's Lane	Glazebury																													
R18/P2/150	Three Acres Farm	Glazebury																													
1514	Land off A57 Manchester Rd, Hollins Green	Hollins																													
2171	Land south of Hollins Green	Hollins																													
R18/056 R18/P2/146C	Land off Marsh Brook Close, Rixton	Rixton																													
R18/P2/151	Land north of A57, Hollins Green	Hollins																													
1545	Rushgreen Rd, Lymm	Lymm																													
R18/132	Land at Rushgreen Road, Lymm	Lymm																													



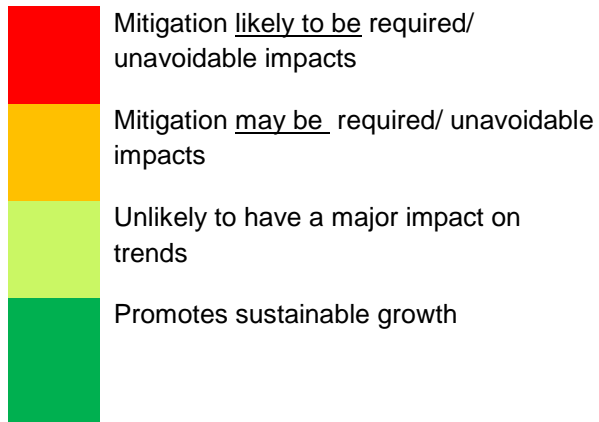
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R18/P2/096D																																					
R18/117 R18/P2/053	Land south of Rushgreen Road (East Site)	Lymm													/																						
R18/118 R18/P2/054 / R18/P2/133	Land south of Rushgreen Road (West Site)	Lymm													/																						
R18/P2/085	Land at Tanyard Farm, Lymm	Lymm													/																						
1504	Land off Thirlmere Drive	Lymm													/																						
1528	Land adjacent to and west of Statham Community Primary School	Lymm													/																						
1622	Land between Oldfield Road and Warrington Road, Statham	Lymm													/																						
1531	Statham Lodge Hotel	Lymm North													/																						
R18/P2/001	Land at Statham, Lymm	Lymm North													/																						
1891	Land fronting Pool Lane	Lymm North													/																						
1621	Land immediately surrounding Pool Farm	Lymm North													/																						
1565	Land west of Reddish Crescent, Lymm	Lymm													/																						
3109	Holly House	Lymm													/																						
1560	Greenscene	Lymm South													/																						
2408	Oak Lawn	Lymm South													/																						



				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	HW1. Supported by community facilities	HW2. Access to local natural greenspace	HW3. Access to formal play space	ACC1. Access to nearest primary school	ACC2. Access to nearest secondary school	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	ACC5. Distance to GP service/ health centre	HO1. Will development meet housing need	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	RU2. Access to HWRC	
	2704	Land at Boarded Barn Farm	Lymm																												
	3124	Land off Massey Brook Lane, Lymm	Lymm																												
	3316	Land off Massey Brook Lane, Lymm	Lymm																												
	3139	Land adjacent to Lymm Rugby Club	Lymm South																												
	3170	Land off 35 High Legh Road, Broomedge	Lymm South																												
	3171	Cotebrook Nursing Home	Lymm South																												
	3105	Field off Stage Lane	Lymm North																												
	3162	Land at Mill Lane/Stage Lane	Lymm North																												
	R18/P2/050	Land off Birchbrook Road (No.19), Lymm	Lymm																												
	R18/P2/048	Top Farm, Broomedge	Lymm South																												
	2670	Highfield Farm, Waterworks Lane	Winwick																												
	3334	Waterworks Lane, Winwick	Winwick																												
	3104	Land at Newton Road	Winwick																												

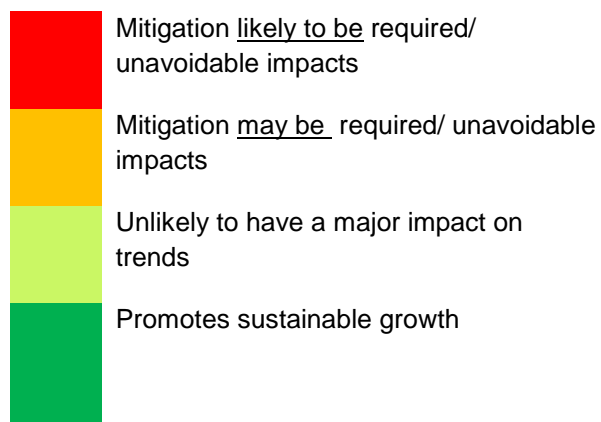
Employment site options

Table 6.4: Employment site options



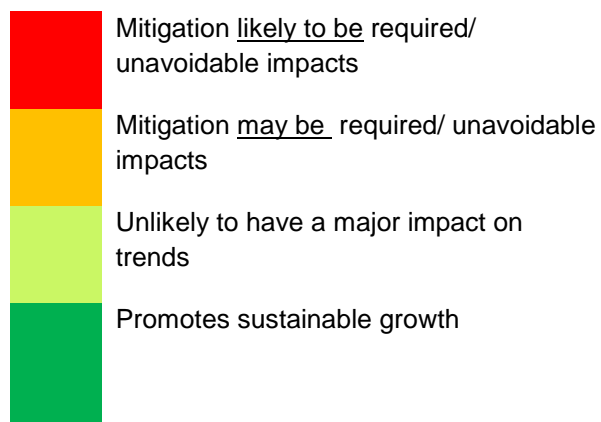
EC1. Loss of employment land
EC2. Distance to Principal Road Network
EC3. How close to key employment sites
ACC3. How well served is the site by a bus
ACC4. How accessible is site to train Station
NR1. Potential impacts on air quality
NR2. Remediation of contaminated land
NR3. Loss of High Quality Agricultural Land
NR4. Groundwater Source Protection Zone
NR5. Site within identified flood zone
RU3. Potential to safeguard/sterilise minerals
BNH1. Proximity to designated heritage assets
BNH2. Effect upon heritage assets
BNH3. Capacity for landscape to accommodate
BG1. Impact on European Site/ SPA/ SAC
BG2. Potential impact on a SSSI
BG3. Potential impact on Local Wildlife Site
BG4. Potential impact on TPOs
RU1. Use of previously developed land

AECOM ID	Site ID	Site Name	Urban location	EC1	EC2	EC3	ACC3	ACC4	NR1	NR2	NR3	NR4	NR5	RU3	BNH1	BNH2	BNH3	BG1	BG2	BG3	BG4	RU1	
	R18/133	Port Warrington	South West	Green	Green	Green	Red	Orange	Green	Orange	Green	Green	Red	Orange	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/121	Arpley Meadows	Central Warrington	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/P2/104A (Contains smaller R18/104)	Disused Railway Line, North of station Road	Central Warrington	Green	Red	Green	Red	Orange	Green	Orange	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/061, R18/P2/100	Land N of Barleycastle Lane, Appleton	South Warrington	Green	Green	Green	Red	Red	Green	Orange	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/043	Land at Barleycastle Lane, Appleton	South Warrington	Green	Green	Green	Red	Red	Green	Orange	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/106, R18/P2/145	Land at Bradley Hall Farm, Cliff Road	South Warrington	Green	Green	Green	Green	Red	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/147, (Part R18/143)	Land south of Barleycastle Lane	South Warrington	Green	Green	Green	Red	Red	Green	Orange	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/148), (Part R18/P2/099)	Land south of Barleycastle Lane	South Warrington	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	(R18/150), (Part R18/P2/098)	Land off Barleycastle Lane	South Warrington	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

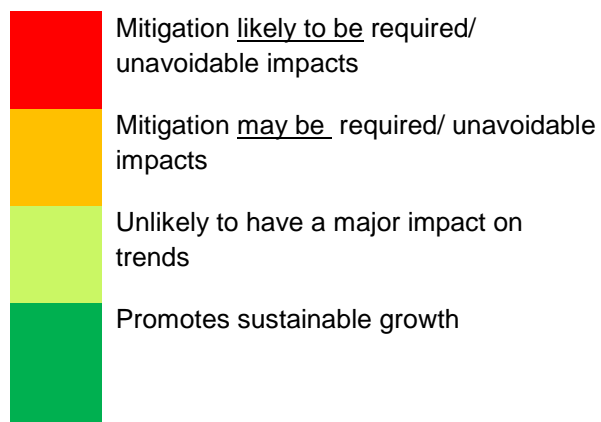


EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land
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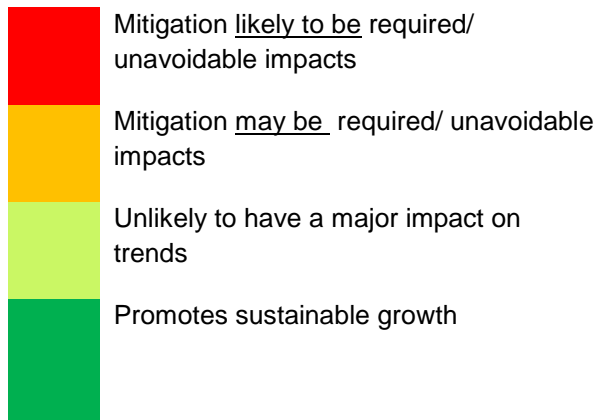
R18/151, (Part R18/P2/097)	Land off Barleycastle Lane(Schofield/Stafford Site 2)	South Warrington																	
R18/152	North side of Cartridge Lane	Lymm																	
R18/072	Cherry Hall Farm, Cherry Lane	South Warrington																	
R18/P2/063	Cherry Hall Farm, Cherry Lane	South Warrington																	
R18/046	Land south of Townfield Lane, Winwick	Warrington North																	
R18/140 R18/127B	Land north of Arbury Court, Winwick	Warrington North																	
R18/045	Land north of Townfield Lane, Winwick	North Warrington																	
R18/141	Land west of Delph Lane/Hollins Park Hospital, Winwick	North Warrington																	
R18/P2/127A	Land west of Delph Lane/Hollins Park Hospital, Winwick	North Warrington																	
R18/P2/015	Land South of Hatton Lane	South Warrington																	
R18/031, R18/P2/131H	Land West of Heath Lane	Croft																	
R18/048	Land at Arley Road, Stretton	South Warrington																	
R18/032, R18/P2/131F	Land North of Smithy Brow	Croft																	
R18/093, (R18/P2/131G)	Land East of Heath Lane	Croft																	
R18/098	Land South of Smithy Brow	Croft																	



				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	
	(Part R18/099, R18/P2/131E)	Land North of Stone Pit Lane	Croft																				
	R18/P2/033	Land at Former Kenyon Railway Junction, Wilton Lane.																					
	R18/033, R18/P2/131B	Land west of Warrington Road and South of Railway Line	Glazebury																				
	R18/063, R18/P2/131C	306 Warrington Road	Glazebury																				
	Site Ref: R18/074	Chapel House Farm, Fowley Common Lane	Glazebury																				
	R18/062, R18/P2/129	Land at Camseley Lane/A56, 57 Camseley Lane	Lymm																				
	R18/020 (Parcel of R18/P2/131A)	Site east of J21, M6 (site 4449)	Rixton																				
	R18/021A (Parcel of R18/P2/131A)	Site east of J21, M6 (Site 6919)	Rixton																				
	R18/021B (Parcel of R18/P2/131A)	Site east of J21, M6 (Site 8160)	Rixton																				
	R18/023 (Parcel of R18/P2/131A)	Site east of J21, M6 (Site 8939)	Rixton																				
	R18/025 (Parcel of R18/P2/131A)	Site east of J21, M6 (Site 1833)	Rixton																				



				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	
	R18/026 (Parcel of R18/P2/131A)	Site east of J21, M6 (Site 5636)	Rixton	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/028 (Parcel of R18/P2/131A)	Site east of J21, M6 (Site 5371)	Rixton	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/135	Stantham Meadows		Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/137	Land Thelwall Lane West	Latchford	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/P2/009	Land to the East and West of M6, Massey Brook Farm, Weaste Lane		Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/069	Land at Gullivers World, Off Shackleton Close		Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/P2/152	Land at Cherry Lane	Lymm	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/136	Land at Thelwall Lane East	Latchford East	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/066	Land at Joy Lane, Burtonwood	Burtonwood & Winwick	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/081 (R18/P2/101)	Land at Cherry Lane and Booths Lane	Lymm	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/080	Burtonwood Brewery and White House Farm	Burtonwood	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/P2/013	Land off Junction 10, M56	Appleton	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	R18/p2/127a	Land west of Delph Lane/Hollins Park Hospital,	Winwick	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
41	R18/022	Sites east of Jctn 21 M6 (Site 8979)	East	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green



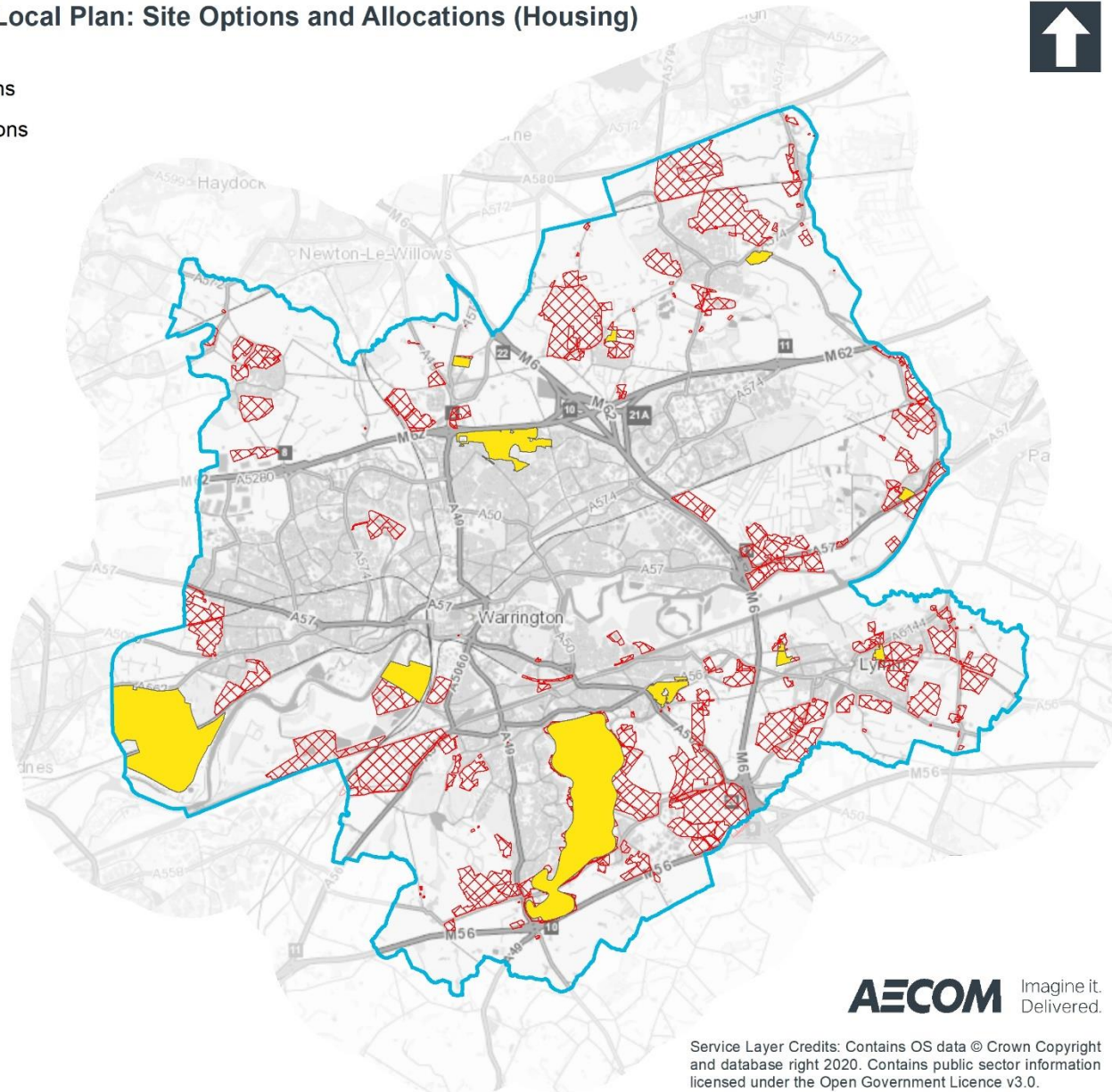
				EC1. Loss of employment land	EC2. Distance to Principal Road Network	EC3. How close to key employment sites	ACC3. How well served is the site by a bus	ACC4. How accessible is site to train Station	NR1. Potential impacts on air quality	NR2. Remediation of contaminated land	NR3. Loss of High Quality Agricultural Land	NR4. Groundwater Source Protection Zone	NR5. Site within identified flood zone	RU3. Potential to safeguard/ sterilise minerals	BNH1. Proximity to designated heritage assets	BNH2. Effect upon heritage assets	BNH3. Capacity for landscape to accommodate	BG1. Impact on European Site/ SPA/ SAC	BG2. Potential impact on a SSSI	BG3. Potential impact on Local Wildlife Site	BG4. Potential impact on TPOs	RU1. Use of previously developed land	
37	R18/019	Sites east of Jctn 21 M6 (Site 4690)	East																				
43	R18/024	Sites east of Jctn 21 M6 (Site 9624)	East																				
46	R18/027	Sites east of Jctn 21 M6 (Site 6318)	East																				
	R18/030	Sites east of Jctn 21 M6 (Site 3174)																					
	R18/077	Land south of Birchwood train station																					
		Fiddlers Ferry																					

Warrington Local Plan: Site Options and Allocations (Housing)



Figure 6.1

-  Allocations
-  Site Options



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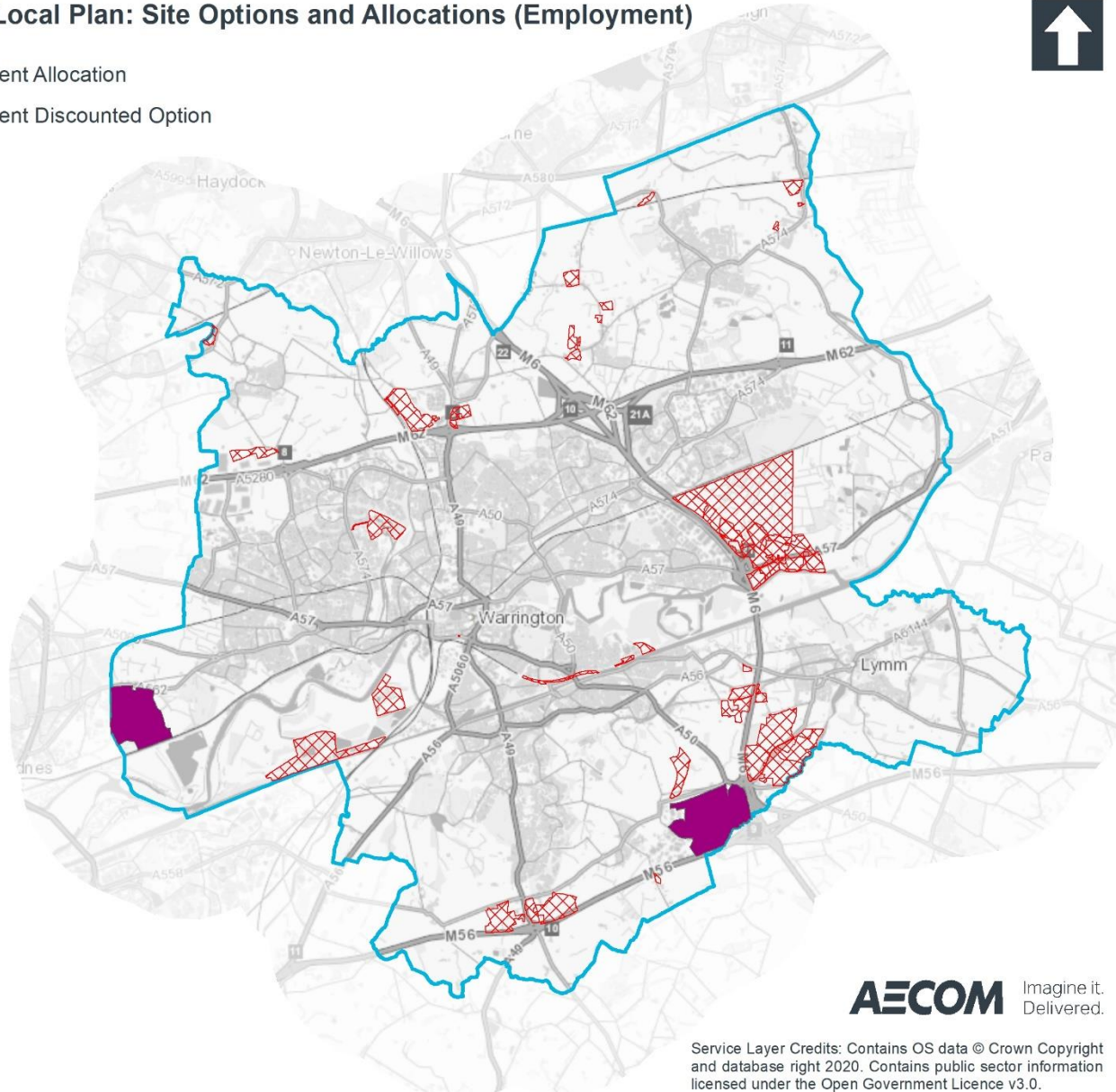
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Warrington Local Plan: Site Options and Allocations (Employment)

- Employment Allocation
- Employment Discounted Option



Figure 6.2



AECOM Imagine it. Delivered.

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6.2 Outline reasons for the selection of site allocations

Urban capacity

- 6.2.1 The urban capacity includes around 1,200 homes at the Peel Hall site. This is a large green-field site and is the largest single site within the existing urban area. Given the scale of the site, the need for on-site infrastructure and the potential impacts on the local and strategic road network, the Local Plan contains a specific allocation for the site. There are no alternative sites of a comparable nature within the urban area that warrant allocation.

Adjacent to the urban area

- 6.2.2 The broad locations for growth adjacent to the urban area have been determined through a 'top down' and 'bottom-up' assessment.
- 6.2.3 An appraisal of individual site options helped to understand the implications of strategic growth in several broad locations around the urban area (i.e. north, south, south-east, south west, east, and west). To support strategic growth in these broad locations multiple sites would need to be allocated and so there is no choice to be made about which particular sites should form part of the strategy and which would not. For example, there are no alternative locations that would support growth to the south-west of the urban area other than that which has been identified.
- 6.2.4 In other locations such as the Garden Suburb / South East Warrington Urban Extension (SEWUE), there were choices to be made about which sites within this broad area would be suitable for release from the Green Belt and also what uses could be appropriate. The site assessments helped to inform this process too.
- 6.2.5 Further details on the approach undertaken in support of the South East Warrington Urban Extension (Garden Suburb) is detailed later in this report.

Outlying settlements

- 6.2.6 The spatial strategy confirms that an incremental approach to growth would be taken at the outlying settlements. Broadly speaking, this involves a higher amount of growth being directed to Lymm and Culcheth as these are the larger settlements with a broader range of services.
- 6.2.7 However, at each of the outlying settlements there are multiple sites that could be allocated to support incremental growth. The site appraisal and selection process has helped to influence the choice of sites to be allocated in the Local Plan.
- 6.2.8 Detailed justifications for the inclusion (or not) of each site option is set out in an appendix to the Options and Site Assessment Technical Report. Outline reasons are provided below, summarising the key factors that have influenced site selection.
- Sites contributing strongly to Green Belt function were generally avoided.

- Sites adjacent to the settlement boundary forming logical extensions were favoured above those in more isolated locations with poor links to the settlements.
- Large extensions to settlements were considered unnecessary as they would lead to more than incremental growth.
- Sites with critical constraints such as flood risk were avoided.


6.2.9 No sites were identified for Glazebury given there were no sites that were not strongly performing in Green Belt terms which performed sufficiently well against the assessment criteria. Given the small number of homes that would have been allocated to Glazebury, the Council concluded it was not necessary to re-allocate any additional homes to the other settlements.

6.2.10 The housing sites allocated at the outer settlements within the Plan are listed below. This is in addition to sites allocated to support the South East Warrington Urban Extension, Fiddlers Ferry, Thelwall Heys and Peel Hall. Two sites that were proposed for allocation in the first Proposed Submission Version of the Local Plan (2019) are not included at this current stage. The rationale for this is set out in the Technical Development Options and Site Assessment Report.

Settlement	Site	Number of Homes
Croft	Land to the north east of Croft	75
Culcheth	Land to the east of Culcheth bounded by Warrington Road (A574) and Holcroft Lane	200
Hollins Green	Land to the southwest of Hollins Green bounded by Marsh Brook Close, Warburton View and Manchester Road	90
Lymm	Land to the west of Lymm bounded by Pool Lane, Oldfield Road and Warrington Road	40
Lymm	Rushgreen Road	136
Lymm	Land to the west of Lymm bounded by Warrington Road, the Trans-Pennine Trail and Statham Community Primary School	130
Winwick	Land to the north of Winwick between Golborne Road (A573) and Waterworks Lane	130
Total		801

Employment site options

- 6.2.11 As part of the EDNA update (2019 and again in 2021), all potential employment sites were categorised according to their feasibility, viability and deliverability as strategic and / or local employment sites. Highest performing sites for strategic and local need were categorised 'A' and 'B' respectively. Category 'C' sites were still considered as reasonable, whilst 'D' and 'E' were considered to be progressively constrained and poorly performing.
- 6.2.12 The sites selected for employment have been influenced largely by their banding in the EDNA. The Council considers that an approach that does not make as much use as possible of Grade A and B sites would potentially not deliver identified needs.
- 6.2.13 Whilst there are environmental constraints at the identified broad employment growth areas (Port Warrington in particular), the only other strategic locations (Rixton / South of Lymm) are environmentally constrained also; and are categorized mainly as Grade C, D or E sites in terms of suitability.



**Meeting the needs of
Gypsies, Travellers and
Travelling Show People**

07

7 MEETING THE NEEDS OF GYPSIES, TRAVELLERS AND TRAVELLING SHOWPEOPLE

7.1 Introduction

- 7.1.1 The Council has an obligation to identify and provide for the accommodation needs of Gypsy, Traveller and Travelling Showpeople.
- 7.1.2 The key piece of evidence in determining needs is the Gypsy, Traveller and Travelling Showpeople Accommodation Assessment (GTAA) which was completed in 2018. This report sets the evidence base for the provision of new Gypsy and Traveller pitches and Travelling Showpeople plots for the 15-year period from 2017 up to 2032.
- 7.1.3 It identifies a need for 15 further permanent Gypsy and Traveller pitches between 2017 and 2032 in addition to those consented at the time of the report. This represents a minimum requirement of 5 pitches to be provided within the first 5 years of the plan period to 2022, based on an equal rate of provision over the 15 year period.
- 7.1.4 In terms of Travelling Showpeople the assessment identifies a need for 15 plots between 2017 and 2032. This represents a minimum requirement of 5 plots to be provided within the first 5 years of the plan period to 2022, based on an equal rate of provision over the 15 year period.
- 7.1.5 The GTAA also recommends that Warrington provides a transit site of between 5-10 pitches.
- 7.1.6 Since the publication of the GTAA in 2018, a number of sites have been consented, meaning that all of the need up to 2032 would be met apart from 2 pitches.

7.2 Considering alternatives

- 7.2.1 Taking into consideration the existing supply of authorised sites, the Council has determined that there is a need to provide a minimum of 2 permanent pitches for Gypsy and Travellers.
- 7.2.2 The proposed strategy is for this need to be met through a criteria based policy.
- 7.2.3 In terms of alternatives, there have been no suitable permanent sites promoted, and so at this stage, the Council considers that a criteria based policy is the most appropriate approach (and the only reasonable alternative).
- 7.2.4 The Council will confirm sites for future provision up to 2037 in a future review of the Plan. There may be a need for alternative sites to be reconsidered as part of such a review.

- 7.2.5 The Council will also seek to identify site(s) for transit provision as part of this process, considering land in its ownership as well as asking other public sector partners to do the same.
- 7.2.6 With regards to travelling showpeople, two sites have been granted planning permission since the publication of the GTAA, totalling 10 plots, and this will therefore meet the needs identified for the first 10 years of the Plan.
- 7.2.7 No other reasonable sites have been identified or promoted for travelling showpeople at this time, but likewise, the Council will explore the potential for further provision as part of a Plan review.



Concept options for the Garden Suburb

08

8 OPTIONS FOR THE GARDEN SUBURB

8.1 Concept Options

- 8.1.1 A masterplanning process for a Garden Suburb was undertaken alongside the development of the Local Plan.
- 8.1.2 This helped to determine whether or not such a strategic development would be feasible and deliverable.
- 8.1.3 As the Preferred Development Option started to emerge and it became clear that a Garden Suburb was part of the Council's preferred approach; a detailed concept option was developed to help provide a framework for the delivery of a Garden Suburb.
- 8.1.4 The masterplanning process involved consultation with a range of stakeholders to gather thoughts about what the Garden Suburb could look like. Taking such feedback into consideration alongside physical constraints, market interest, and other factors, three concept options were developed prior to the preferred approach being confirmed (These were generated during the May 2018 Design Workshop).
- 8.1.5 An assessment of the three concept options was carried out by Officers, supporting consultants and relevant statutory consultees. This was informed by responses to the Preferred Development Option (R18) consultation and additional technical evidence base documents being prepared in support of the Local Plan.
- 8.1.6 The preferred approach was considered to best meet Local Plan objectives, having regard to design, layout, use, scale, highways access and market considerations. For completeness, the concept options have also been appraised within the SA.
- 8.1.7 The differences between the concept options are not major, as each involves similar amounts of homes, employment land and supporting facilities. However, they represent different configurations of how such development could be located throughout the broad location.
- 8.1.8 Each concept option involves the following principal elements to differing extents.
- Residential development surrounding Grappenhall Heys
 - Residential development stretching from Stretton through to Appleton Thorn
 - Expansive residential development to the north of the A50 towards Thelwall
 - Employment development adjacent to Barleycastle.

8.1.9 The main differences between the options relate to the following factors:

Table 8.1: Garden Suburb Concept Options

	GS Option A	GS Option B	GS Option C
Where a country park would be located	Country Park to the south of Grappenhall extending eastwards to the A50.	Country Park to the south of Grappenhall extending towards the south of Grappenhall Heys	Country Park to the south of Grappenhall extending towards the west of Grappenhall Heys
Where a district centre would be located	Centrally, but not directly above employment growth area	Centrally, directly above employment growth area	Further east towards the A50.
The extent and location of employment land	Lower extent near to the Scheduled Monument.	Lower extent near to the Scheduled Monument.	Higher employment growth over a larger geographical area

8.1.10 Appendix I of the SA Report sets out a high level appraisal of each of these options. A summary of the effects are set out below:

- All three options are predicted to have similar positive effects on economy and regeneration, but the amount of land allocated for employment uses is slightly higher under GS Option C, which could thus generate more positive effects.
- All three options are predicted to have similar positive effects on health and wellbeing and housing.
- All three options are likely to perform similar with regards to accessibility, including access to public transport, active forms of travel and the permeability of the built environment.
- All three options are predicted to have a similar negative effect on natural resources.
- GS Option C is predicted to have a slightly greater negative effect compared to GS Options A and B upon built and natural heritage, which could give rise to significant negative effects.

- The effects are broadly similar for each option on biodiversity and geodiversity (minor negative), but GS Option C is considered as potentially generating more notable negative effects.
- All three options are predicted to have similar effects in regard to climate change and resource use.

8.1.11 The preferred approach was a hybrid approach, but built upon GS Option B. It was considered to best meet Local Plan objectives, having regard to design, layout, use, scale, highways access and market considerations. For completeness, the concept options were appraised within the SA.

Outline reasons for the selection of the preferred approach (2019)

8.1.12 The development of a masterplan framework for the Garden Suburb is described in detail within a separate document prepared by AECOM in collaboration with Warrington & Co.

8.1.13 www.warrington.gov.uk/download/downloads/id/18690/garden-suburb-development-framework.pdf

8.1.14 This document sets out the processes that were undertaken prior to a preferred approach being established. This involved a range of consultation events, with an important milestone being a design workshop in May 2018, where three concept options were established.

8.1.15 As an initial response to the workshop, GS Option B was seen as the preferred approach; mainly as it would best achieve the primary objectives set for the Garden Suburb whilst maintaining the 'Essence of Place'.

8.2 South East Warrington Urban Extension Options

Introduction

8.2.1 As discussed in Section 4, following consultation on the draft Plan the Council reconsidered the strategy with regards to housing growth and distribution.

8.2.2 In relation to the 'Garden Suburb', the Council still considers this to be a reasonable option for meeting residual housing needs. However, the scale of growth considered reasonable (at this stage) by the Council is approximately 2400 dwellings in the Plan period. As such, this broad location for growth is subsequently referred to as the South East Warrington Urban Extension (rather than a 'Garden Suburb').

8.2.3 The main reason for this reduction in the overall scale of growth were challenges relating to the timely delivery of infrastructure and rates of housing delivery.

8.2.4 At this stage four detailed options had emerged with regards to the location of development at the South East Warrington Urban Extension.

8.2.5 It was considered useful to appraise these options to confirm which approach would be taken forward as part of the detailed spatial options. This is important as it allows for a more informed decision to be made about the merits of the Garden Suburb compared to alternative locations for growth (i.e. the South West Urban Extension, Fiddlers Ferry and Thelwall Heys).

The reasonable alternatives

8.2.6 The four alternatives correspond with development parcels identified through the call for sites exercise.

Figure 8.1 - SEWUE Option 1

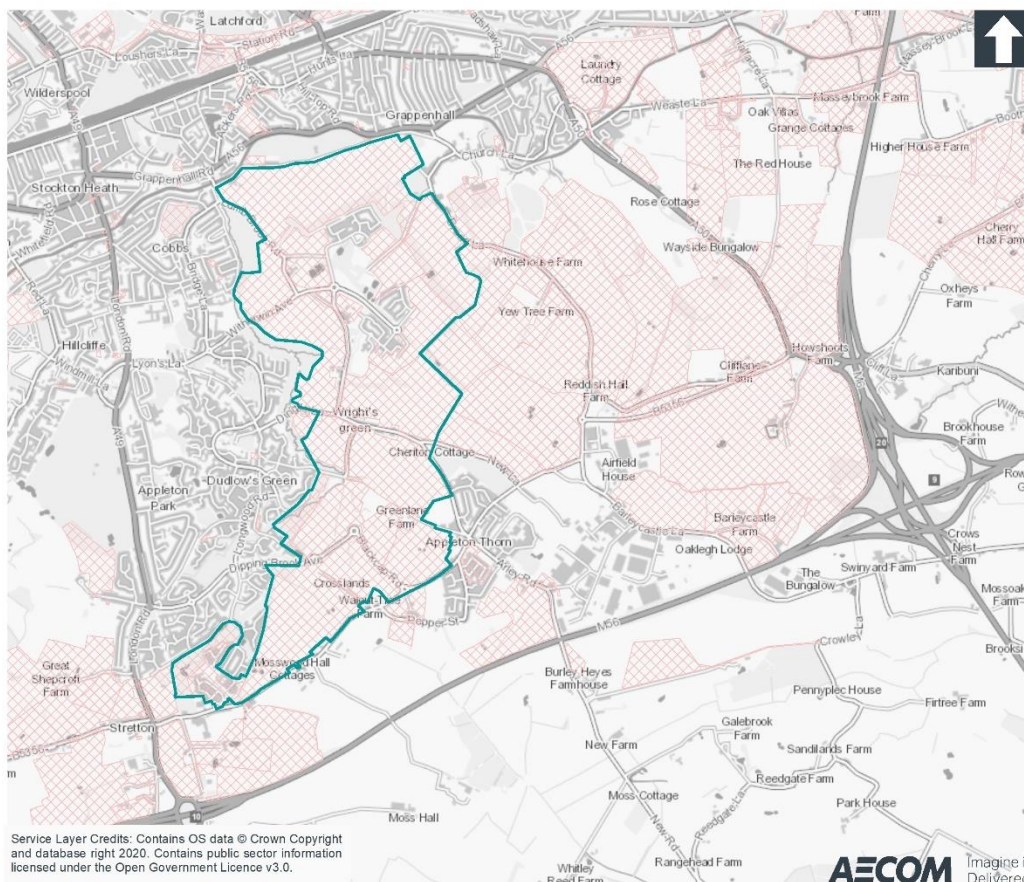


Figure 8.2 - SEWUE Option 2

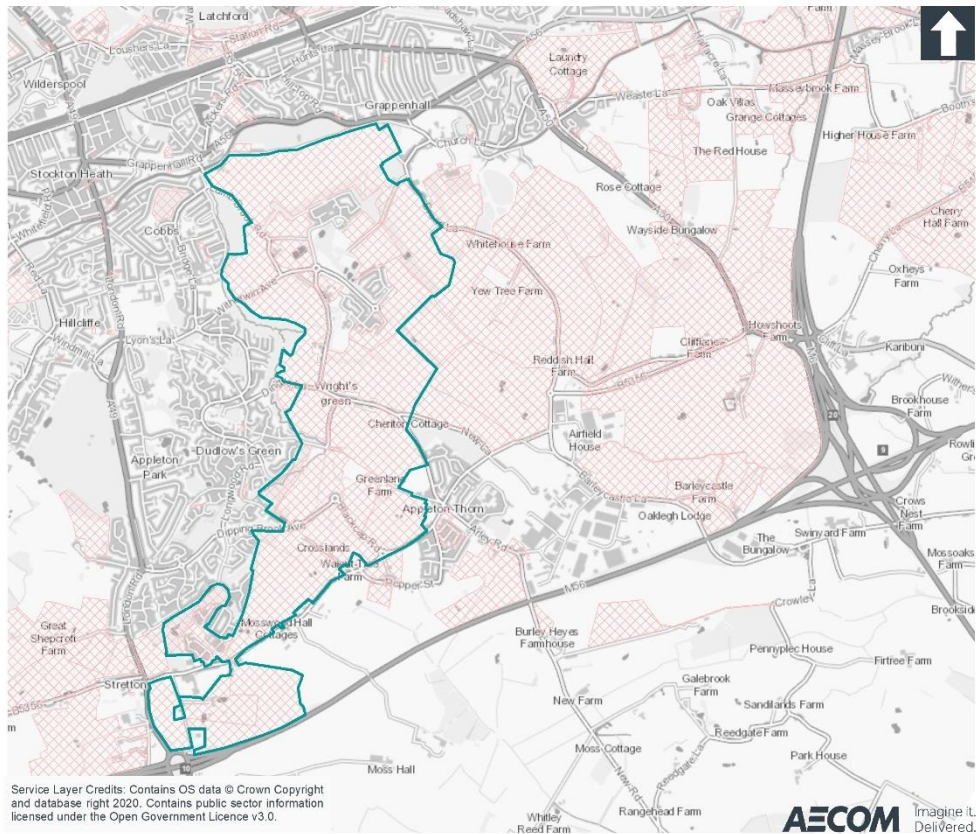


Figure 8.3 - SEWUE Option 3

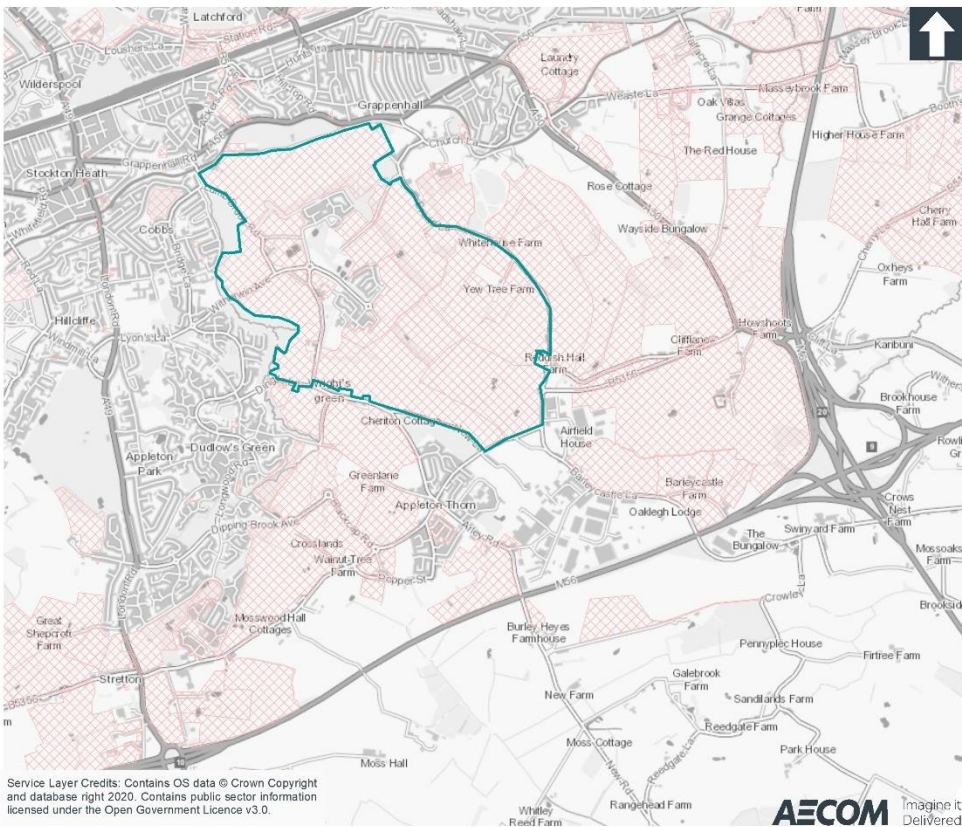
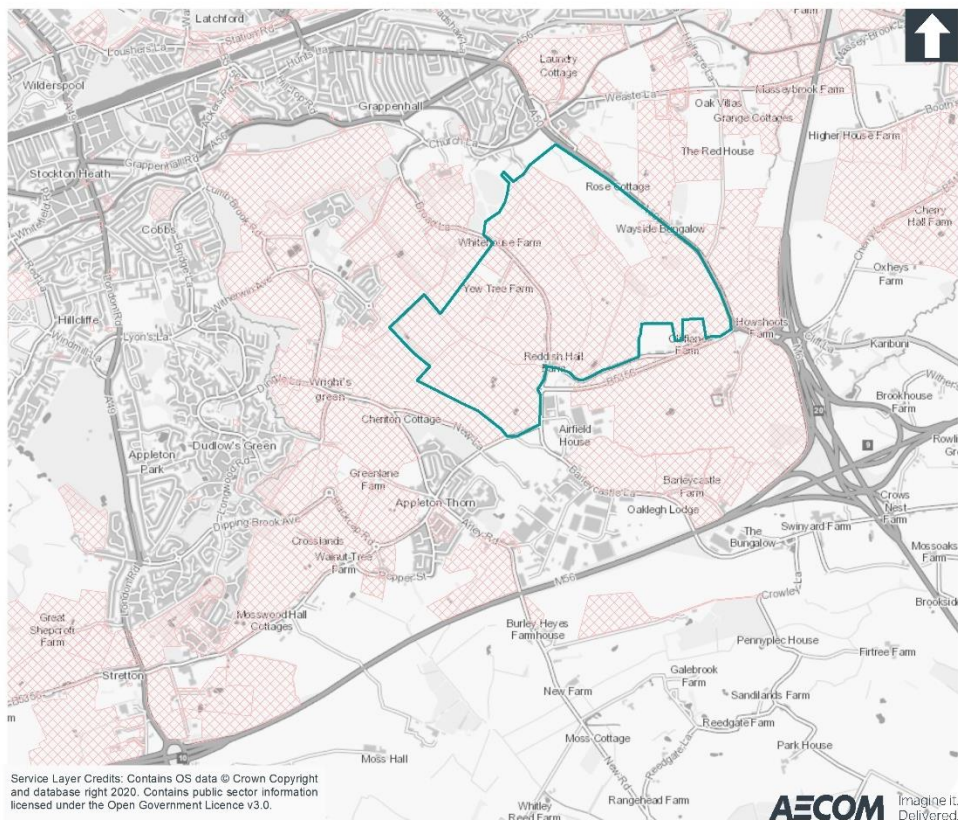


Figure 8.4 - SEWUE Option 4



Summary of findings

8.2.7 Each of the options perform relatively similar, which is to be expected given that they are all in the same broad locations and involve the same parcels of land to an extent. Some comment effects are as follows:

- Major positive effects are likely to arise in relation to housing regardless of option.
- Major negative effects are likely to arise with regards to soil resources regardless of option.
- The effects with regards to flooding and water quality are the same regardless of option (neutral and minor positive).

8.2.8 There are some differences that have been noted in the SA though:

- Options 3 and 4 could potentially have a greater negative effect upon landscape character compared to options 1 and 2.
- The effects on health and wellbeing are more likely to be of major significance (positively) for Options 1, 2 and 3, which build on existing communities and services. This is also reflected in the accessibility performance of the options, which is least positive for Option 4.

- Option 4 performs slightly better than the other 3 options with regards to biodiversity impacts, but there is a degree of uncertainty.
- Options 1 and 2 perform less well compared to options 3 and 4 with regards to built heritage. However, effects are predicted to be of minor significance.

	SEWUE Option 1		SEWUE Option 2		SEWUE Option 3		SEWUE Option 4	
<i>Economy and regeneration</i>	Green		Green		Green		Green	Yellow
<i>Health and wellbeing</i>	Green ?	Yellow	Green ?	Yellow	Green ?	Yellow	Green	Yellow
<i>Accessibility</i>	Green	Yellow	Green	Yellow	Green	Yellow	Light Green	Yellow
<i>Housing</i>	Green ?		Green ?		Green ?		Green ?	
<i>Natural resources: Agricultural land</i>	Red		Red		Red		Red	
<i>Natural resources: Water quality</i>	Light Green		Light Green		Light Green		Light Green	
<i>Natural resources: Air quality</i>	Orange ?		Orange ?		Orange		Orange	
<i>Resource use and efficiency</i>	Yellow		Yellow		Yellow		Yellow	
<i>Flooding</i>	Grey		Grey		Grey		Grey	
<i>Built heritage</i>	Yellow		Yellow		Grey		Grey	
<i>Landscape</i>	Orange		Orange		Red ?	Red ?	Red ?	Red ?
<i>Biodiversity and geodiversity</i>	Yellow ?		Yellow ?		Yellow ?		Grey ?	
<i>Climate change</i>	Green	Yellow	Green	Yellow	Green	Yellow	Green	Yellow

Outline reasons for the selection of the preferred approach

8.2.9 The Council's justification for the selection of the preferred approach is outlined below:

- Out of all four options, Option 2 would make the strongest contribution to ensuring the permanence of the revised Green Belt boundaries in the long term, without the loss of any strongly performing Green Belt parcels.
- Options 1 and 2 perform strongly against a number of Plan Objectives. They perform best in terms of contributing to the sustainable growth of the main urban area of Warrington as a whole.

- They would enable better integration within communities, facilities and public transport services in Stockton Heath, Appleton and Stretton.
- Compared to Option 1, Option 2 is likely to require the least amount of off-site highways works necessitating third party land, which is a positive factor in terms of deliverability.



Appraisal of the Plan

09

9 APPRAISAL OF THE PLAN

9.1 Introduction

9.1.1 This section presents an appraisal of the Proposed Submission version of the Local Plan (2021) against the SA Framework. Effects have been identified taking into account a range of characteristics including magnitude, duration, frequency, and likelihood.

9.1.2 Combined, these factors have helped to identify the significance of effects, whether these are positive or negative.

9.1.3 To give the appraisal a clear structure but to avoid repetition and duplication, the findings are presented for each SA Topic separately. For each topic, the appraisal identifies the effects that different elements (groups of similar policies) of the Plan would have.

Plan Chapters / Policy groupings
<i>Development policies</i>
<i>Green Belt policy</i>
<i>Town centre policy</i>
<i>Infrastructure policies</i>
<i>Design policies</i>
<i>Environment policies</i>
<i>Major development Policies</i>
<i>Outer settlement policies</i>
<i>Monitoring and review policy</i>

9.1.4 Each policy is provided a symbol to represent its broad implications (i.e. positive ↑, negative ↓ or neutral ↔). The combined effects of the policies are then determined in terms of overall significance using one of the following symbols.

+++	Major positive effect	---	Major negative effect
++	Moderate Positive effect	--	Moderate negative effect
+	Minor positive effect	-	Minor negative effect
0	Neutral effect		

9.1.5 The concluding section for each SA Topic includes a summary of the Plans performance against the different Plan chapters / groups of policies. The Plan effects are then considered 'as a whole' to determine what the cumulative effects upon each SA topic would be.

9.1.6 This is important as Plan policies should be read in the context of the whole Plan and not in isolation. Policies can work interact with one another to create cumulative effects, synergistic effects and to help mitigate potential negative effects.

9.2 Housing

9.2.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Housing'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance
<i>Broad implications</i>	↑	↑	↑	↔	↑	+++

9.2.2 *DEV1 Housing Delivery:* this policy is likely to lead to positive effects on housing by bringing forward housing delivery in line with the needs set out in the Council's Local Housing Needs Assessment (2021) and update to the Economic Development Needs Assessment. This spread of development opportunities across both brownfield and greenfield (including Green Belt) land is likely to be attractive to developers and buyers who seek a variety and range of sites depending on their needs. This distribution of needs is also relatively proportionate across the Borough and is well related to new and existing employment sites in the main, therefore, housing needs are likely to be met where they arise, help to support the vitality of a range of settlements and create links to place of work and transport. There is also explicit reference to maintaining a 5 year supply of housing land, which itself should help to safeguard opportunities for housing supply in the short term, and throughout the plan period if a review highlights the need for more sites within a 5 year time period. This additional buffer should ensure there is flexibility and choice in the market. This policy therefore makes a substantial contribution towards the achievement of positive effects in terms of the housing objective.

9.2.3 *DEV2 Meeting Warrington's Housing Needs:* this policy states the requirement for provision of affordable housing within developments is likely to enable wider access to the housing market. It makes specific reference to providing affordable rented accommodation in Inner Warrington, in response to high demand. Further to this, 25% of affordable housing units should be 'First Homes', helping to open up the housing market to those who would otherwise be restricted by cost barriers; this may also help to reduce the pressures on the affordable rented sector. The policy also provides flexibility to deliver lower targets if viability could be affected. In particular, affordability targets are lower in response to deliverability and viability signals, which means that brownfield sites should remain an attractive prospect for developers. High quality and diverse housing development of varying types and tenures is required and as such is likely to provide a suitable range of homes, including homes for older people and people with disabilities. The support of self-build projects should also increase the housing mix of Warrington and cater to the demands of those with aspirations to build homes. Some policy wording relating to changes of use to form houses in multiple occupation (HMO) helps to ensure any changes do not adversely affect the local character, housing stock or amenity; this would be expected to lead to positive effects for the attractiveness of accommodation for both the occupiers and nearby residents.

- 9.2.4 The policy is therefore positive in nature and contributes to a significant positive effect overall for the DEV policies in relation to housing provision.
- 9.2.5 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* this policy is likely to lead to significant positive effects on a specific element of housing by providing an adequate supply of pitches to meet the needs of Gypsy & Traveller and Travelling Show People in the suitable locations. The policy includes provision for a particular demographic within Warrington, resulting in a more inclusive supply of accommodation that considers minority populations needs. The sites are also likely to come forward in well-connected locations.
- 9.2.6 *DEV4 Economic Growth and Development:* By continuing the use of employment sites for employment uses, the development of housing such sites is unlikely. However, there is sufficient land identified and allocated in the plan to ensure that housing needs can be met without the need to change employment land uses.
- 9.2.7 The development of Fiddlers Ferry Employment Area and its associated effects on traffic, noise and air during its construction and operation could have an effect on residential amenity for housing sites in proximity to the site. Whilst the policy seeks to minimise this residential impact by bringing overall benefits to traffic and the environment, the effectiveness of mitigation is yet to be determined and may not be aligned to the individual concerns of the affected residents. This could affect the attractiveness of housing development. With regards to housing development, a steady supply of jobs will continue to drive demand for housing, but these factors complement one another.
- 9.2.8 *DEV5 Retail and Leisure Needs:* This policy seeks to preserve the vitality and function of Warrington, district and neighbourhood centres; including for residential development where appropriate. This ought to have a positive effect on the provision of housing in accessible locations, though it is uncertain how attractive these sites would be. Overall, the retail and centre policies are predicted to have a minor positive effect on housing.

Overall effects of the development policies

- 9.2.9 Overall the DEV policies are likely to generate **major positive effects** with regards to the delivery of housing. The policies will help to meet the needs of the different communities across the Borough in terms of both the location of new developments, and the types of housing required by different people. There is choice provided in the location and type of sites involved, and a buffer to ensure flexibility in meeting the target. Several strategic sites will also provide housing beyond the plan period.

Green Belt policy

Policies	GB1	Overall significance
<i>Broad implications</i>	↑	+

9.2.10 This policy will prevent further housing development in the Green Belt. However, this should not prevent the achievement of housing targets. Not least because the policy also allows for land to be removed from Green Belt to meet the housing needs of the population of Warrington. For example, , the South East Warrington Urban Extension, Fiddlers Ferry and smaller inset settlements. Consequently, on balance, **minor positive effects** are predicted overall.

Town Centre Policy

Policies	TC1	Overall significance
<i>Broad implications</i>	↑	+

9.2.11 This policy seeks to preserve the vitality and function of Warrington, district and neighbourhood centres and promote a greater diversity of uses; including for new residential development where appropriate. Therefore, housing needs are likely to be met where they arise; help to support the vitality of a range of town centres and create links to place of work and transport. The main areas of focus are the Stadium Quarter, the Eastern Gateway, the Cultural Quarter, Bank Quay and the Southern Gateway which will all likely lead to a more attractive and accessible location to live, resulting in positive effects for housing. However, this policy also states that there will be a focus on increasing densities in these areas (50-130dph), therefore this may not be attractive to all parts of the community, such as young families who wish to have a garden / more open space and may be more attractive to young professionals who are working in the town centre and are more suited to living within high rise flats.

9.2.12 As this policy does not include the provision of open space / gardens within the high density schemes, this could also reduce attractiveness. However, such matters are considered in the Warrington Town Centre Supplementary Planning Document (SPD). Overall minor positive effects on housing are predicted.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad implications</i>	↑	↑	↔	↔	↑	↓?	+

9.2.13 *Policy INF1 Sustainable Travel and Transport: Accessibility to services and employment sites is likely to be a consideration for potential buyers. This policy attempts to improve transportation links and modal choice, which could make properties within the Borough more attractive in this respect. Additionally, improvements to walking and cycling facilities (active travel) and infrastructure, along with improved public transport surrounding new residential development is a potential draw for future buyers. These are minor effects, but can contribute towards house buying decisions.*

- 9.2.14 *Policy INF2 Transport Safeguarding:* Providing improvements to highway and transport networks by safeguarding land within Warrington is vital to maintaining a good quality of life for residents, maintaining the attractiveness to live and work in the borough. Whilst this is unlikely to have a direct effect on housing delivery, it does have positive implications with regards to maintaining the attractiveness of certain neighbourhoods.
- 9.2.15 *Policy INF3 Utilities and Telecommunications:* Securing technology in new residential development is likely to lead to the increased flexibility for residents to take up work from home or a more flexible work approach (start-ups) which is likely to increase the attractiveness to some potential buyers. Additionally, this policy could help to locate telecommunication infrastructure in appropriate areas / orientations so as not to encroach or negatively affect residential amenity for existing or new communities. The effects on housing delivery are unlikely to be significant though.
- 9.2.16 *Policy INF4 Community Facilities:* This policy should help to decrease the proximity of new housing to facilities for education, health, social, cultural and community activities. This should increase the attractiveness of housing developments, and may help to retain residents in particular neighbourhoods. This is unlikely to have a significant effect on housing delivery as such though.
- 9.2.17 *Policy INF5 Delivering Infrastructure:* This policy requires new infrastructure associated with residential development to be secured. This should make these developments suitable and more attractive places to live. Additionally, this policy could help to ensure the delivery of affordable housing units. However, affordable housing is not the only priority of the Councils with regards to development contributions. Minor positive effects are predicted.
- 9.2.18 *Policy INF6 Aerodrome Safeguarding:* This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This is unlikely to affect the delivery of housing, though supporting infrastructure on/related to housing sites such as areas designed to support wildlife or renewable energy developments (such as wind turbines) could see some setbacks or opposition during consultation with the Civil Aviation Authority. If aspects of schemes were to be blocked, then this could result in some negatives in relation to housing desirability. Potential negative effects could occur.

Overall effects of the development policies

- 9.2.19 None of the infrastructure policies are likely to have significant effects with regards to the availability and deliverability of housing. However, in combination the policies should help to support more attractive housing developments. There would be costs associated with some infrastructure requirements, but these ought not to affect viability. The potential for the Aerodrome Safeguarding policy to lead to restrictions on supporting infrastructure would not be significant, nor would it be likely to affect the overall thrust of these policies in combination. On balance **minor positive effects** are predicted for these policies together.

Design policies

Policies	DC1	DC2	DC3	DC4	DC5	DC6	Overall significance
<i>Broad implications</i>	↑	↑	↓	↓/↑	↑	↑	0

9.2.20 *Policy DC1 Warrington's Places*: This policy is likely to lead to each of Warrington's places providing the adequate amounts and type of affordable housing in line with the wider policies. Additionally, the policy states that there should be a spread of development opportunities across both brownfield and greenfield land, which is likely to be attractive to developers and buyers who seek a variety and range of sites depending on their needs. The inclusion of the 'Central Six Masterplan' for inner Warrington should also provide an increased level of confidence to developers wishing to develop in this area, potentially improving the certainty with which it can be said that housing of an appropriate type and tenure would be delivered.

9.2.21 *Policy DC2 Historic Environment*: seeks to protect, enhance and maintain heritage assets which could be redeveloped for residential uses. This could help to diversify choice and cater to a range of individual demands in the housing market. Protection of heritage assets is required, but this is standard practice and is unlikely to prove as a barrier to housing development. The policy is likely to have broadly positive implications, but at a very small scale.

9.2.22 *Policy DC3 Green Infrastructure Network*: this policy could prevent the location of residential development on certain sites which are safeguarded for green infrastructure networks; limiting opportunities for housing development in some locations. However, the plan provides sufficient housing elsewhere to avoid significant negative effects.

9.2.23 *Policy DC4 Ecological Network*: this policy could prevent the location of residential development on certain sites which are considered sensitive with regards to biodiversity, geological or ecological assets. This could therefore limit housing development in some locations. However, the plan provides sufficient housing elsewhere to avoid significant negative effects. The policy's reference to making public access to nature enhanced may add some benefits in terms of housing being made more attractive if it is nearby to natural space, though these effects would not be likely to be significant. The requirement for measurable net biodiversity gains may also add to the costs of development, but this should not lead to significant effects on delivery either.

9.2.24 *Policy DC5 Open Space, Outdoor Sport and Recreation Provision*: Proximity between housing and open space and sports provision is likely to increase the attractiveness of developments by increasing the quality of life of future residents and may help to retain residents in the area.

9.2.25 Any development which can prove that onsite delivery of open space or sports provisions is not viable will be expected to contribute towards offsite (but local) provision/enhancement, ensuring the benefits of such requirements would be seen across more developments. Overall minor positive effects could be predicted.

9.2.26 *Policy DC6 Quality of Place:* Guidance on the density and design of housing should help to ensure that housing is appropriate to its surroundings and of a consistently high quality, which ought to ensure that new homes are attractive to potential buyers, resulting in minor positive effects.

Overall effects of the design policies

9.2.27 Overall, these policies are likely to help secure high quality, functional, legible housing design in the Borough. Together, the design policies are expected to have a positive effect on the attractiveness of housing. However, safeguarding historic, landscape, woodland assets and green infrastructure could inhibit the development of potential housing sites should they be located in sensitive locations. The policies in this case could have minor negative effects on housing delivery on some locations. However, the effects are not predicted to be significant on a Borough-wide scale and would not be likely to affect the achievement of housing targets. On balance, a **neutral effect** is predicted for this group of policies.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance	
<i>Broad implications</i>	↔	↔	↓	↓	↔	↔	↑↓	↑	+	-?

9.2.28 Policies ENV1, ENV5 and ENV6 do not relate to housing and would not affect the delivery of new homes. Consequently, neutral effects are predicted.

9.2.29 *ENV2 Flood Risk and Water Management:* this policy seeks to prevent development from locating on sites which could exacerbate flood risk, thereby helping to protect housing across the Borough from potential damage during future events. The encouragement of SUDS, soft landscaping and sustainable transport could also help to make for more attractive communities. With regards to development sites, those within areas at risk of flooding are unlikely to be granted planning permission.

9.2.30 This is a slight barrier to housing delivery in some locations, but would not affect the ability to meet overall needs. Furthermore, these are national policy requirements that would need to be satisfied anyway. On balance, neutral effects are predicted.

9.2.31 *ENV3 Safeguarding of Minerals Resources & ENV4 Primary Extraction of Minerals:* These policies could delay or prevent the development of housing in some areas. However, it is not thought likely in practice that housing development would be sought in areas of existing minerals extraction. Furthermore, it may be possible to extract minerals prior to development being commenced.

9.2.32 Diverting housing away from mineral extraction sites is also sensible given the potential for effects on amenity and ground stability. Some sites could be deemed unsuitable for residential development though given the need to ensure that potential mineral resources are not sterilised by virtue of their proximity to residential areas (i.e. future development would affect amenity for residents on new developments). This is a potential minor negative effect.

9.2.33 *ENV7 Renewable and Local Carbon Energy Development:* This policy requires that all new major housing development (including the strategic sites) should meet at least 10% of their energy from renewable and / or other low carbon energy sources or to reduce their emissions by at least 10% when measured against the Building Regulation (Part L) requirements; any of these measures could affect the viability of the scheme for certain developments. Further to this, in the strategic allocations, developments are required to show evidence which details considerations of the feasibility of providing a decentralized energy network to meet onsite energy needs or to make provision to enable future connectivity to such a network. These could lead to minor negative effects, but the requirements are not that onerous and ought not to be significant with regards to viability. Some longer term positive effects may be seen where energy costs may see some savings in the future, acting as a pull for some residents.

9.2.34 *ENV8 Environmental and Amenity Protection:* This policy seeks to secure proximity between housing and services, improve accessibility, and enhance environmental quality. This should enhance the attractiveness of housing in the Borough and is likely to increase the attractiveness of developments, and may help to retain residents in the area. This could help to diversify choice and cater to a range of individual demands in the housing market, having a minor positive effect.

Overall effects of the environment policies

9.2.35 Overall, these policies are predicted to have mixed effects. A **minor positive effect** is predicted; reflecting the benefits that flooding infrastructure improvements would be likely to have. Policies that seek to improve the environmental quality of developments and the energy efficiency of homes are also likely to have positive longer term effects in terms of attractive housing.

9.2.36 Conversely, the additional requirements relating to renewable and low carbon energy could prove to be a barrier to some developments in the short term, and some locations may be deemed unsuitable due to the presence of mineral safeguarded areas. Only **minor negative effects** are predicted though, as the range of locations likely to be affected would be low and the energy policy requirements are not particularly demanding.

Major development policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance	
Broad implications	↑↓?	↑↓?	↑↓?	↑	↑	↑	+	-?

- 9.2.37 *MD1 Waterfront*: This policy sets out the details to enable this key site to be brought forward. The site will deliver a large proportion of the housing need in Warrington (1,070 dwellings in the Plan Period) including a range of housing tenures, types and sizes, including affordable homes and residential care homes. Along with providing homes, this strategic site will bring forward an array of hard and soft infrastructure with the development, increasing the attractiveness to large proportions of the community by meeting specific needs. However, due to the scale of the site, the development will be phased. There are also requirements for certain infrastructure to be secured before particular residential development can progress. Therefore, this policy requirement could delay housing provision in the short term (given the funding and delivery of the Western Link Road may be a complex process). Overall, the policy is positive, but there is uncertainty about delivery in the short term at least.
- 9.2.38 *MD2 South East Warrington Urban Extension*: this policy supports the delivery of a large proportion of Warrington's housing need (2,400 within the plan period) to meet the needs of the borough across a range of type size and tenures also by incorporating community facilities. High quality and diverse housing development of varying types and tenures is required under this policy to comply with Policy DEV1 and as such is likely to provide a suitable range of homes. The support for self-build projects should also increase the housing mix of Warrington and cater to the demands of those with aspirations to build homes. There are phasing requirements that could delay housing delivery though (given that they are reliant on substantial improvements to infrastructure).
- 9.2.39 *MD3 Fiddlers Ferry*: This policy supports at least 1,310 homes during the Plan period, and also makes way for further development beyond the Plan period. There are phasing and infrastructure requirements that could delay housing development in the initial phases, but the policy seeks to ensure that this is addressed through a comprehensive masterplan. An appropriate mix of homes will be required, including a minimum of 30% affordable homes. There will also be employment development at Fiddlers Ferry. Though not directly related to housing, an increase in job opportunities could increase demand for housing on site and also more broadly across Warrington.
- 9.2.40 *MD4 Peel Hall*: The policy provides details relating to the delivery of 1200 dwellings, which should help to ensure a suitable mix of housing in an attractive setting. There are several phasing requirements that could delay housing development, but this ought to be avoidable with proactive planning to tackle highways issues and provide an open space strategy.
- 9.2.41 *MD5 Thelwall Heys*: The policy supports development of 310 homes, which are expected to come forward in the first 10 years of the Plan. There are no major infrastructure or policy requirements that are likely to delay housing, and thus a positive effect is likely.
- 9.2.42 *MD6 South East Warrington Employment Area*: The policy facilitates new employment growth, which is not directly related to housing. However, an increase in job opportunities could increase demand for housing in Warrington.

Overall effects of the major development policies

9.2.43 Overall, the strategic site policies set out the need to deliver a wide range of housing types to ensure that the needs of communities are met. The need to deliver specialist accommodation and specific requirements relating to such needs will help to generate positive effects with regards to the type of housing that is delivered. For some of the housing site, there are critical phasing requirements that could delay housing delivery, at least in the short term. Therefore, there are potential negative effects in the short term, but these are minor.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+

9.2.44 The site specific policies will support development of 801 dwellings collectively at a range of sites in the ‘outer settlements’. The policies each provide guidance on the type of housing that will be sought on the sites, including specialist provision on several sites (including affordable housing). The policies will also help to ensure that developments are of a higher quality. These details will help to ensure that specific housing needs are met, and that the right types of homes are provided where they are needed. Further to this, the policies are in support of design measures such as green infrastructure which are likely to make the area more attractive to buyers and hence, more favourable for developers (thereby increasing the likelihood of development coming forward). Overall, this constitutes a **minor positive effect**.

Monitoring and review policy

Policies	M1	Overall significance
<i>Broad implications</i>	↑	+

9.2.45 The policy sets out measures that will be taken to boost the supply of housing in the event that the annual target is not being achieved. This is a positive step and should help to ensure delivery is maintained. The policy also sets out the circumstances in which a review or partial review of the Plan will be required, which includes stalls to major infrastructure. This is positive given that several key sites are reliant upon the delivery of infrastructure.

Combined effects of the Plan on Housing

Plan Chapters / Policy groupings	Significance	
<i>Development policies</i>	+++	
<i>Green Belt policy</i>	+	
<i>Town centre policy</i>	+	
<i>Infrastructure policies</i>	+	
<i>Design policies</i>	0	
<i>Environment policies</i>	+	-?
<i>Major development Policies</i>	+	-?
<i>Outer settlement policies</i>	+	
<i>Monitoring and review policy</i>	+	
<i>Cumulative effects</i>	Major positive effects	

9.2.46 Overall, the Plan is predicted to have **major positive effects** on the baseline position relating to housing. The main benefits relate to the strategy for delivering enough housing in a range of locations to meet identified needs. Supporting policies for the major site allocations also set out the specific types of homes that need to be delivered, which should ensure a suitable mix of homes is built.

9.2.47 A major element of the strategy is the delivery of housing on green belt sites. The large scale nature of some sites will require substantial infrastructure improvements before housing can be delivered, which could potentially delay the delivery of some houses. However, there should be sufficient sites of a smaller scale in other areas which provide opportunities to build new homes in the short term (alongside committed development).

9.2.48 Several plan policies could also add to the cost and complexity of housing developments (for example the need for affordable homes, green infrastructure, transport infrastructure and other contributions) but ultimately, such measures would lead to more attractive homes for buyers.

9.2.49 Overall, the effects in the long term are predicted to be significantly positive. The monitoring and review policy should also help to ensure that any delivery issues are identified and dealt with appropriately.

9.3 Climate Change

9.3.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Climate change'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance	
<i>Broad implications</i>	↑↓	↔	↔	↓	↑	+	-

9.3.2 *DEV1 Housing Delivery*: The strategy for housing delivery sets out a target that intends to meet identified housing needs for Warrington, taking into account economic factors, and affordability factors. The level of growth being supported is higher than purely demographic need, and so one could say that energy use, waste generation and greenhouse gas emissions would increase. However, this is unlikely to be significant, and once developed, homes would be more efficient than the current stock, helping to reduce per capita emissions. Therefore, any negative effects related to the built environment are likely to be minor and short term.

9.3.3 With regards to the distribution of development, a large amount would be within the urban area, which ought to help reduce emissions from transport due to the potential for high density developments within accessible locations. On the flip side, the concentration of development in urban areas may lead to an increase in urban heating, making communities potentially less resilient to the effects of higher temperature. There would be a substantial growth at a number of larger sites, outside of the existing urban areas. These sites include Fiddlers Ferry, Thelwall Heys and the South East Warrington Urban Extension (SEWUE). Whilst growth would be likely to promote an increase in infrastructure and services which support sustainable modes of transport, the locations of these sites, especially Fiddlers Ferry mean that a degree of car dependency would be likely in the future. Some more positive effects would be expected to come from the large scale of development, especially the SEWUE, and where Thelwall Heys is broadly nearby to this site, some potential for energy efficiency and renewable generation may be seen. Overall, both positive and negative effects are likely from these sites.

9.3.4 From the outer settlement sites, urban heating is less likely to be an issues, though transport related effects may occur. These are likely to come in the form of some negative impacts relating to increased car dependency due to the reduced accessibility of sites and their smaller scale, making sustainable transport provisions less likely.

9.3.5 With regards to climate change resilience, large parts of the Green Belt will be affected by development, and this could have impacts on green infrastructure networks as discussed below:

- At Lymm, allocated sites to the west of the settlement are in close proximity to areas of grassland and wetland habitat, which forms part of a larger corridor along the ship canal. Development is unlikely to sever the network, or lead to fragmentation, but does overlap slightly with areas of flood risk. Therefore, minor negative effects could be generated with regards to climate change resilience.
- The sites at Hollins Green, Culcheth, Croft and Winwick are unlikely to affect GI corridors. The effects with regards to adaptation are therefore unlikely to be negative.
- The SEWUE site consists of several villages, which will lead to a substantial loss of open countryside. However, it ought to be possible to avoid existing green infrastructure corridors such as the Dingle and Fords Rough. Without mitigation and enhancement measures, the effects upon the function of green space across this area could be negative.
- The housing growth at Fiddlers Ferry is on Green Belt land, meaning that there will be a loss in terms of the quantum of green space in this area. However, masterplanning would potentially permit improvements to the quality of green infrastructure to be achieved, helping to contribute potential benefits for cooling and flood mitigation. Currently, the land proposed for development is agricultural in nature, or consists of fly ash deposits. There is therefore potential to enhance the function of these areas with regards to flooding and wider climate change resilience.
- Effects at Thelwall Heys would not be anticipated to be as positive due to the smaller scale of the site (and therefore, less potential for strategic enhancements to GI).

9.3.6 On balance the effects in terms of climate change resilience are broadly neutral or positive (when considering the potential for green infrastructure improvements). Only one site in Lymm (Pool Lane) is partly within flood zone 2/3, and none of the sites are likely to result in severance or net loss of existing GI networks. Enhancement is a possibility given the nature of the sites and the accompanying site policies.

9.3.7 With regards to energy generation, there may be potential for new local centres at the SEWUE site to support a decentralised energy network (purely by virtue of the mix and scale of development) which may have knock on beneficial effects for the nearby Thelwall Heys site. However, the viability and feasibility of a district energy network is unknown, and therefore uncertain effects are predicted. Similar, effects may be possible at the Fiddler Ferry site, though again, this is uncertain. The supporting site policy does however; state that these factors should be explored as part of detailed masterplanning.

9.3.8 *DEV2 Meeting Warrington's Housing Needs:* The policy is concerned with the type and affordability of housing development. These factors are not likely to have effects upon climate change emissions or resilience.

9.3.9 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* This policy is focused, and is only likely to lead to small scale effects with regards to climate change. With regards to emissions, the effects are neutral, due to the very small scale of development that would be involved. In terms of resilience, the policy requires that permanent pitches are suitable with regards to a range of environmental factors, and so developments are unlikely to be affected disproportionately by climate change.

9.3.10 *DEV4 Economic Growth and Development:* The economic strategy is based partly on opportunities for the growth of distribution and warehousing sectors. These types of opportunities are typically located in areas with good access to the strategic road networks and generate increased amounts of freight trips. This would be the case for expansion associated with the South East Warrington Employment Area and Fiddlers Ferry, and so an increase in emissions would be expected from transportation. On balance, the economic strategy is predicted to have minor negative effects with regards to climate change mitigation (i.e. emissions and waste generation).

9.3.11 From a climate change resilience point of view, the South East Warrington Employment Area and Fiddler’s Ferry are unlikely to be of concern.

9.3.12 *DEV5 Retail and Leisure Needs:* The policy sets out a hierarchy of centres, which essentially seeks to support town, district and local centres in preference to out-of-town retail developments. With regards to the built environment, the effects on climate change ought to be no different irrespective of location. However, directing growth to locations that reduce the need to travel by car should contribute to a reduction in carbon emissions. This is a minor positive effect.

Overall effects of the development policies

9.3.13 Overall the development policies are predicted to have mixed effects. **Minor negative effects** are identified with regards to increased greenhouse gas emissions and waste that would be generated as a result of increased development for housing and employment. However, per capita emissions ought to reduce in the longer term as a result of improved efficiency of buildings,. These are **minor positive effects**.

9.3.14 With regards to climate change resilience, the effects are potentially positive as development should provide opportunities for green infrastructure enhancement.

Green Belt policy

Policies	GB1	Overall significance
<i>Broad implications</i>	↔	0 ²

9.3.15 The policy has no effect with regards to the generation or collection of waste. The release of green belt to allow for development will lead to increased emissions relating to new development, but this would be the case regardless of where development took place. The loss of green / open land on the urban fringes could potentially have effects in terms of contributing to a ‘heat island’ effect within Warrington itself.

9.3.16 However, this would be highly dependent upon design, layout and a range of other factors, so there is a degree of uncertainty.

Town centre policy

Policies	TC1	Overall significance
<i>Broad implications</i>	↑	+

9.3.17 This policy should lead to increased use of the town centre, including redevelopment that includes higher-density housing. These patterns of development ought to support a reduction in carbon emissions due to reduced need to travel, and lower energy demands associated with smaller properties. High density development could present good opportunities for the incorporation of decentralised and renewable energy technologies. However, this would not necessarily be pursued as a result of this policy, which is silent on that matter.

9.3.18 With regards to waste, there will be an increased requirement for collection within the town centres. Higher density development brings potential issues relating to adequate storage and so it is important that such issues are dealt with through design policies.

9.3.19 Overall, a minor positive effect is predicted as a result of the policy, largely due to the promotion of higher-density patterns of development that should help to reduce carbon emissions from transport and the built environment.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↔	↑	↓	++ [?]

9.3.20 *INF1 Sustainable Travel and Transport:* There is a general principle for development to support low emissions vehicles, which would help to reduce emissions from transport. This is not a firm requirement though, and so effects are not likely to be significant. Other principles set out within the policy all seek to improve the sustainability of travel by supportive walking and cycling, public transport and the use of rail freight. All these measures would help to achieve a reduction in emissions relating to transport.

9.3.21 *INF2 Transport Safeguarding:* The plan will help to ensure that priority transport schemes are not affected by non-related development. Given that these schemes ought to help reduce emissions associated with transport, this policy ought to be positive in terms of climate change mitigation.

9.3.22 *INF3 Utilities and Telecommunications:* Support for adequate telecommunications infrastructure could help to reduce the need to travel and increase flexibility in terms of work locations.

9.3.23 Appropriate management and provision of clean water for both small and larger sites which would be expected to be seen under this approach would help to ensure efficiency of water usage. This is a minor positive effect.

9.3.24 *INF4 Community Facilities:* There are no direct links with the protection and provision of community facilities and climate change mitigation or resilience.

9.3.25 *INF5 Delivering Infrastructure:* The policy outlines the arrangements for seeking contributions towards infrastructure upgrades. Whilst there are no specific elements relating to renewable and low carbon energy schemes, this could be incorporated under ‘utilities’. With regards to resilience, a range of matters that could be funded are relevant including open space, green infrastructure, SUDs, flood defence and biodiversity enhancements. The policy provides the mechanism for securing such enhancements, and so the effects are only minor.

9.3.26 *Policy INF6 Aerodrome Safeguarding:* This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This is unlikely to bear influence on climate change resilience efforts. In relation to climate change mitigation, the policy could restrict the development of wind turbines in specific locations (requiring consultation for any wind turbine development across the Borough) leading to potential, yet uncertain minor negative effects.

Overall effects of the infrastructure policies

9.3.27 Several of the infrastructure policies ought to help reduce greenhouse gas emissions associated with travel, which is a **potentially moderate positive effect** in the longer term. Though Policy INF6 may restrict wind turbine development, this is not certain and consultation with relevant bodies in relation to the airport operations would not be directly expected to detract from the positive effects predicted from the other infrastructure policies.

Design policies

Policies	DC1	DC2	DC3	DC4	DC5	DC6	Overall significance
Broad implications	↔	↔	↑	↑	↔	↑	+

9.3.28 *DC1 Warrington’s Places:* The policy sets out the broad principles for growth and development at key locations throughout the Borough. There is no direct effect in relation to climate change.

9.3.29 *DC2 Historic Environment:* The policy is unlikely to have an effect on climate change resilience due to its focus on the character of the built environment and specific assets. Likewise, the effects on greenhouse gas emissions are limited. There may be potential to introduce an element to the policy that seeks to secure improvements to the efficiency of historic buildings.

9.3.30 *DC3 Green Infrastructure Network*: This policy is likely to have direct positive effects relating to climate change resilience by seeking to enhance the connections between green infrastructure, and the functionality and quality of green infrastructure assets. This could help to improve the range of species, further manage flood risk, and provide areas of shelter for people, all of which would be positive adaptations to the impacts of climate change. The policy seeks to protect existing green infrastructure (including its functions), with specific reference to where these functions can help to mitigate and adapt to climate change.

9.3.31 *DC4 Ecological Network*: The policy focuses on biodiversity habitats, species and networks. Whilst it is likely to help protect areas of green infrastructure, the focus is not upon climate change resilience. Nevertheless, minor positive effects are likely to be generated.

9.3.32 *DC5 Open Space, Outdoor Sport and Recreation Provision*: This is concerned mainly with access to facilities for local communities. Whilst some outdoor sports provisions and spaces) protected under this policy (which also come under the policy thrust relating to green infrastructure would be likely to improve rainwater infiltration rates and help with urban cooling (acting as a positive flood mitigation measure), these spaces would be expected to see protections under Policy DC3. The effects with regards to climate change resilience are therefore negligible. Likewise, whilst open space standards will help to reduce a need to travel to access recreational opportunities, the effects in terms of emissions would be minimal.

9.3.33 *DC6 Quality of Place* - This policy sets the framework for the design of all development proposals. There are several elements to the policy which are supportive of design that is low in embodied energy / resources, improves sustainable travel opportunities and the strong wording which requires uptake of renewable/low carbon technologies in line with Policy ENV7. Whilst these are all positive, there are no firm requirements that would lead to a significant reduction in carbon emissions.

Overall effects of the design policies

9.3.34 Overall, these policies are likely to have **minor positive effects** with regards to climate change resilience. This is mainly due to the focus on the protection and enhancement of green infrastructure networks.

9.3.35 **Minor positive effects** are also likely with regards to climate change mitigation and the update of low carbon technologies; as such principles are set out as part of Policy DC6.

9.3.36 The effects with regards to waste are likely to be minimal.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance
<i>Broad implications</i>	↑	↑	↔	↔	↑	↔	↑	↑	++

- 9.3.37 *ENV1 Waste Management*: This policy sets out the framework for the development of waste management related facilities in the Borough. Certain aspects reiterate national policy and the need to promote the waste hierarchy. However, further detail is provided with regards to the types of locations that waste facilities will be most appropriate. This should be positive as it provides a steer to potential developers of waste facilities as to which areas will be likely to be acceptable and which would not. This could help streamline and speed up the development process. Only minor positive effects are predicted, as the policy itself is unlikely to lead to increased recycling or more effective waste management as such.
- 9.3.38 *ENV2 Flood Risk and Water Management*: Increased risk of flooding is a major climate change impact for the UK. This policy recognises these issues and provides a comprehensive framework for the assessment of development applications from a flood risk perspective. There are national and legislative requirements that would need to be achieved anyway, but the policy does set some specific local clauses that ought to lead to positive effects beyond the baseline position. In particular the requirement to reduce surface water run off on previously developed land ought to generate improvements with regards to localised flood risks. In the longer term, there could be moderate positive effects with regards to climate change adaptation.
- 9.3.39 *ENV3 Safeguarding of Minerals Resources & ENV4 Primary Extraction of Minerals*: These policies seek to preserve resources and only support mineral extraction when there is a demonstrable need. This should ensure that emissions associated with extraction of minerals do not arise unless necessary. Neutral effects are predicted.
- 9.3.40 *ENV5 Energy Minerals*: The principle of exploration and extraction of hydrocarbons is already established by the granting of a Petroleum Development License. Therefore, the impacts on greenhouse gas emissions that this type of extraction and energy use brings cannot be attributed to this Policy.
- 9.3.41 Rather, the policy sets out the conditions that will need to be satisfied to ensure that such exploration and exploitation can be undertaken with minimal environmental damage. These are fairly standard conditions, and so the policy is unlikely to have an undue restrictive or supporting effect. With regards to the absolute protection of peat resources, this is a positive effect.
- 9.3.42 *ENV6 Restoration and Aftercare of Mineral and Waste Sites*: The policy is unlikely to have a direct effect upon greenhouse gas emissions, or the generation of waste. Restoration schemes could potentially be designed to help in terms of climate change resilience, but this cannot be assumed from the policy as it is not explicit in such a sense. Consequently, neutral effects are predicted.
- 9.3.43 *ENV7 Renewable and Local Carbon Energy Development*: This policy is predicted to have moderate positive effects with regards to a reduction in carbon emissions. The requirement to ensure a proportion of energy generated from new developments being met from renewable / low carbon sources alongside drives to increase decentralized energy provisions across sites will help to reduce emissions.

9.3.44 Additional benefits are likely to be achieved however, should the requirement to explore the viability of district heating systems at strategic sites lead to their implementation. The requirement to ensure that development could be adapted to accommodate future connectivity is also beneficial; as it should help to facilitate continued improvements in the longer term.

9.3.45 *ENV8 Environmental and Amenity Protection:* With regards to low carbon energy schemes, there are national policies and guidance notes that stipulate the need to manage unacceptable impacts on the environment and upon communities. In this respect, Policy ENV8 does not set out any additional unreasonable clauses that could act as a barrier to development.

9.3.46 In the draft version of the policy, there were certain elements of the Policy that could be considered an additional constraint with regards to certain energy generation schemes. The SA recommended that greater flexibility was provided to avoid such effects, and the Council responded positively to these measures. Therefore, the effects are recorded as neutral.

9.3.47 The policy seeks to ensure that where developments may increase traffic volumes above a threshold along the M62, past the Manchester Mosses SAC, they must ensure a range of scheme specific measures to reduce car dependency, helping to reduce transport related emissions. Positive effects are likely, though these are expected to be minor

Overall effects of the environment policies

9.3.48 Several of the policies are likely to have positive effects with regards to climate change resilience and / or climate change mitigation. In particular, ENV2 will help to address flood risk associated with new development, beyond what would be expected in the absence of this policy. With regards to greenhouse gas emissions, policy ENV7 ought to help drive down emissions associated with the built environment. In combination these policies are therefore likely to generate a **moderate positive effects** in terms of per capita emissions of greenhouse gases (climate change mitigation), and areas at risk of flooding (climate change adaptation).

9.3.49 Whilst Policy ENV8 could potentially act as a barrier to certain low carbon energy schemes, the negative effects are unlikely to be significant, and could be mitigated with minor changes to the Policy wording (as suggested). This policy also shows some push towards improved infrastructures to support sustainable transport options in certain areas of the Borough.

Major development policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	++

9.3.50 The major development policies all require the production of a green infrastructure strategy and a package of SUDs and flood management measures. This is positive with regards to climate change adaptation, despite there being no explicit mention of the need to ensure that resilience to climate change is considered. There is also a requirement to respond to climate change impacts by implementing efficient design and a proportion of low carbon energy generation. This is likely to help contribute towards a positive strategy for each site, though there are no set standards as such. Overall, positive effects would be anticipated though.

9.3.51 Overall, a **moderate positive effect** is predicted. There are requirements to address flood risk, green infrastructure and the efficiency of developments. Whilst these are positive factors, there is no direct focus on climate change adaptation, nor is there any specific requirement that would drive reductions in carbon emissions. Consequently, the effects are not expected to be major.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+

9.3.52 The site specific policies will support development of 801 dwellings collectively at a range of sites in the 'outer settlements'.

9.3.53 Each site policy sets out the need to mitigate the impacts of climate change. How this is achieved is not specified, but one could assume this may involve measures such as green roofs, cooling and shading and flood management. These would help to improve resilience. With regards to a reduction in carbon emissions, the policies also seek to ensure that developments are as 'energy efficient as possible' and secure a proportion of energy needs from low and renewable sources. Should developments demonstrate that these measures have been incorporated into design and construction, then there is potential for positive effects with regards to climate change mitigation.

9.3.54 Further to these policies which are consistent across all of this policy grouping, are two energy infrastructure related policies applying to OS2 and OS6. These require development to not impact the continued operation of energy infrastructure running through or over the site.

9.3.55 Overall, **minor positive effects** are predicted, as there are no firm requirements to reduce emissions or to implement certain standards of efficient and sustainable design.

M1 Monitoring and review policy

<i>Policies</i>	<i>M1</i>	Overall significance
<i>Broad implications</i>	↔	0

9.3.56 The policy sets out measures that will be taken to boost the supply of housing in the event that the annual target is not being achieved. This has no real effect upon climate change, as it is focused on housing delivery and the need to trigger a Plan review. Climate change issues would be taken into consideration as part of any plan review (which would also need to be accompanied by a fresh SA/SEA).

Combined effects of the Plan on Climate Change

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	+ -
<i>Green Belt policy</i>	0 [?]
<i>Town centre policy</i>	+
<i>Infrastructure policies</i>	++ [?]
<i>Design policies</i>	+
<i>Environment policies</i>	++
<i>Major development Policies</i>	++
<i>Outer settlement policies</i>	+
<i>Monitoring and review policy</i>	0
<i>Cumulative effects</i>	<u>Mixed effects</u> Moderate positive effects Minor positive effects Minor negative effects

9.3.57 The Plan is predicted to have mixed effects with regards to climate change.

9.3.58 For climate change mitigation, the Plan is predicted to have **minor positive effects**. This is related to the requirement to incorporate renewable energy technologies into new developments, and to explore the potential for decentralised energy. The major development sites in particular could potentially be developed to a high standard of energy and water efficiency, helping to reduce emissions from new development. These measures are an improvement on the existing policy context, so per capita emissions from the built environment are likely to decrease over time. There are no firm requirements as such though, and so the effects are only minor.

9.3.59 Conversely, emissions from transportation would be expected to increase in the short term as a result of increased development in the countryside.

9.3.60 The creation of new roads (whilst positive in terms of accessibility and air quality) could also potentially support increased car trips as it creates additional capacity.

9.3.61 In the longer term, the effects are less likely to be negative, as public transport routes will be established and more people may be using enhanced walking and cycling networks. The Plan also focuses heavily on sustainable modes of transport and accessible neighbourhoods. On balance, **minor negative effects** are predicted in this regard.

9.3.62 With regards to climate change resilience, the Plan is predicted to have **moderate positive effects**. Though increased development will lead to a loss of greenfield land (which has value in terms of flood management, areas of shade, providing ecological stepping stones between habitats) the Plan makes it clear that there should be a net improvement in green infrastructure provision.

9.3.63 The requirements relating to flood management should also help to reduce surface water run-off from new developments and in the urban areas in particular.

9.4 Natural Resources: Flooding

9.4.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Natural resources: flooding'.

Development Policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance
<i>Broad Implications</i>	↔	↔	↔	↔	↔	0

9.4.2 *DEV1 Housing Delivery:* The strategy directs the majority of growth to the inner urban area of Warrington, which does contain some areas that are at risk of flooding. Whilst some of these locations benefit from flood defences, there remain areas at risk. However, there is a commitment in the Plan (through policy ENV2) to reduce surface water run-off on brownfield sites, which would help to address flood risk in such areas. With regards to site allocations in the outer settlements, there are very small overlaps with flood zone 2 on some sites, but these will be avoided in terms of actual built development. Therefore, the bulk of planned growth would not be in areas that are at risk of fluvial flood risk.

9.4.3 Surface water flooding could occur on most of the allocated sites (to varying degrees), and so development could potentially be located in areas affected by such issues. There could also be downstream implications from a large scale change of use on Greenfield land. However, whilst these are potentially negative effects, there are site specific policies that all require comprehensive flood management strategies / SUDS.

- 9.4.4 In addition to the requirement to manage flooding through plan policy ENV2, this should ensure that the overall effects of the spatial strategy for housing are broadly neutral.
- 9.4.5 *DEV2 Meeting Warrington’s Housing Needs:* The policy is not related to flooding, and will have no effects upon flood risk.
- 9.4.6 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* A neutral effect is predicted, as the policy would prohibit the development of gypsy and traveller pitches in locations that are at risk of flooding. Furthermore, the effects would be likely to be confined to a limited number of small sites.
- 9.4.7 *DEV4 Economic Growth and Development:* Continued focus on existing employment areas for business growth is unlikely to have significant effects on climate change, given that these areas are already established.
- 9.4.8 Release of land for employment expansion would fall within flood zone 1 at both Fiddlers Ferry and to the South East of Warrington Employment Area. In this respect, negative effects in terms of flooding would be unlikely to occur.
- 9.4.9 *DEV5 Retail and Leisure Needs:* The policy is not related to flooding, and will have no effects upon flood risk.

Overall effects of the development policies

9.4.10 The effects of the development policies are predicted to be mixed. Housing and employment development is unlikely to have major effects with regards to flood risk as the majority of development sites are in less sensitive locations. Where there are overlaps with areas of flood risk, thematic and site specific policies and a requirement for comprehensive flood management ought to ensure that effects are not significant. Therefore, **neutral effects** are predicted.

Green Belt policy

Policies	GB1	Overall significance
<i>Broad Implications</i>	↔	0

9.4.11 The changes to Green Belt involve some very small areas that overlap with areas at risk of flooding). Therefore, there is potential for changes to occur with regards to flood risk. These effects are reliant upon how sites are delivered though. Given the limited extent of effects and the site specific requirements for major development sites in the green belt, effects are likely to be neutral.

Town centre policy

Policies	TC1	Overall significance
<i>Broad Implications</i>	↔	0

9.4.12 Supporting development at centres is not likely to lead to increased flood risk in those areas or downstream. Consequently, neutral effects are predicted.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad Implications</i>	↔	↔	↑	↔	↑	↔	+

9.4.13 *INF1 Sustainable Travel and Transport:* This policy is unlikely to have an effect upon flood risk as it focuses solely on sustainable modes of travel and transport. Policy clause 1(i) seeks to futureproof development. There is an opportunity to incorporate consideration of flood risk here, to ensure that development is not likely to be affected by flood risk disruptions in the longer term (for example, by tackling flood risk along key road routes that developments are reliant upon).

9.4.14 *INF2 Transport Safeguarding:* The policy is not directly linked to flood risk and so effects are predicted to be neutral.

9.4.15 *INF3 Utilities and Telecommunications:* Of particular relevance with relation to flooding is the need to ensure that there is adequate infrastructure in place to support drainage and waste water for new developments. The policy sets out a basic requirement for developers to prepare a strategy to connect to such facilities and deliver infrastructure improvements. This should ensure that negative effects are avoided for individual developments. The policy also ensures that early dialogue between key stakeholders will identify current and future needs as well as ensuring all utilities are in place to meet any future needs of the development from its early stages, including any measure required to manage drainage and waste water. Policy INF4 also stipulates that required infrastructure must be operational for the phase of development which it is needed for.

9.4.16 *INF4 Community Facilities:* The policy is not directly linked to flood risk and so effects are predicted to be neutral.

9.4.17 *INF5 Delivering Infrastructure:* The policy sets out a requirement for infrastructure to be operational before the phase of development for which it is needed is complete. This is positive with regards to flood risk, as it should ensure that drainage and waste water measures are in place that can support new development. Flood alleviation schemes and SUDs, and utilities are listed as matters for which planning contributions may be sought. This allows for such schemes to be delivered.

9.4.18 The policy is unlikely to have significant effects, as contributions towards infrastructure is a standard practice, and would be expected to occur anyway.

9.4.19 *Policy INF6 Aerodrome Safeguarding*: This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This would be unlikely to lead to any effects relating to flood risk.

Overall effects of the infrastructure policies:

9.4.20 The infrastructure policies are predicted to have broadly neutral effects on flood risk. Only policy INF5 is likely to have **positive effects**, but these are minor.

Design policies

Policies	DC1	DC2	DC3	DC4	DC5	DC6	Overall significance
<i>Broad implications</i>	↑	↔	↑	↑	↔	↑	+

9.4.21 *DC1 Warrington’s Places*: The policy is not likely to have flood risk implications for the most part, but it does make specific reference for the need to support the flood management role of Victoria Park. This is a positive acknowledgement and should ensure no inappropriate development occurs in this location. The masterplanning document which sets out a pattern for development and regeneration in inner Warrington is likely to ensure that lands is suitably designed in relation to flood risk; though this would be expected to happen in any case considering other local and national policies.

9.4.22 *DC2 Historic Environment*: The policy is not directly related to flood risk, and the protection and enhancement of heritage assets would not be likely to affect flood risk.

9.4.23 *DC3 Green Infrastructure Network and DC4 Ecological Network*: The policies are both supportive of the protection and enhancement of green infrastructure. This is likely to be positive from a flood risk perspective, as green space and habitats can help to manage water run-off and water storage. Policy DC3 provides specific reference to protecting existing green infrastructure and its functions, including where this may help to manage flood risk. Minor positive effects are predicted.

9.4.24 *DC5 Open Space, Outdoor Sport and Recreation Provision*: The policy is concerned mainly with the quality and accessibility of open space and recreational space from a community perspective. Whilst this could have some cross-over benefits in terms of flood management (i.e. protection of playing fields that fall within the flood plain or some increased rates of infiltration due to the permeability of grass pitches), the effects are not predicted to be significant and many of these spaces see protections under Policy DC3.

9.4.25 *DC6 Quality of Place*: The policy mentions the need to ensure that flood risk is addressed comprehensively in such locations, which is a minor positive effect.

Overall effects of the design policies

9.4.26 These policies are likely to have limited effects with regards to flood risk as they are focused more upon the appearance and function of places. The exception are the policies relating to green infrastructure, ecological networks and Victoria Park; all of which should have knock-on benefits in terms of flood risk management. Only **minor positive effects** are predicted as the policies do not set out specific details or schemes relating to flood management.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance
<i>Broad Implications</i>	↔	↑	↔	↔	↔	↑	↔	↔	++

9.4.27 *ENV1: Waste Management*: The policy is unlikely to lead to waste management facilities in areas at risk of flooding, and if this was the case (such as at industrial estates), there would be a need to ensure sufficient measures were in place to mitigate risks of flooding and contamination. Therefore, neutral effects are predicted.

9.4.28 *ENV2 Flood Risk and Water Management*: This policy sets out the Borough’s approach to dealing with flood risk in relation to land-use planning. Various elements of the policy are standard approaches that reiterate national policy. However, there are locally specific measures, which are likely to lead to a more notable effect upon flooding. In particular, there is a requirement to reduce surface water run-off rates on previously developed land. This is likely to generate moderate positive effects in the longer term.

9.4.29 *ENV3 Safeguarding of Minerals Resources, ENV4 Primary Extraction of Minerals, ENV5 Energy Minerals*: Safeguarding minerals from development is unlikely to have a notable effect on flood risk, but it is noted that some minerals such as sand and gravel often overlap with areas of flooding. Therefore, protection of these areas for their mineral resources could have knock on benefits with regards to the prevention of build development in areas of flood risk. With regards to extraction, it is presumed that flood risk would be addressed through technical design and operational conditions. With regards to these policies, the effects in terms of flooding are neutral.

9.4.30 *ENV6 Restoration and Aftercare of Minerals and Waste Sites*: The policy mentions the need for minerals restoration to incorporate flood management measures were appropriate, which is a positive effect.

9.4.31 *ENV7 Renewable and Local Carbon Energy Development*: The policy will not lead to development in areas at risk of flooding, and so neutral effects are predicted.

9.4.32 *ENV8 Environmental and Amenity Protection*: The policy considers environmental factors, but the focus is upon amenity effects and pollution. The effects in terms of flooding are therefore unlikely to be significant.

Overall effects of the environment policies

9.4.33 In the main, the environment policies are not directly related to flooding, and so the effects are likely to be neutral. However, policy ENV2 sets out specific measures for tackling flooding and proactively reducing flood risk. This has the potential to generate **moderate positive effects**.

Major development policies

Policies	<i>MD1</i>	<i>MD2</i>	<i>MD3</i>	<i>MD4</i>	<i>MD5</i>	<i>MD6</i>	Overall significance
<i>Broad Implications</i>	↑	↑	↑	↑	↑	↑	++

9.4.34 *MD1 Waterfront*: The site is adjacent to areas at risk of flooding. However, proposed developable areas are within Flood Zone 1, and there is a requirement to ensure that an appropriate flood mitigation and drainage strategy is established in support of development. The requirement to link this to other components such as a green infrastructure policy should help to ensure synergies arise. This is a positive policy in this respect.

9.4.35 *MD2 South East Warrington Urban Extension / MD3 Fiddlers Ferry / MD6 South East Warrington Employment Area*: These policies each stipulate the requirement for a green infrastructure strategy and flood risk mitigation measures. There is also a specific requirement to reduce greenfield rates of run-off. These measures would help to mitigate potential risks of flooding as a result of development, and in the longer term ought to lead to better management of surface water flooding on and off site.

9.4.36 *MD4 Peel Hall*: The policy stipulates the requirement for a green infrastructure strategy and flood risk mitigation measures. This will contribute to positive effects upon flood risk associated with development in this location.

9.4.37 *MD5 Thelwall Heys*: The policy sets out a requirement for a drainage strategy, flood alleviation and green infrastructure. This will contribute to positive effects in terms of managing flooding.

Overall effects of the major development policies

9.4.38 Overall, these policies are likely to have positive effects with regards to flood risk as each sets out a requirement for comprehensive flood mitigation, waste water and sewerage infrastructure and green infrastructure enhancements. Each of these elements should help to ensure that new development does not have adverse impacts on flood management.

9.4.39 In fact, the requirement to incorporate wetland features, SUDs and reduce rates of run-off (for MD2, MD3 and MD6 in particular) could contribute to a **moderate positive effect** in the longer term.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad Implications</i>	↑	↑	↑	↑	↑	↑	+

9.4.40 Each site policy sets out the requirement to implement a flood mitigation and SUDS strategy, which is positive with regards to managing the effects of development associated with these site allocations. Further to this, the developments will be required to provide green infrastructure, recreational facilities and pay attention to existing landscape features; this are all likely to contribute towards a retention and possible increase in permeable surfaces across the sites, helping to reduce flood risk, especially from surface water risks.

Monitoring and review policy

Policies	M1	Overall significance
<i>Broad Implications</i>	↔	0

9.4.41 Monitoring of housing delivery has no direct implications with regards to flood risk. Therefore, neutral effects are predicted.

Combined effects of the Plan on Flooding

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	0
<i>Green Belt policy</i>	0
<i>Town centre policy</i>	0
<i>Infrastructure policies</i>	+
<i>Design policies</i>	+
<i>Environment policies</i>	++
<i>Major development policies</i>	++
<i>Outer settlement policies</i>	+
<i>Monitoring and review policy</i>	0
<i>Cumulative effects</i>	Moderate positive effects

9.4.42 Overall, the Plan is predicted to have positive effects with regards to flooding. Development is directed mostly to the urban area of Warrington, of which there are areas at risk of flooding. However, the Plan seeks to reduce rates of surface water run-off on previously developed land, and seeks to avoid areas at risk of flooding. Consequently, development is likely to lead to neutral or minor positive effects in this respect.

9.4.43 A large amount of development is also proposed on Green Belt sites, but the majority of these are not within areas at risk of significant flooding. Where flood risk exists on a handful of sites, it is either avoided and / or measures are proposed for mitigation. Furthermore, there are supporting policies within the Plan that should ensure that a comprehensive package of flood management measures are secured, and that green infrastructure is a crucial element of strategic developments.

9.4.44 The protection and enhancement of green infrastructure is a key principle throughout the Plan, and it is also clear that a net gain in biodiversity / habitats would be sought. There are synergies between the protection of habitats and flood management measures that should help to further contribute towards positive effects in terms of reducing flood risk.

9.4.45 On balance, the Plan is predicted to have **moderate positive effects** in the longer term with regards to flood risk.

9.5 Economy and Regeneration:

9.5.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Economy and regeneration'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	+++

9.5.2 *DEV1 Housing Delivery:* The policy is likely to have positive effects on the economy and regeneration objectives. The housing target is likely to support demand for new homes, and factors-in economic growth aspirations, to ensure that there is sufficient accommodation to support the working age population. This will help to retain and attract labour, which is positive in terms of attracting employment opportunities and inward investment.

9.5.3 Should a large increase in housing lead to increase pressure on social infrastructure in certain locations (for example school and GP places), then there may be negative effects with regards to deprivation and regeneration. However, these effects would likely be short term / temporary given that the Plan seeks to capture enhancements as part of new development.

- 9.5.4 *DEV2 Meeting Warrington's Housing Needs:* The policy will have positive effects upon tackling poverty and deprivation by seeking the delivery of affordable housing.
- 9.5.5 In particular, seeking relatively high proportions of affordable or social rent should help to tackle the needs of groups with the highest levels of deprivation that are unable to purchase a home. Further to this, by ensuring a locally appropriate mix of housing types and tenures, it may be possible to target demographics to plug and skills gaps seen across the Borough, which has the potential to drive growth in key sectors which may be lagging behind. The policy also mentions self-build, custom-build dwellings, which helps to support small businesses and individuals wishing to build homes.
- 9.5.6 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* The policy would have negligible effects with regards to the economy, as it does not relate to employment and relates to a very small section of the population. However, with regards to regeneration and poverty, a minor positive effect is likely by providing accommodation for a particular demographic of the Warrington population
- 9.5.7 *DEV4 Economic Growth and Development:* this policy is likely to have a **major positive effect** as it focuses on the provision of sufficient land to support economic growth. In particular, the sites proposed for expansion are attractive and suitable for strategic employment opportunities, and should lead to increased inward investment, job creation and supporting infrastructure.
- 9.5.8 There is also a clear steer towards the protection of existing successful employment areas, and to ensure that suitable land is not lost to other forms of development. This should have benefits for smaller local businesses also.
- 9.5.9 *DEV5 Retail and Leisure Needs:* The policy is predicted to have minor positive effects by seeking to keep local and town centres viable and attractive. Wherever possible, larger scale retail should also be directed to the town centre, which is positive for this location and could help to drive people into areas where additional benefits to the economy can be achieved (for example, the night time economy).

Overall effects of the development policies

- 9.5.10 Overall the development policies are predicted to lead to **major positive effects** with regards to economic growth, and support for regeneration activities.
- 9.5.11 This is mainly attributable to the housing and employment policies, which seek to deliver enough homes (of the right type and tenure) to support economic growth opportunities, whilst helping to address deprivation.
- 9.5.12 Release of Green Belt and the regeneration of Fiddlers Ferry to support economic growth will also help Warrington to take advantage of regional opportunities presented by the expansion of Liverpool Ports. The employment opportunities are accessible to residents within Warrington and also further afield, so the spread of effects could be wide.

Green Belt policy

<i>Policies</i>	<i>GB1</i>	<i>Overall significance</i>
<i>Broad implications</i>	↑	+

9.5.13 This policy contributes a positive effect by allowing for the release of land to support new homes and employment growth.

Town centre policy

<i>Policies</i>	<i>TC1</i>	<i>Overall significance</i>
<i>Broad implications</i>	↑	++

9.5.14 This policy is predicted to have a positive effect as it supports the growth of high quality jobs in the town centre. There is specific mention of regeneration-led schemes that involve residential, commercial and retail development. This should help to provide jobs as well as strengthening the local economy and helping to reduce deprivation.

Infrastructure policies

<i>Policies</i>	<i>INF1</i>	<i>INF2</i>	<i>INF3</i>	<i>INF4</i>	<i>INF5</i>	<i>INF6</i>	Overall significance
<i>Broad Implications</i>	↑	↑	↑	↑	↑	↔	+

9.5.15 *INF1 Sustainable Travel and Transport:* The policy focuses on making Warrington a more accessible place in terms of active travel and public transport. This should help contribute towards better access to employment which is positive for the workforce and also for businesses. In particular, it could provide benefits for people on lower incomes access jobs as they often use public transport and active travel as the main mode of travel.

9.5.16 The improvement of facilities for freight transport could also help to facilitate efficient transportation of goods, which is beneficial for existing businesses and could attract further investment into the borough.

9.5.17 *INF2 Transport Safeguarding:* This policy should have positive effects in the longer term as it seeks to ensure that future transportation solutions are not jeopardised by development. In particular, the policy refers to the emerging Warrington Local Transport Plan 4, which contains policies to ensure safer, more sustainable and more efficient transport across the borough. This is beneficial to the economy as it ensures that congestion is not a major constraint to business operations, and also demonstrates that there will be sufficient infrastructure to support economic growth.

- 9.5.18 *INF3 Utilities and Telecommunications*: The policy sets out the requirement for critical infrastructure to be in place in support of new development. This is standard practice, but nonetheless positive as it ensures that businesses are capable of operating efficiently. Benefits may also be achieved by seeking to ensure that development is ‘future-proofed’ and capable of accommodating new technologies.
- 9.5.19 *INF4 Community Facilities*: Protection and enhancement of community infrastructure should have positive effects with regards to tackling deprivation.
- 9.5.20 For example, community centres can help to improve cohesion and provide facilities for learning.
- 9.5.21 There is also a proposal for a new hospital development which would help bring jobs to the area, provide education opportunities through training at the hospital and help strengthen the economy by having new healthcare facilities available to the local and surrounding population of Warrington.
- 9.5.22 *INF5 Delivering Infrastructure*: The policy provides a framework for securing infrastructure improvements. This is likely to involve contributions towards road improvements, community facilities, and education provision, all of which are important to in support of businesses (i.e. through physical infrastructure and creating conditions to allow for a well skilled workforce).
- 9.5.23 *Policy INF6 Aerodrome Safeguarding*: This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This would be unlikely to lead to effects on the economy and employment.

Overall effects of the Infrastructure Policies

- 9.5.24 Collectively these policies will help to support a more effective transport network, which ought to have benefits in terms of business operations, and also access to jobs for local people.
- 9.5.25 There is also support for infrastructure improvements that could help to support education and skills improvement.
- 9.5.26 Overall, **minor positive effects** are predicted.

Design policies

<i>Policies</i>	<i>DC1</i>	<i>DC2</i>	<i>DC3</i>	<i>DC4</i>	<i>DC5</i>	<i>DC6</i>	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↔	?	+

9.5.27 *DC1 Warrington's Places:* The policy supports the enhancement of Warringtons centres for economic activity, including diversification to encourage more thriving night time economies. Furthermore, the policy provides support for a regional tourist attraction, showing a commitment to the continuation of the visitor economy.

9.5.28 *DC2 Historic Environment:* The policy is more likely to have benefits rather than acting as a constraint to development. This is because heritage assets add to the character of places, and this is important to retain tourism, retail and leisure in the town centres.

9.5.29 *DC3 Green infrastructure Network:* Green infrastructure helps places look more aesthetically pleasing which can attract new businesses to an area and help strengthen the local economy. Furthermore, GI corridors could provide better accessibility to jobs by walking and cycling. There may be potential to secure uses that have an economic benefit such as the management of open space and woodland, outdoor leisure activities and waterfront living. Consequently, positive effects are predicted.

9.5.30 *DC4 Ecological networks:* Similar to policy DC3, this ought to have benefits in the longer term by supporting the protection and enhancement of green spaces (in particular habitats) which provide a tourism function.

9.5.31 *DC5 Open space, Outdoor sport and recreation Provision:* The policy could have minor benefits in two ways. Firstly, provision of recreational facilities brings a small number of supporting jobs. Secondly, it makes for more attractive neighbourhoods, which makes housing more marketable and should help to retain the working age population (particularly those with children that rely upon such facilities).

9.5.32 *DC6 Quality of place:* Improving the quality of the built environment ought to have some indirect benefits with regards to the economy. By creating more attractive places, people are more likely to wish to live in such areas, and thus provide a sufficient local workforce to support economic growth. Likewise, businesses may be more attracted to areas that are environmentally attractive.

Overall effects of the design policies

9.5.33 Overall, the design policies seek to create more attractive places that should contribute a **minor positive effect** towards the economy of Warrington.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance
Broad Implications	↔	↑	↑	↔	↔	↑	↔	↔	+

9.5.34 *ENV1 Waste management:* The policy provides direction as to the locations and types of development that will be acceptable in principle for waste management facilities. The policy is not overly restrictive and largely reflects the current policy context.

9.5.35 It is therefore unlikely to have significant effects upon economic factors, and so neutral effects would be anticipated.

9.5.36 *ENV2 Flood risk and Water Management*: The policy should have positive effects with regards to economic activity as it will help to reduce flood risk (which can disrupt business activity and cause damage to property and assets).

9.5.37 *ENV3 Safeguarding Minerals Resources*: A positive effect is likely, as potentially viable sources of mineral resources will be afforded a degree of protection from development. The policy is not likely to act as a major constraint to development; unless it is proven there are viable resources. In this instance though, there would be benefits of safeguarding and / or extracting these minerals.

9.5.38 Given that minerals are a vital component of economic growth; this policy is predicted to have minor positive effects.

9.5.39 *ENV4 and ENV5* are concerned with the extraction of minerals. The policies are broadly a continuation of the existing policy context, and therefore significant effects would not be anticipated. The policies are not overly restrictive, nor would they allow development that would be disruptive to businesses. As a result neutral effects are predicted.

9.5.40 *ENV6 Restoration and Aftercare of Minerals and Waste Sites*: The policy will help to secure appropriate end uses for extraction sites, which could include restoration for agricultural uses, forestry, recreation and other land uses. These could all potentially have positive effects with regards to the support of economic activity.

9.5.41 *ENV7 Renewable and Low Carbon Energy Development*: The policy is predicted to have a neutral effect as it does not facilitate the development of energy schemes as such.

9.5.42 *ENV8 Environmental and Amenity Protection*: The policy could act as a barrier to certain employment development near existing communities. However, it is unlikely to be a significant issue with regards to the delivery of employment land.

Overall effects of the environment policies

9.5.43 Overall a **minor positive effect** is predicted as certain policies will contribute positively towards sustainable economic growth.

Major development policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance
<i>Broad Implications</i>	↑	↑	↑	↑	↑	↑↓	+

9.5.44 *MD1 Waterfront, MD2 South East Warrington Urban Extension*: These policies both provide additional details to support residential growth. In particular, the policy sets out the requirement for substantial infrastructure improvements which will support skills development (new education facilities) jobs, and accessibility improvements. There would also be provision of a new open space which could help to attract visitors.

9.5.45 *MD3 Fiddlers Ferry*: The policy adds additional details to support residential and employment growth on site. The policy makes clear that the employment site must be in phase 1 of the development, which ensures that positive effects can arise in the short, medium and long term.

9.5.46 *MD4 Peel Hall and MD5 Thelwall Heys*: These policies sets out requirements to deliver contributions towards infrastructure improvements. This is of benefit to the local economy.

9.5.47 *MD6 South East Warrington Employment Area*: The policy is positive in that it sets out the requirements and details to help support a significant new employment area. The policy stipulates that development cannot occur until motorway junction improvements are secured. On one hand this ensures that the site will be well served by infrastructure. However, it could lead to delays in delivery should there be issues securing funding / agreements between key stakeholders.

Overall effects of the major development policies

9.5.48 Overall, the policies are predicted to have **minor positive effects** by supporting local economic growth, opportunities for tourism, and improvements to facilities to help support education and skills development. Such requirements could potentially delay employment development, but this is not anticipated to be a major issue.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad Implications</i>	↑	↑	↑	↑	↑	↑	+

9.5.49 These policies relate to residential development, and so the implications with regards to economic growth and regeneration are unlikely to be significant in respect of employment land. The provision of community facilities, open space and infrastructure improvements ought to have positive effects in terms of supporting local communities and local spending. Overall, **minor positive effects** are predicted.

Monitoring and review policy

Policies	M1	Overall significance
<i>Broad Implications</i>	↑	+

9.5.50 The policy sets out measures that will be taken to boost the supply of housing in the event that the annual target is not being achieved. This is a positive step for the economy as it will help to ensure that housing delivery is maintained (which will support jobs in this industry as well as providing sufficient accommodation for the local workforce). **Minor positive effects** are predicted.

Combined effects of the Plan on Economy and Employment

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	+++
<i>Green Belt policy</i>	+
<i>Town centre policy</i>	++
<i>Infrastructure policies</i>	+
<i>Design policies</i>	+
<i>Environment policies</i>	+
<i>Major development policies</i>	+
<i>Outer settlement policies</i>	+
<i>Monitoring and review policy</i>	+
Cumulative effects	Major positive effects

9.5.51 Overall, the Plan is predicted to have **major positive effects** on the economy, levels of employment and in tackling deprivation.

9.5.52 A focus on development in the inner parts of Warrington, support for town centre regeneration and an aspiration to create attractive places should help to address deprivation as well as supporting jobs growth and inward investment.

9.5.53 A major contribution towards significant effects though is made by the release of large employment sites to support development in growth sectors such as strategic warehousing and distribution. Critically, the Plan also seeks to provide sufficient infrastructure to support such growth, and this ought to generate benefits for existing communities as well.

9.5.54 The housing strategy is likely to provide a wide range of homes on a choice of sites in locations that are broadly accessible to jobs. This will also contribute positive effects to the economy by providing accommodation for the workforce, generating construction jobs and increasing spending in the local economies of settlements across the borough.

9.6 Natural Resources: Soil

9.6.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Natural resources: soil'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall Significance
<i>Broad implications</i>	↓↑	↔	↔	↓	↑	---

9.6.2 *DEV1 Housing Delivery:* A large amount of growth is directed to the urban areas, which is positive with regards to the protection of soil resources. However, additional housing development is involved on greenfield land which corresponds with agricultural land in certain places.

9.6.3 At Lymm, the sites along Warrington Road are classified as Grade 3. There is no detailed study to confirm if this is grade 3a or 3b. However, site visits indicate that the land is used for less intensive farming practices such as grazing. The site to the south of Rushgreen Road has been identified as Grade 2 land though, with a loss of at least 5ha likely. However, the site is not currently in agricultural use. Nevertheless, a negative effect is predicted.

9.6.4 At Hollins Green land classified as Grade 2 (1988 data) would be affected, though the loss would be relatively minor, this is still a negative effect.

9.6.5 At Culcheth, a loss of approximately 8 ha of Grade 3a land would be lost to development. There are alternative sites in this area that are of a lower quality (Grade 3b), and so the potential to avoid loss exists (not taking other factors into account). As it stands, a negative effect is predicted.

9.6.6 At Croft, a very small amount of land would be lost, which is classified as grade 3 land. This is a neutral effect.

9.6.7 At Winwick, the proposed site is largely Grade 3b, and would result in a permanent loss of approximately 7ha. This is a negative effect. There are few alternatives in this location of a lower grade though.

9.6.8 At the SEWUE detailed agricultural surveys reveal that the Green Belt land is largely a mix of Grade 3a and 3b agricultural land, and to a lesser extent there are pockets of Grade 2 land. In total there is likely to be a loss of over 150 ha of agricultural land, of which 50% is likely to be Grade 3a. Though a lesser amount of Grade 2 land would be lost, it could still be in the region of over 50ha. These are negative effects with regards to the loss of soil resources.

- 9.6.9 At Fiddlers Ferry, positive effects on soil are noted as there will be regeneration of brownfield land. However, there would also be a loss of agricultural land in this location.
- 9.6.10 Further effects will be generated due to a loss of agricultural land at Thelwall Heys (a mix of grade 2 and 3 land)
- 9.6.11 The Plan is positive in one respect by directing as much growth as possible to brownfield land. However, overall the Plan is still likely to lead to the loss of a combined total of more than 300ha of agricultural land as a result of housing growth. At least 200ha of this is likely to be best and most versatile land, and so **major negative effects** are predicted.
- 9.6.12 *DEV2 Meeting Warrington's Housing Needs:* The policy is related to the types of housing rather than the amount and distribution. Therefore, it will not have an effect upon agricultural land.
- 9.6.13 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* A neutral effect is predicted as any effects would be likely to be confined to a limited number of small sites. It should be possible to avoid areas containing best and most versatile land.
- 9.6.14 *DEV4 Economic Growth and Development:* The release of Green Belt land for employment uses (South East Warrington Employment Area) will lead to a loss of agricultural land of at least 100ha. The land is classified as broadly Grade 3 and Grade 2 according to the 1988 agricultural land survey. However, more detailed studies indicate that parts of the area are non-agricultural, and there are only very small parcels of Grade 2 land. There is approximately 35 hectares of Grade 3a land that would be affected, and so a minor negative effect is predicted. The remaining land is classified as Grade 3b. Whilst this is still a loss of soil resources, the quality of land is less important.
- 9.6.15 *DEV5 Retail and Leisure Needs:* Supporting retail and leisure uses within the centres will have some minor positive effects, as it should help to reduce pressure on agricultural land from out of town retail development. However, it is considered unlikely that out of town retail would be located on greenfield land in any event, and so the effects are unlikely to be significant.

Overall effects of the development policies

- 9.6.16 The development policies are predicted to have **major negative effects** with regards to soil resources. The loss of Green Belt land would account for a permanent change to over 350ha of agricultural land, of which 250ha would likely be best and most versatile.
- 9.6.17 In some locations, there are no alternative parcels of land with a lower soil quality that could be developed instead.

9.6.18 However, in other locations, parcels of Grade 3b land exist. The loss of this land could therefore be potentially avoided (though this could be at the expense of other environmental factors such as accessibility, biodiversity, landscape etc.).

Green Belt policy

Policies	GB1	Overall significance
<i>Broad implications</i>	↓	-

9.6.19 The changes to Green Belt involve some areas that involve best and most versatile agricultural land. This will be a permanent loss, and is therefore a negative impact.

Town centre policy

Policies	TC1	Overall significance
<i>Broad implications</i>	↑	+

9.6.20 Supporting development and regeneration within the town centre reduces the need for additional greenbelt release. Whilst this is positive, the effects are indirect and minor.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad implications</i>	↔	↔	↔	↔	↑	↔	+

9.6.21 *INF1 Sustainable Travel and Transport:* This policy is unlikely to have an effect upon agricultural land as it focuses solely on sustainable modes of travel and transport.

9.6.22 *INF2 Transport Safeguarding:* The policy seeks to protect land, but this is for safeguarding purposes, and would not have benefits with regards to agricultural land.

9.6.23 *INF3 Utilities and Telecommunications:* The policy is unlikely to lead to effects upon agricultural land, aside from any loss associated with connections to development sites. However, this is attributable to the policies that support development, rather than this policy, which is a supporting policy to ensure adequate infrastructure.

9.6.24 *INF4 Community Facilities:* The policy relates to community facilities, which could include an element of open space. However, this would not be agricultural land, and so effects would be minimal.

9.6.25 *INF5 Delivering Infrastructure*: The policy provides a mechanism for delivering enhancements to open space and green infrastructure. Whilst the protection or enhancement of agricultural land is unlikely to be a priority on the list of contributions sought, it is possible that allotment provision would be improved on some development sites. This is a minor positive effect with regards to soil resources (though it is more beneficial from a community perspective rather than in terms of soil resources).

9.6.26 *Policy INF6 Aerodrome Safeguarding*: This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This would be unlikely to lead to effects on the soil quality in the Warrington area.

Overall effects of the infrastructure policies:

9.6.27 The infrastructure policies are predicted to have mostly neutral effects, as they do not relate explicitly to agricultural land, would not lead to any loss, and would not involve protection or enhancement as such. However, the provision of allotments on new developments could help to increase the availability of quality soils to support local community activities. In the context of borough soil resources, these effects are very minor though.

Design policies

Policies	DC1	DC2	DC3	DC4	DC5	DC6	Overall significance
<i>Broad implications</i>	↔	↑?	↑?	?	↑?	↔	+?

9.6.28 *DC1 Warrington's Places*: The policy does not cover soil resources, and does not set out detailed locations for development that would lead to a loss of agricultural land. Therefore, neutral effects are predicted.

9.6.29 *DC2 Historic Environment*: The policy is not directly related to soil resources, and so effects are unlikely to be significant. However, indirect effects could be felt should the policy help to protect heritage associated with agricultural practices (for example, open agricultural land can contribute to the setting of listed buildings such as farms, barns and cottages).

9.6.30 *DC3 Green Infrastructure Network*: The policy seeks to achieve net gains in green infrastructure networks, with a focus primarily on ecological and recreational functions. There is little reference to agricultural land, and so network enhancements are unlikely to involve positive effects with regards to best and most versatile land. However, increased tree cover, water management measures and habitat creation could have some knock on benefits in relation to soil function, and protections for green infrastructure should help to reduce the potential for sterilizing development on potentially fertile land.

9.6.31 *DC4 Ecological Network*: The policy does not relate to agricultural land, and protection of biodiversity habitats is not likely to extend to agricultural land which has relatively low ecological value. Therefore, neutral effects are likely. If it is possible to support the retention of underused farmland through habitat creation, then this could potentially have benefits with regards to soil resources. This is not explicit within the policy though.

9.6.32 *DC5 Open Space, Outdoor Sport and Recreation Provision*: The policy is concerned mainly with the quality and accessibility of open space and recreational space from a community perspective. Whilst this could have some cross-over benefits in terms of soil resources, the effects are likely to be limited as the focus is on community benefits. Protections afforded for new open space are expected to be secured in accordance with Policy DC3.

9.6.33 *DC6 Quality of Place*: The policy does not refer to agricultural land as an important feature of ‘places’, and is therefore predicted to have neutral effects.

Overall effects of the design policies

9.6.34 None of the policies explicitly deal with agricultural land, and therefore the nature of effects are likely to be minor. Having said this, there could be indirect benefits to soil resources as a result of a focus on the protection of green infrastructure (Policy DC2 / DC3 / DC5) and the character of rural areas (Policy DC2). Overall, a potential **minor positive effect** is predicted.

Environment policies

Policies	ENV1	ENV 2	ENV 3	ENV 4	ENV 5	ENV 6	ENV7	ENV8	Overall significance
<i>Broad implications</i>	↓?	↑?	↔	↔	↔	↑	↔	↑	+

9.6.35 *ENV1 Waste Management*: The policy directs certain waste facilities to ‘redundant farm land’, and suggests that these should be considered more favourably than alternatives. It is unclear what type of farmland this would relate to. ‘Redundant’ land could potentially involve soil resources that could be returned to productive use. Therefore, development of waste facilities in such circumstances could lead to negative effects on soil resources. It would be beneficial to clarify the definition of redundant farmland, and to seek to protect agricultural land of best and most versatile value.

9.6.36 *ENV2 Flood Risk and Water Management*: Flood management ought to have positive effects for soil resources, as flood events can have negative impacts in terms of nutrients being washed away, erosion, and the destruction of crops. Though the policy makes no direct link or focus upon the need to reduce flood risk to agricultural land, this could be a knock-on benefit.

9.6.37 *ENV3 Safeguarding of Minerals Resources, ENV4 Primary Extraction of Minerals and ENV5 Energy Minerals*: Safeguarding minerals from development could involve land that is identified as containing high quality soils. Therefore, there could be secondary effects with regards to the protection of soil resources. Ultimately though, extraction of minerals could have negative effects on soil resources. The absolute protection of soil resources is a positive factor though. On balance, neutral effects are predicted.

9.6.38 *ENV6 Restoration and Aftercare of Minerals and Waste Sites*: The policy includes reference to the need to incorporate appropriate restoration techniques should land be capable of being returned to agricultural uses. Promoting such aftercare and restoration of sites for agricultural purposes would have positive effects with regards to soil quality.

9.6.39 *ENV7 Renewable and Local Carbon Energy Development*: The policy supports appropriate energy generation schemes, being mindful of the need to address environmental concerns. It is therefore unlikely that best and most versatile agricultural land or peat resources would be affected by such developments. Consequently, a neutral effect is predicted.

9.6.40 *ENV8 Environmental and Amenity Protection*: The policy considers environmental factors, with a focus upon amenity effects and pollution. There is a policy clause that states losses of the borough’s best and most versatile agricultural land will be minimised. This policy measure (if applied strongly) would lead to positive effects with regards to soil resources, by attempting to steer development away from such assets.

Overall effects of the environment policies

9.6.41 Several policies are predicted to have minor positive effects as they could have positive implications with regards to the protection of soil resources. ENV8 sets out a relatively strong policy measure relating to minimising the loss of best and most versatile agricultural land.

9.6.42 Whilst most developments would not be anticipated to be on such land (given that the majority is within the Green Belt), this is still a positive effect as it would attempt to reduce further loss of agricultural land beyond that lost as a result of housing and employment land allocations.

9.6.43 There is some doubt relating to policy ENV1, as it could possibly direct certain waste facilities to agricultural land. However, in light of ENV8, the effects would most likely be minor. Overall, **minor positive effects** are recorded for this group of policies.

Major development policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance
Broad implications	↔	↑?	↑?	↔	↔	↔	+

9.6.44 Though there are requirements in each policy for developments to be supported by a comprehensive green infrastructure strategy, this would not prevent the loss of agricultural land in the developable areas of the sites.

9.6.45 There is potential for allotment provision as part of the South East Warrington Urban Extension and for Fiddlers Ferry. However, this is not explicit, and will depend on the open space that is secured through development. Whilst beneficial, effects are uncertain and likely to be minor with regards to the quality of soil resources from a borough-wide perspective.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad implications</i>	↔	↔	↔	↔	↔	↔	0

9.6.46 The site specific policies are likely to have neutral effects on soil resources. Though there are requirements in each policy for developments to be supported by a comprehensive green infrastructure strategy, this would not prevent the loss of agricultural land in the developable areas of the sites, and it is likely that remaining land would not be suitable for agricultural purposes. As a result **neutral effects** are predicted.

Monitoring and review policy

Policies	M1	Overall significance
<i>Broad implications</i>	↔	0

9.6.47 Monitoring of housing delivery has no direct implications with regards to soil resources. Therefore, **neutral effects** are predicted.

Combined effects of the Plan on Natural Resources: Soil

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	---
<i>Green Belt policy</i>	-
<i>Town centre policy</i>	+
<i>Infrastructure policies</i>	+
<i>Design policies</i>	+
<i>Environment policies</i>	+
<i>Major development policies</i>	+
<i>Outer settlement policies</i>	0
<i>Monitoring and review policy</i>	0
<i>Cumulative / overall effects</i>	Moderate negative effects

- 9.6.48 Despite a focus on urban growth, the Plan will lead to the loss of a substantial amount of agricultural land, a proportion of which is classified as best and most versatile. Both Grade 3a and Grade 2 (to a lesser extent) would be affected, with a total of approximately 200ha of this resource permanently lost. This is considered to be a major negative effect, particularly at a time when the need for the UK to be self-sufficient in food is becoming more evident.
- 9.6.49 Though there are plan policies that would help to preserve the quality and function of soils (such as green infrastructure enhancement), this would not help to mitigate the loss of resources associated with planned development on Green Belt sites.
- 9.6.50 However, the Plan is positive with regards to further development by stating that there should be no 'loss of best and most versatile land'. This would provide strong protection for remaining resources, and potentially offset the significant effects associated with Green Belt loss. Therefore a residual **moderate negative effect** is predicted overall.

9.7 Natural Resources: Water Quality

9.7.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Water Quality'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance	
<i>Broad implications</i>	↓↑	↔	↔	↓	↑	+	-

9.7.2 *DEV1 Housing Delivery:* Growth has the potential to affect water quality regardless of location through pollutants in surface water run-off and demands upon the waste water and drainage networks. However, a concentrated approach (i.e. within the urban area and at strategic developments) should allow for infrastructure upgrades to be secured in a coordinated manner.

9.7.3 The majority of housing sites are concentrated in the south of the borough and the urban area. The increased quantum of growth in these areas in particular will require upgrades to waste water treatment networks, and could potentially lead to negative effects on water quality due to increased effluent.

9.7.4 The majority of the potential sites for residential development fall outside of ground water protection zones. The exceptions are as follows:

- At Winwick, the allocated site falls within Zone 2 and partly within Zone 1.
- The sites within Lymm fall within Zone 3.

9.7.5 At each of these sites, particularly at Winwick, which has parts within Zone 1, there is potential for polluting activity that could affect groundwater. For example, digging and boreholes during construction, sewerage pipes, and the use of SUDs. It will therefore be important to secure adequate mitigation measures during construction phases and to ensure that SUDs are appropriate. The nature of development (i.e. residential) should mean that significant effects are unlikely to occur with regards to groundwater. However, a precautionary approach should be taken.

9.7.6 Additionally, any development in close proximity to watercourses could result in short term negative impacts in terms of pollution and sedimentation, especially at Fiddlers Ferry, and the strategic site at Warrington Waterfront, which lies very close to the river Mersey and is sensitive to flooding in parts.

9.7.7 Conversely, the development of potentially contaminated land could result in positive effects by remediating sources of pollution that may otherwise escape to water sources unless treated (provided that disturbance doesn't create a pathway in itself).

9.7.8 A change in use from agricultural land to housing could also potentially help to reduce nitrates run-off in such areas, particularly where appropriate SUDs are secured.

- 9.7.9 This could help to reduce negative effects, or lead to positive effects. These potential benefits may be more pronounced for the Winwick and Culcheth sites where they fall within groundwater protection zones, as well as at Winwick and Culcheth where they are within nitrate vulnerable zones. However, it should be noted that nitrate vulnerable zones are largely present on Grade 2 agricultural land, the loss of which would be negative in other respects.
- 9.7.10 On balance the policy is predicted to have mixed effects, reflecting the negative short term implications of development, but the likelihood that trends should improve in the longer term.
- 9.7.11 *DEV2 Meeting Warrington's Housing Needs*: this policy states the mix of housing type and tenures within Warrington; therefore this is unlikely to affect the location and scale of growth across the borough, which is not likely to have an effect upon water quality and therefore neutral effects are predicted.
- 9.7.12 *DEV3 Gypsy & Traveller and Travelling Show People Provision*: This policy states there will be adequate provision for gypsy & traveler and travelling show person provision across the borough for the duration of the plan period. The identified sites to bring forward this provision are small in scale and unlikely to have effects on water quality. None of the sites fall within water protection zones or lie close to water courses; therefore neutral effects predicted.
- 9.7.13 *DEV4 Economic Growth and Development*: A change in use from agricultural land to employment could potentially help to reduce nitrates run off in such areas, particularly where appropriate SUDs are secured. This could help to reduce negative effects, or lead to positive effects. However, it should be noted that nitrate vulnerable zones are largely present on Grade 2 agricultural land, the loss of which would be negative in other respects. Employment operations themselves can also contribute source pollution to watercourses, though the types of development involved would not likely be highly polluting.
- 9.7.14 The identified sites to bring forward employment provision could have mixed effects. At the South East Warrington Employment Area, the impacts are likely to be relatively neutral, but sites in close proximity to the River Mersey floodplain (i.e. At the Fiddlers Ferry) could potentially lead to negative short term effects on pollution. For example, as a result of construction activities, increased transport related pollution near to watercourses and run-off of contaminants. Implementation of green infrastructure and flood management schemes / SUDs should help to minimise these effects though (see the site specific policies and ENV2).
- 9.7.15 Overall, this policy is predicted to lead to minor negative effects on water quality.
- 9.7.16 *DEV5 Retail and Leisure Needs*: The policy seeks to preserve the vitality and function of Warrington Town Centre, district centres and Neighbourhood centres.

9.7.17 This should support the regeneration and redevelopment of previously developed land. There is a desire to reduce surface water run-off on such sites, and so this policy could help to reduce the potential for water pollution associated with flooding. These effects are predicted to be minor though.

Overall effects of the development policies

9.7.18 Overall the development policies are predicted to have mixed effects.

9.7.19 On one hand, development on greenfield land creates a greater risk of short term pollution incidents and sedimentation which can affect water quality. This may be a more prominent issue in locations that have a pathway to waterbodies such as sites that fall within Groundwater Protection Zones (Winwick), and adjacent to watercourses (for example development at Fiddlers Ferry). There would be measures in place to reduce the potential for such incidents though, so effects would not be anticipated to be significant.

9.7.20 There is also potential for **minor negative effects** due to an increased requirement for sewerage and drainage infrastructure.

9.7.21 In the longer term, there could potentially be **minor positive effects** upon water quality for a number of reasons. In particular, development on agricultural land could help to remove diffuse pollution associated with nitrate use on farms. Residential development would also be expected to present a lower risk of pollution, especially if supported with comprehensive green infrastructure.

Green Belt policy

Policies	GB1	Overall significance
Broad implications	↓	-

9.7.22 This policy facilitates a change in use from Green Belt (and also designates additional areas) to built-up areas. . This could have **minor negative effects** on water quality in the short term at least due to increased compaction of soils, sedimentation, and polluting activities. In the longer term, a change in use from agriculture could lead to benefits in terms of a reduction in diffuse pollution.

Town centre policy

Policies	TC1	Overall significance
Broad implications	↔	0

9.7.23 This policy seeks to bring forward development in the built up area, which would include the redevelopment of previously developed land. There is potential for surface water run-off to be improved in such situations, as well as the potential to remove sources of contamination.

9.7.24 This would help to reduce threats to water quality in the longer term, but could present an increased risk during construction phases.

9.7.25 An increase of development along the Mersey corridor could also lead to negative effects on water quality as a result of construction activities and increased usage of recreational areas. However, effects would not be anticipated to be significant. Therefore, **neutral effects** are predicted overall.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad implications</i>	↔	↔	↑?	↔	↑	↔	+

9.7.26 *INF1 Sustainable Travel and Transport:* The policy supports the creation and enhancement of transport networks, which would include cycle paths, footpaths, potentially bus corridors and other infrastructure improvements. Though such schemes could bring potential for pollution to watercourses (for example from development near watercourses) and disturbance of soil, the effects would be dealt with through the development management process. The policy in itself is therefore predicted to have neutral effects.

9.7.27 *INF2 Transport Safeguarding:* The safeguarding of land for transport upgrades through the plan period and beyond could have mixed effects.

9.7.28 On one hand it prevents development on land that is in places close to the River Mersey (Bridgefoot link) and the Manchester Ship Canal (replacement high-level crossing). Whilst the land is safeguarded, effects would be neutral as there would be no change. Once schemes are underway, there could be temporary disturbance that affects water quality. However, the long term effects are likely to be neutral.

9.7.29 *INF3 Utilities and Telecommunications:* This policy states the need for all new developments to consult the relevant stakeholders from an early stage with regards to water; sewerage and water drainage; all which should avoid negative effects and enhance water management infrastructure within the borough. These practices would be expected anyway, and so the effects of this policy in isolation are not significant. However, the need to consider cumulative impacts on the water network should help to generate minor positive effects / avoid negative effects.

9.7.30 *INF4 Community Facilities:* This policy does not directly link to water infrastructure and is unlikely to have any notable effects.

9.7.31 *INF5 Delivering Infrastructure:* This policy requires new infrastructure associated with residential development to be secured. This also includes the responsibility of providing utilities infrastructure on the private developer. This is a minor positive effect.

9.7.32 *Policy INF6 Aerodrome Safeguarding*: This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. The policy is not expected to bear influence upon water quality.

Overall effects of the infrastructure policies

9.7.33 None of the infrastructure policies are likely to have significant effects with regards to water quality. However, in combination the policies should help to support the overall upgrade of water quality infrastructure and reduce pressure on the existing networks. There would be costs associated with some infrastructure requirements, but these ought not to affect viability. On balance **minor positive effects** are predicted.

Design policies

<i>Policies</i>	<i>DC1</i>	<i>DC2</i>	<i>DC3</i>	<i>DC4</i>	<i>DC5</i>	<i>DC6</i>	Overall significance	
<i>Broad implications</i>	?	↔	↑?	↑?/↓?	↔	↓?	+?	-?

9.7.34 *DC1 Warrington’s Places*: The policy seeks to opens-up access to and enjoyment of the River Mersey and riverside links through to the Town Centre, the Waterfront and Black Bear Park. On one hand, this is positive as it is likely to lead to improvements to green infrastructure networks, with knock-on benefits for water quality. However, on the other hand, increased visitation and usage of waterfront sites and along watercourses could potentially add additional pressure in terms of litter, run off of pollutants and changes to soil structure.

9.7.35 *DC2 Historic Environment*: This policy does not relate to water quality, therefore neutral effects are predicted.

9.7.36 *DC3 Green Infrastructure Network*: The policy could result in the development of some agricultural land into useable green infrastructure with a less polluting profile (for example, reducing agricultural activities and decreasing nitrates entering watercourses). Furthermore, green infrastructure often involves consideration of flood management, which is also positive with regards to managing water quality. Minor positive effects are predicted but there is a degree of uncertainty relating to whether such improvements would be realised in practice. This will depend on the location and function of the green infrastructure that is secured.

9.7.37 *DC4 Ecological Network*: The policy looks to enhance biodiversity, geological and ecological assets, which is likely to limit the location of some development. This could lead to the prevention of development in close proximity to water courses that have ecological value. This could reduce the potential deterioration of water quality in these locations. Minor positive effects are predicted as the scale of impacts would likely be minor.

9.7.38 Where this policy specifically references support for enhanced public access to nature, any waterbody which sees increased access as a result of this policy may see some increased recreational pressures and potential consequential water quality issues; any negative effects predicted are uncertain.

9.7.39 *DC5 Open Space, Outdoor Sport and Recreation Provision:* A number of the formal play areas are located within flood zones 2 and 3, however due to the nature of these sites; they are unlikely to lead to significant negative effects on the water quality.

9.7.40 *DC6 Quality of Place:* The policy encourages improved / increased access to waterfront locations. There is a chance that this could lead to water quality impacts (for example disturbance to vegetation, spillages from boat engines, erosion of soil). The effects would be anticipated to be minor given the scope and scale of development in such locations. Furthermore, watercourse management would likely be in place to reduce such impacts. Therefore, an uncertain minor negative effect is predicted.

Overall effects of the infrastructure policies

9.7.41 Overall, mixed effects are predicted.

9.7.42 Encouraging increased access to watercourses could potentially lead to disturbances and impacts on water quality. However, only **minor negative effects** would be anticipated, and these are uncertain as it ought to be possible to mitigate and avoid such effects.

9.7.43 Conversely, the policies seek to ensure that development is supported by adequate utilities, SUDs and green infrastructure; all of which should help to ensure that water quality is maintained or improved. These are potential **minor positive effects**, which are likely to be felt in most locations.

Environment policies

Policies	ENV 1	ENV 2	ENV 3	ENV 4	ENV 5	ENV 6	ENV 7	ENV 8	Overall significance
<i>Broad implications</i>	↔	↑	↔	↔	↔	↔	↔	↑?	+

9.7.44 *ENV1 Waste Management:* This policy includes provisions for the management of waste facilities. These include consideration of impacts on environmental factors such as water quality. However, the provisions in the policy are not likely to lead to significant differences to the existing policy context.

9.7.45 *ENV2 Flood Risk and Water Management:* The policy seeks to reduce flood risk, which has knock-on benefits with regards to water quality. The policy also explicitly sees to protect water quality, including if particular SUDs would lead to adverse impacts. Overall, the policy therefore contributes a minor positive effect towards water quality.

9.7.46 *Policies ENV3, ENV4, ENV5 and ENV6* relate to the safeguarding of minerals, the extraction and exploration of minerals, and the aftercare and restoration of worked sites. There are no direct links to water quality, though such factors would need to be considered as part of the planning application process as a matter of course. Consequently, neutral effects are predicted.

9.7.47 *ENV7 Renewable and Low Carbon Energy Development:* This policy supports renewable and low carbon energy schemes provided they do not cause unacceptable environmental harm. This would routinely include consideration of factors that could affect water quality. As such neutral effects on the baseline are predicted.

9.7.48 *ENV8 Environmental and Amenity Protection:* This policy is predicted to have a positive effect on water quality as it states “*development proposals will not be permitted where it would have an adverse effect on the quality or availability of groundwater resources, watercourses or water bodies*”. These measures should help to protect water quality, which is a minor positive effect. Additionally, it is possible that the protection and enhancement of ecological habitats and networks (which may include waterways) could have benefits for water quality (and vice versa). However, the effects upon water quality are uncertain and not predicted to be significant. The policy also details a set number of processes to adhere to for any development within a Source Protection Zone, helping to minimise any adverse effects on water quality relating to these areas.

Overall effects of the environment policies

9.7.49 Several policies would help to protect water quality from specific types of development such as waste facilities, minerals exploration and energy schemes. However, this is broadly a continuation of current policy. Therefore, effects are neutral. **Minor positive effects** ought to be achieved though through policies that provide additional detail relating to the protection of water quality.

Major development policies

Policies	<i>MD1</i>	<i>MD2</i>	<i>MD3</i>	<i>MD4</i>	<i>MD5</i>	<i>MD6</i>	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+

9.7.50 *MD1 Waterfront:* The policy sets out a requirement for a comprehensive green infrastructure strategy and a water strategy for the entire Waterfront area. This ought to help ensure that impacts upon water quality are better managed.

9.7.51 *MD2 South East Warrington Urban Extension:* Given that much of the land required is currently used for agricultural purposes, this means that watercourses are vulnerable to nitrates within surface water run-off, therefore changes in land use could actually help to reduce this problem in the longer term resulting in positive effects.

9.7.52 The policy sets out the need for a comprehensive green infrastructure strategy, a water strategy, flood management measures, and an explicit need to protect and enhance wetland environments. These measures should help to protect water quality.

9.7.53 *MD3 Fiddlers Ferry*: The policy is likely to have positive effects by requiring new development to improve on greenfield run-off routes, achieve water efficiency in design, and to establish drainage and green infrastructure strategies.

9.7.54 *MD4 Peel Hall*: The policy sets out a requirement for a comprehensive green infrastructure strategy and a water / utilities strategy. This ought to help ensure that impacts upon water quality are better managed.

9.7.55 *MD5 Thelwall Heys*: The policy is likely to have positive effects by setting out requirements for a green infrastructure and water / utilities strategy.

9.7.56 *MD6 South East Warrington Employment Area*: The policy is likely to have positive effects by requiring new development to improve on greenfield run-off routes, achieve water efficiency in design, and to establish drainage and green infrastructure strategies.

Overall effects of the major development policies

9.7.57 Together, these policies are predicted to have **minor positive effects** with regards to water quality. They seek to improve green and blue infrastructure and implement utilities improvements. Where the drainage and foul sewer networks are improved, this would be a potentially significant effect by reducing the risk of pollution events.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+

9.7.58 The site specific policies are each likely to have minor benefits with regards to water quality as there is a requirement to make improvements to the water supply and sewerage network for each site. Existing watercourses will need to be taken account for each site, reducing the likelihood for contamination, especially during construction phases. Likewise, a strategy for flood management is required.

9.7.59 Policy OS5 also requires proposals for the site to explore and mitigate against any impacts on groundwater in the area, leading to further minor positive effects.

9.7.60 Overall, a **minor positive effect** is predicted.

Monitoring and review policy

Policies	M1	Overall Significance
<i>Broad implications</i>	↔	0

9.7.61 Monitoring of indicators could potentially help to identify and rectify any downward trends with regards to water quality. However, the direct effects of this policy are not likely to be notable, and water quality monitoring is not typically undertaken through Plan monitoring. Therefore, **neutral effects** are predicted.

Combined effects of the Plan on Water Quality

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	+ -
<i>Green Belt policy</i>	-
<i>Town centre policy</i>	0
<i>Infrastructure policies</i>	+
<i>Design policies</i>	+
<i>Environment policies</i>	+
<i>Major development policies</i>	+
<i>Outer settlement policies</i>	+
<i>Monitoring and review policy</i>	0
<i>Cumulative effects</i>	<p>Minor negative effects</p> <p>Minor positive effects</p>

9.7.62 On one hand, development on greenfield land creates a greater risk of short term pollution incidents and sedimentation which can affect water quality. This may be a more prominent issue in locations that have a pathway to waterbodies such as sites that fall within Groundwater Protection Zones (Winwick, South West Extension for example), and adjacent to watercourses (for example residential development at the Waterfront). There would be measures in place to reduce the potential for such incidents though, so effects would not be anticipated to be significant.

9.7.63 There is also potential for **minor negative effects** due to an increased requirement for sewerage and drainage infrastructure. The Plan makes it clear though that phasing is required to ensure that adequate infrastructure is in place to avoid such issues. Consequently, effects ought to be possible to manage.

9.7.64 In the longer term, there could potentially be **minor positive effects** upon water quality for a number of reasons.

9.7.65 First, development on agricultural land could help to remove diffuse pollution associated with nitrate use on farms. Residential development would be expected to present a lower risk of pollution. This is further backed up by the requirement for comprehensive surface water management on strategic sites, and the need to implement exemplary SUDs.

9.8 Natural Resources: Air Quality

9.8.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Air Quality'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance
Broad implications	↑↓	↔	↔	↓↑	↑	--?

9.8.2 *DEV1 Housing Delivery:* The policy sets out a strategy for the delivery of sufficient housing growth to meet identified needs. This will lead to increased development in the urban areas, incremental growth in the outer settlements and focused development at two locations in south Warrington.

9.8.3 Concentrating the highest levels of growth within the main urban area of Warrington should promote sustainable forms of travel such as public transport, walking and cycling. It could also reduce the need to travel and the distances travelled. In this respect, there would be benefits with regards to air quality. Conversely, it could place some residential areas in proximity to areas noted for poorer air quality, and would still be likely to add traffic to key routes into and out of the town centre.

9.8.4 Growth in the outer settlements is somewhat dispersed, and so effects on air quality are less likely to be an issue. Residential development would also be in areas that are not suffering with regards to poor air quality. However, there would also be an increase in car trips likely towards key motorway junctions and Warrington town itself.

9.8.5 Particularly high levels of development are proposed in the SEWUE, and this would be likely to lead to increased trips towards Junctions 9 and 10 of the M62 and Warrington Town Centre. The effects could be offset somewhat by the requirement for new local centres and essential facilities (thus reducing the need to travel).

9.8.6 Infrastructure improvements would be essential elements for growth at the SEWUE and the Waterfront locations, though this would be unlikely to mitigate the increased car trips from the sites entirely. Development at Thelwall Heys would not see the same scale of increased journeys from the site as seen at the SEWUE site; though the increase of 310 dwellings may lead to some localised congestion related air quality issues at peak journey times and traffic pinch points.

- 9.8.7 Further to this, main access routes into Warrington may be affected at these times, with AQMA4 likely to see increased levels of congestion. The close proximity of this site to the SEWUE growth may also lead to some cumulative effects.
- 9.8.8 The Fiddlers Ferry site may deliver some infrastructures which promote sustainable travel and reduce the need to travel at all, dominant norms relating to transport modal choices as well as the relatively isolated nature of the site are expected to lead to some increased car use and consequential air pollution.
- 9.8.9 This would be expected in some localised areas near to traffic pinch points, potentially adding to existing air quality issues at AQMA4.
- 9.8.10 *DEV2 Meeting Warrington's Housing Needs:* this policy supports the delivery of affordable housing and a mix of housing types to suit the needs of all people. This policy is unlikely to have any significant effect on air quality.
- 9.8.11 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* The provision of a small number of pitches for these community groups would not lead to a notable impact with regards to air quality. The magnitude of additional transport would be very small, and sites would be unlikely to be located in areas already suffering from poor air quality. Consequently, neutral effects are predicted.
- 9.8.12 *DEV4 Economic Growth and Development:* Prioritising office development in the town centre should capitalise upon active travel networks and public transport links; helping to reduce further emissions from transport that contribute to poor air quality.
- 9.8.13 Supporting the retention and expansion of existing key employment areas is likely to have mixed effects. On one hand, it focuses employment in established areas that are serviced by public transport and not located close to residential areas. However, it also adds additional traffic to areas that are already congested at peak times (i.e. along the A50, at M62 Junctions 8, 9, 10, at M6 Junctions 20, 21 and 21a. Air quality in these areas is therefore likely to continue to be poor.
- 9.8.14 With regards to new development site opportunities, the effects are again likely to be mixed. The focus on strategic distribution and warehousing units will involve increased HGV trips, particularly at the employment area associated with the South East Warrington Employment Area. This is located with good access to the motorway though, and so should avoid air quality issues in close proximity to residential areas (providing that route management is implemented).
- 9.8.15 Support for proposals that transfer the transport of materials for the Fiddlers Ferry Power Station from road to rail or waterway is also beneficial.
- 9.8.16 Overall, the effects are predicted to be mixed, with some areas likely to suffer from worse air quality (such as motorway junctions) and others likely to experience benefits as a result of traffic being routed away from the town centre (for example the Western Distributor Road and other major infrastructure improvements).

9.8.17 The overall effects are predicted to be minor when these factors are taken into consideration on a borough-wide scale.

9.8.18 *DEV5 Retail and Leisure Needs*: This policy seeks to preserve the vitality and function of Warrington, district and neighbourhood centres by setting out a hierarchy of centers and requiring new retail and leisure developments to be based within them.

9.8.19 This ought to have a minor positive effect on air quality as clustering retail, leisure and services in accessible locations should reduce transport demand and utilise the efficiency of sustainable transport modes such as public transport and active forms of travel including walking and cycling.

Overall effects of the development policies

9.8.20 In combination, the delivery of housing and employment space will lead to additional car trips, many of which would contribute to congestion at motorway junctions and connecting roads. There is also likely to be an increase in trips at the inner areas of Warrington, which is notable for poor air quality in places. However, the Plan also promotes active and sustainable modes of travel as well as local accessibility to services, facilities, jobs and recreation. This will help to reduce effects on air quality somewhat.

9.8.21 Strategic development at the SEWUE and the Waterfront will bring improved road infrastructure links, and this could help to divert traffic and tackle congestion. This could have particular benefits for the inner Warrington area.

9.8.22 On balance, potential **moderate negative effects** are predicted, but these could be lessened further through Plan policies focusing on accessibility and sustainable transport (see discussions below).

Green Belt policy

Policies	GB1	Overall significance
<i>Broad implications</i>	↓	-

9.8.23 This policy sets out the extent of the green belt, identifies land to be removed and sets out requirements for development proposals that fall within the green belt. Although restricting development may influence air quality within the designated area and across the borough, no significant effects are predicted, as the extent of the Green Belt is broadly the same.

9.8.24 Development on land that is released for development though is likely to lead to negative effects with regards to increased traffic and air quality though.

Town centre policy

Policies	TC1	Overall significance
<i>Broad implications</i>	↑?	+?

9.8.25 This policy seeks to support and promote comprehensive redevelopment in Warrington town centre and this includes the creation of an enhanced transport hub around Bank Quay Station.

9.8.26 This should encourage the use of more sustainable transport modes and thus potentially reduce the use of modes such as the private car that contribute to poor air quality.

9.8.27 Parker Street and Liverpool Road, which run within close proximity to the station fall within the Warrington AQMA. Should the transport hub help to replace car usage, positive effects ought to be felt. However, if people travel to the station by car, then air quality could continue to be an issue.

9.8.28 The policy further requires all development in the town centre to contribute to sustainable travel initiatives, which should reduce private car reliance in the town centre, potentially reducing air pollution.

9.8.29 On balance, **minor positive effects** are predicted, but there is an element of uncertainty.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad implications</i>	↑	?	↑?	↑	↑	↔	++

9.8.30 *INF1 Sustainable Travel and Transport*: This policy requires development to be located in highly accessible locations, to prioritise walking; cycling and public transport and reduce the need to travel by private car. This is predicted to have a positive effect on air quality, as it will help to reduce private car reliance and the need to travel which is currently a major contributor to local air pollution.

9.8.31 Requirements for development to provide infrastructure for plug-in and other low emissions vehicles should further support this and encourage long-term improvements in air quality.

9.8.32 This policy supports improvements to infrastructure for active forms of travel and public transport. This includes segregated cycle routes and support for the delivery of new mass transit systems.

- 9.8.33 The policy also seeks to encourage developers to transport minerals and waste through the most sustainable transport modes possible. This should also help reduce road transport (including from Heavy Goods Vehicles) in the borough and is predicted to have a positive effect on air quality.
- 9.8.34 *INF2 Transport Safeguarding:* This policy seeks to safeguard land for transport infrastructure that is considered vital to facilitating proposed growth in the borough. This is predicted to have mixed effects. On one hand, infrastructure is vital for prevention congestion (which is a particular contributing factor to poor air quality), but on the other, it could arguably facilitate an increase in car usage and traffic overall.
- 9.8.35 *INF3 Utilities and Telecommunications:* This policy is unlikely to have a significant effect on air quality as it does not relate directly to transport infrastructure or the generation of trips. An improved telecommunications network ought to help reduce the need to travel though if it facilitates increased working from home and other practices which reduce the need to travel (for example video conferencing). The policy also requires new development to be supplied with high speed broadband and / or the supporting infrastructure. This will help to support home working and reduce a need to travel, with minor consequential benefits in terms of air quality.
- 9.8.36 *INF4 Community Facilities:* This policy seeks to ensure new community facilities are in locations with good walking, cycling and public transport access. This should reduce the need for less sustainable forms of travel such as the private car, which can subsequently reduce traffic and air pollution. Similarly, requirements for a potential new hospital facility with ease of access for residents and good public transport links should further support this. However, the effects are not predicted to be significant on air quality.
- 9.8.37 *INF5 Delivering Infrastructure:* This policy seeks to secure developer contributions for the delivery of infrastructure. This can include open space, green infrastructure and transport infrastructure. This should broadly safeguard the existing baseline and in some cases result in an enhancement with regards to air quality.
- 9.8.38 The policy seeks to ensure that developments can be made acceptable through the provision of infrastructure, which in some cases would only prevent further deterioration of the baseline position. However, where substantial improvements to walking, cycling and green infrastructure networks are secured, minor positive effects ought to be generated.
- 9.8.39 *Policy INF6 Aerodrome Safeguarding:* This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This would be unlikely to affect air quality outcomes across Warrington.

Overall effects of the infrastructure policies

9.8.40 The infrastructure policies are likely to have a positive effect with regards to air quality as they set out measures to reduce the need to travel, encourage sustainable modes of transport, and reduce congestion. In combination, a **moderate positive effect** upon air quality is likely to be achieved in the longer term as the cumulative benefits of schemes start to emerge. The effects are not predicted to be major, as most of the policy principles and delivery mechanisms are already in place and would likely be delivered through a continuation of existing policies.

Design policies

<i>Policies</i>	<i>DC1</i>	<i>DC2</i>	<i>DC3</i>	<i>DC4</i>	<i>DC5</i>	<i>DC6</i>	Overall significance
<i>Broad implications</i>	↑	↔	↑	↑	↔	↑	+

9.8.41 Policies *DC2* and *DC5* do not relate strongly to air quality and are therefore predicted to have neutral effects.

9.8.42 *Policy DC1 Warrington’s Places:* This policy requires development in the Inner Warrington area to not be detrimental to air quality and wider public health. This is predicted to have a positive effect, as it should help to avoid the deterioration of air quality in this area and ensure that people are not unnecessarily exposed to poor air quality. Given that the Inner Warrington area contains AQMAs along its arterial road routes, this policy should help guide development to appropriate locations and prevent further deterioration. This is also supported by the promotion of sustainable transport measures and green infrastructure. The Central Six Regeneration Masterplan which developers would be expected to take account of includes air quality ambitions for inner Warrington, helping to ensure that this is a considered in future development.

9.8.43 *Policy DC3 Green Infrastructure Network:* this policy seeks to protect and enhance green infrastructure networks. This should safeguard and potentially increase important green infrastructure such as trees that can act as ‘green lungs’ (which can improve air quality). Particular benefits could be gained through an approach that targets green infrastructure enhancement in ‘urban areas’, which can act as branches towards the more strategic networks. This is not explicitly recognised in the policy, but minor positive effects are predicted regardless.

9.8.44 *DC4 Ecological networks:* Protection and enhancement of wildlife habitats is likely to have benefits with regards to air quality (for the same reasons discussed for DC3). However, significant effects are unlikely, as existing habitats would be unlikely to be substantially affected by development by virtue of their value. Furthermore, locations which suffer most from poor air quality are strictly correlated with habitats. Nevertheless, the policy is positive in nature for air quality.

9.8.45 *Policy DC5 Open Space, Sport and Recreation Provision*: This policy broadly focuses on access to and quality of provisions and so is not directly correlated to air quality. The policy would afford protections to new and existing facilities, which may include some green infrastructure which could help to reduce air quality issues. That said, these green spaces would be protected under Policy DC3. Neutral effects are likely.

9.8.46 *DC6 Quality of Place*: Though the policy is mostly concerned with the appearance and function of places, this includes consideration of permeability, and the promotion of sustainable modes of travel. This is positive with regards to air quality, but the effects are small scale.

Overall effects of the design policies

9.8.47 The policies are likely to have minor positive effects with regards to air quality, mostly through the protection and enhancement of green infrastructure and the promotion of sustainable modes of travel. **Minor positive effects** are predicted.

Environment policies

Policies	ENV1	ENV 2	ENV 3	ENV 4	ENV 5	ENV 6	ENV7	ENV8	Overall significance
<i>Broad implications</i>	↑	↔	↑	↔	↔	↔	↑	↑	+

9.8.48 *ENV1 Waste management*: Point source emissions into the air from waste facilities are controlled through environmental protection legislation. The planning system has the potential to manage the effects of emissions through locational and design factors though. In this respect, the policy should have positive effects with regards to emissions from the transportation of wastes. This is because the policy seeks to manage waste close to where it is created. This is a minor positive effect, but is very much a continuation of the existing policy context.

9.8.49 *ENV2 Flood Risk and Water Management*: This policy is unlikely to have an effect with regards to air quality as it focuses on flood risk avoidance and SUDs.

9.8.50 *ENV3 Safeguarding of Minerals Resources*: The policy is likely to have neutral effects with regards to air quality as it does not concern development as such. It should also help to ensure that development is not permitted in areas where there could potentially be amenity issues (including air quality concerns such as dust) should there be subsequent minerals extraction. This is a minor positive effect.

9.8.51 *ENV4 Primary Extraction of Minerals*: The policy allows for extraction of minerals in suitable locations (when a need is demonstrated) whilst seeking to minimise environmental effects. This is a standard approach to minerals development and is unlikely to lead to any notable effects with regards to air quality.

- 9.8.52 *ENV5 Energy Minerals*: This policy facilitates the exploration and exploitation of hydrocarbons, and such operations could adversely affect air quality. However, the effects are not predicted to be significant as the decision relating to whether the exploration and extraction of hydrocarbons is acceptable in principle has already been made (i.e. Through the granting of a PEDL license).
- 9.8.53 *ENV6 Restoration and aftercare of Mineral and Waste Sites*: The restoration of minerals and waste sites will help to improve the environmental quality of former worked areas. This could be positive in terms of air quality, but is unlikely to bring significant benefits.
- 9.8.54 *ENV7 Renewable and Local Carbon Energy Development*: This policy requires new development to minimise carbon emissions and supports development that would produce or distribute low carbon or renewable energy providing that it does not cause unacceptable harm to the environment. This is predicted to have a positive effect on air quality, as it will seek to reduce air pollution in new developments, especially in the energy sector, reducing reliance on existing coal and gas-based energy generation. The effects are small in the context of existing emissions, but a positive contribution is made, nevertheless.
- 9.8.55 *ENV8 Environmental and Amenity Protection*: This policy seeks to minimise adverse impacts to air quality from development. It also seeks to ensure that proposals do not cause an unacceptable negative impact, such as worsening air quality in an existing AQMA.
- 9.8.56 Where a development may lead to the deterioration of local air quality, the policy requires an air quality assessment to be undertaken to assess effects on human health, sensitive receptors and the environment. This ought to ensure that negative effects can be minimised. The policy provides a focus on any development being required to consider air quality impacts on the Manchester Mosses SAC, with more requirements for developments likely to lead to traffic volumes above a certain threshold.
- 9.8.57 A minor positive effect is predicted. Though the policy actively seeks to avoid and manage air quality impacts, this policy alone is unlikely to lead to significant improvements with regards to the baseline position.

Overall effects of the environment policies

- 9.8.58 Policies ENV1, ENV3 and ENV7 are each likely to contribute a small positive effect with regards to air quality. In combination, these effects are still very minor though. Policies ENV7 and ENV8 in particular are more likely to generate positive effects on air quality by actively seeking to reduce emissions into the air, and to avoid inappropriate development in areas experiencing poor air quality already. Overall, these policies are predicted to have **minor positive effects**.

Major development policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	++

- 9.8.59 *MD1 Waterfront*: This policy sets out a wide range of measures to support sustainable modes of transport and patterns of travel. This includes the provision of sufficient health care, education, recreation, walking and cycling links and access to jobs. Importantly, there will be a requirement for enhanced access to the roundabout from the Western Link Road to ensure adequate access for new homes. A part of the site will also be set aside to facilitate the development of the Western Link.
- 9.8.60 This will help to support this critical piece of infrastructure (which could help to reduce air quality issues in the inner parts of Warrington). Furthermore, the policy requires a site wide travel plan to be prepared, which can help to facilitate more sustainable modes of transport.
- 9.8.61 *MD2 South East Warrington Urban Extension* : The policy sets out a wide range of measures to support sustainable modes of transport and patterns of travel, with a requirement to prepare a site wide travel plan. This includes the provision of sufficient health care, education, recreation, walking and cycling links and access to jobs. Importantly, there will also be a requirement to support junction improvements on the M6 and M62. There will also be a need to support junction improvements on the A49 / B5356 prior to development commencing. prior to the commencement of certain works. This will help to ensure that short term negative effects are managed and help to offset increases in traffic that might occur. The policy is therefore positive with regards to air quality.
- 9.8.62 *MD3 Fiddlers Ferry*: The policy sets out a range of measures to support sustainable modes of transport and patterns of travel. This includes the provision of education, recreation, walking and cycling links and access to jobs (of which there will be opportunities on site).
- 9.8.63 *MD4 Peel Hall*: his policy sets out a range of measures to support sustainable modes of transport and patterns of travel. This includes the provision of walking and cycling links and access to jobs.
- 9.8.64 *MD5 Thelwall Heys*: The policy supports the provision of walkable neighbourhoods, cycling routes and access to public transport. This will contribute minor benefits with regards to air quality.
- 9.8.65 *MD6 South East Warrington Employment Area*: The policy seeks to ensure that there are strong walking, cycling and public transport links. Crucially, no development will be allowed to commence until improvements are secured to Junction 9 of the M56 / Junction 20 of the M6.

9.8.66 Overall, these policies are likely to contribute a **moderate positive effect** with regards to air quality. This is mainly due to the strategic nature of the sites meaning that local facilities can be secured (to reduce the need to travel), the need to deliver walking and cycling enhancements, and in the case of MD1, MD2 and MD6, contributions towards critical pieces of infrastructure / junction improvements that could help to reduce congestion (and thus potential worsening of air quality).

9.8.67 The policies also require integration of green infrastructure into the schemes, which act as a buffer between roads and people friendly spaces, as well as absorbing certain levels of particulate matter from the surrounding air.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+

9.8.68 Each of the policies set out requirements for a package of transport measures to ensure that developments have appropriate access, promote walking and cycling and seek to strengthen links with nearby employment areas and extensions of existing bus services (were relevant).

9.8.69 Further to this, Policies OS 1, 2, 3 and 6 require developments to mitigate any adverse air quality impacts on the Manchester Mosses SAC.

9.8.70 Furthermore, the policies set out requirements for the provision of local facilities and services, which should help to minimise the need for travel.

9.8.71 The policies promote integration of green infrastructure into the schemes, which act as a buffer between roads and people friendly spaces, as well as absorbing certain levels of particulate matter from the surrounding air.

9.8.72 Overall, these measures are predicted to have **minor positive effects**.

Monitoring and plan review

Policies	M1	Overall significance
<i>Broad implications</i>	↔	0

9.8.73 Monitoring of indicators could potentially help to identify and rectify any downward trends with regards to air quality. However, the direct effects of this policy are not likely to be notable. Therefore, **neutral effects** are predicted.

Combined effects of the Plan on Air Quality

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	--
<i>Green Belt policy</i>	-
<i>Town Centre policy</i>	+ [?]
<i>infrastructure policies</i>	+
<i>Design policies</i>	+
<i>Environment policies</i>	+
<i>Major development policies</i>	++
<i>Outer settlement policies</i>	+
<i>Monitoring and review policy</i>	0
<i>Cumulative effects</i>	Minor negative effects Neutral effects?

9.8.74 In combination, the delivery of housing and employment space will lead to additional car trips, many of which would contribute to congestion at motorway junctions and connecting roads. There is also likely to be an increase in trips at the inner areas of Warrington also, which is notable for poor air quality in places.

9.8.75 However, the Plan also promotes active and sustainable modes of travel as well as local accessibility to services, facilities, jobs and recreation. This will help to reduce effects on air quality somewhat.

9.8.76 The Plan also seeks to ensure that human health and biodiversity is not affected by poor air quality, and this should help to ensure that inappropriate development does not occur in this respect.

9.8.77 There is a general emphasis on sustainable modes of travel and green infrastructure enhancement in several plan policies. Whilst positive, these are unlikely to have significant effects, as these factors would be expected to be incorporated into development anyway. However, where the plan does create the potential for notable benefits is related to support for strategic infrastructure improvements. In particular, this includes the requirement to contribute to motorway junction improvements and the Western Link Road; which could help to divert traffic and tackle congestion.

9.8.78 With these measures in place, the likelihood of negative effects occurring is predicted to be lower, and therefore, significant effects ought to be avoidable (i.e. only **minor negative effects** are predicted).

9.8.79 In the longer term, the effects may diminish further, as the Plan makes provisions to support alternatives to road freight, and to facilitate an increase in low emissions vehicles. Therefore, **neutral effects** are also recorded for the long term (with an element of uncertainty).

9.9 Health and Wellbeing

9.9.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Health and wellbeing'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance	
<i>Broad implications</i>	↑↓	↑	↑	↑↓	↑	++	-

9.9.2 *DEV1 Housing Delivery:* The policy is likely to have a positive effect upon health and wellbeing as it maximises opportunities to provide sufficient housing that meets identified needs for a range of households and ages. The quality of this housing should provide the basis for good health through the provision of improved living conditions. This will still be dependent upon the quality of design and construction for this to be sustained over the long term though.

9.9.3 The policy will broadly encourage growth in areas with good existing provision of health and community facilities such as GP surgeries. Where urban extensions are proposed, these would also be of sufficient scale to support new facilities, provide opportunities to create new open spaces and integrate sustainable transport infrastructure. Urban extensions would need to be supported with new health facilities (or contributions towards satellite facilities) and opportunities for recreation which would provide benefits to prospective residents as well as existing communities nearby.

9.9.4 With regards to open space and access to the countryside, development of the Green Belt for housing is likely to be perceived as negative, and in some instances could have negative effects with regards to amenity. However, much of the SEWUE and Thelwall Heys consist of agricultural or brownfield land which is not currently particularly valuable from a recreational perspective.

9.9.5 The introduction of green infrastructure improvements and community facilities such as allotments should therefore help to ensure that effects are positive in the round. At the outer settlements, the smaller site allocations may not present the same potential for large scale strategic enhancements, and so the positive effects may be less prominent. Nevertheless, minor negative effects are recorded (at least in the short term) to reflect such issues.

- 9.9.6 *DEV2 Meeting Housing Needs:* This policy is likely to have a notable positive effect on health and wellbeing, as it will support the delivery of affordable housing and a mix of housing types to suit the needs of all people. In particular, the policy seeks to provide for supported and specialist housing and sets out a target for accessible and adaptable dwellings, which would benefit an aging population. Further to this, provisions in the policy relating to HMOs seek to ensure that any change of use towards an HMO would not be permitted should amenity be negatively affected for both the residents and the local community.
- 9.9.7 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* This policy will likely have a positive effect on health and wellbeing for gypsy, travellers and travelling showpeople communities. The policy indicates that proposals for new Gypsy & Traveller and Travelling Show People sites are or can be made accessible to key local services including health facilities. The policy seeks to facilitate the identification of new sites for these communities.
- 9.9.8 *DEV4 Economic Growth and Development:* this policy is likely to have a moderate positive effect on health and wellbeing. The land requirement target will support the delivery of employment uses in the borough. New employment would maximise economic opportunities for communities including areas suffering from deprivation. Employment is a key determinant of health, and can also help to reduce the re-offending. The distribution of employment land (especially in the case for B1a class uses) includes areas within reasonable proximity of public transport connections to areas of high levels of deprivation. This should encourage an increase in the numbers of people using sustainable travel.
- 9.9.9 The policy would be strengthened by specifying a minimum extent/percentage of warehouse and distribution developments at preferred locations. In addition, major warehouse and distributions development should be subject to master planning which seeks to maximise existing and new sites and ensuring that public transport connections can be provided as part of these developments.
- 9.9.10 With regards to amenity and access to open space, the Green Belt release sites could potentially lead to negative effects (or perceived negative effects) for residents that live nearby (a small number of residential properties on routes towards the South East Warrington Urban Extension for example, could suffer from increased disturbance due to HGVs). The effects are likely to be localised and though negative, would not be significant from a borough-wide perspective.
- 9.9.11 *DEV5 Retail and Leisure Needs:* the policy seeks to safeguard important local amenities (such as public houses, cultural shops and local convenience stores) and local health and community facilities. The policy also seeks to reduce the amount of hot food takeaways to improve health in communities. Therefore, a positive effect is predicted, as the policy supports healthy lifestyle choices and seeks to sustain health and community provision.

Overall effects of the development policies

9.9.12 Overall, the policies are likely to generate **moderate positive effects** on health and wellbeing, as the policies seek to address key housing and employment issues, support economic growth and thus tackle deprivation, and safeguard important health and community facilities and services. **Minor negative effects** are recorded to reflect potential negative effects on amenity, open space and facilities in the short term.

Green Belt policy

Policies	GB1	Overall significance
<i>Broad implications</i>	↓	-

9.9.13 This policy sets out land to be removed from the green belt, settlements that fall within and outside green belt and policies for development proposals that fall within the designation. A negative effect is predicted on health and wellbeing, as reducing the green belt undermines its health and wellbeing benefits. However, effects are unlikely to be significant given that new development will be expected to contribute to enhanced social infrastructure and green infrastructure. Furthermore, the policy seeks to confine developments in these areas and would also open access and the exposure of the green belt to a higher number of people.

Town centre policy

Policies	TC1	Overall significance
<i>Broad implications</i>	↑	+

9.9.14 This policy sets out a vision for the different quarters of the town centre; encourages housing, employment, retail, transport and leisure uses; and sets out standards to improve the town centre environment. A **minor positive effect** is predicted as improvements to the town centre would deliver housing (including affordable housing) and employment whilst enhancing viability for shops and local amenities and creating an environment that further encourages social cohesion.

9.9.15 Vibrant and active town centres should also help to reduce the perception and opportunity for crime and anti-social behaviour.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF5	Overall Significance
<i>Broad Implications</i>	↑	↑	↑	↑	↑	↓	+++

9.9.16 *INF1 Sustainable Travel and Transport*: This policy is likely to have a positive effect on the health and wellbeing objective.

- 9.9.17 The policy promotes active forms of travel with a focus on walking and cycling through prioritising such forms of travel; requiring developments to provide adequate infrastructure provision; and increasing accessibility to walking and cycling networks and facilities.
- 9.9.18 Of particular interest, high priority segregated walking and cycle routes should encourage participation as a result of increased safety and reduce exposure to externalities such as noise and air pollution which may have a detrimental effect on health. Improvements in public transport should further improve its appeal as a preferred alternative to less sustainable options such as the private car. Furthermore, improved public transport accessibility would enhance wellbeing by providing enhanced access to health and community facilities, recreational space and employment. This should collectively encourage greater participation in active travel, with benefits in terms of health.
- 9.9.19 *INF2 Transport safeguarding:* Safeguarding land to deliver transport infrastructure would support the delivery of enhancements to the transport network and thus indirectly contribute towards increasing mobility and thus a minor positive effect is predicted.
- 9.9.20 *INF3 Utilities and Telecommunications:* The policy sets out measures to ensure the delivery of required utilities and telecommunications infrastructure, which should help upkeep existing wellbeing, thus a neutral effect is predicted. Measures to restrict development on land containing or in close proximity to major infrastructure and ensuring infrastructure does not affect the amenity of residents, should avoid detrimental effects on wellbeing and maintain the existing baseline. Ensuring that new development is well served with regards to broadband infrastructure is positive in terms of access to digital services.
- 9.9.21 *INF4 Community facilities:* This policy is likely to have a positive effect with regards to health and wellbeing. The policy seeks to safeguard existing and promote new social and community infrastructure, including provision for a new hospital.
- 9.9.22 Measures to ensure such facilities are in highly accessible locations will broaden social access and increase opportunities for interactions between different social groups. A new hospital facility should improve healthcare provision throughout the borough and perhaps further afield.
- 9.9.23 The provision of facilities for younger people would help to reduce the likelihood of antisocial behaviour and crime, but this is dependent upon design and support for community groups.
- 9.9.24 *INF5 Delivering Infrastructure:* The policy sets out requirements for development contributions to deliver infrastructure including affordable housing, public realm improvements and open space. A minor positive effect is predicted, as the policy would ensure adequate social betterment is received through development to sustain health and wellbeing in the borough. Securing such infrastructure as a part of new development is a standard practice.

9.9.25 *Policy INF6 Aerodrome Safeguarding*: This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. Where this policy may restrict certain land uses which may attract birds, including nature reserves, there may be some loss of potential to provide land uses which promote positive mental health and wellbeing outcomes, though this is uncertain. Potential minor negative effects are predicted.

Overall effects of the infrastructure policies

9.9.26 Overall, the infrastructure policies are predicted to have a **major positive effect** on health and wellbeing. In particular, the policies seek to protect and enhance the existing provision of social and recreational infrastructure including health and community facilities, open space and sustainable transport; which in combination are likely to have a significant influence on health and wellbeing in the long term. Though policy INF6 could bring some minor negative effects, this does not detract from the overall significant positive effects that are predicted.

Design policies

<i>Policies</i>	<i>DC1</i>	<i>DC2</i>	<i>DC3</i>	<i>DC4</i>	<i>DC5</i>	<i>DC6</i>	Overall significance
<i>Broad implications</i>	↑	↔	↑	↑?	↑	↑	++

9.9.27 *DC1 Warrington’s Places*: A positive effect is predicted on health and wellbeing, as the policy outlines requirements for development that would sustain and in some cases enhance health provision and wellbeing. However, the detailing required to ensure the delivery of the provision is absent.

9.9.28 *DC2 Historic environment*: This policy is unlikely to have any significant effect on health and wellbeing, thus a neutral effect is predicted.

9.9.29 *DC3 Green Infrastructure Network*: The protection and enhancement of green infrastructure networks in the borough will safeguard important leisure and recreational areas and infrastructure important for physical and mental health. Thus, a positive effect is predicted. Connecting green infrastructure networks with employment areas should further support this and provide opportunities for active travel (including walking and cycling) and to integrate recreational activity with work.

9.9.30 Particular benefits could be achieved through an approach that focuses on green infrastructure provision in built-up areas (increased tree coverage, green roofs, local green space etc.), as this would help to improve environmental quality in areas where people spend a lot of time.

9.9.31 *DC4 Ecological Networks*: Experience with nature and natural habitats can have positive effects on wellbeing. Therefore, protection of existing networks will help to sustain the baseline position.

9.9.32 Enhancement could lead to some minor benefits, but this would be dependent upon access to such habitats. The policy provides specific reference to improving public access to nature in Warrington; whilst this does not guarantee improved access across the Borough, any areas which see improvement would be more likely to act as an asset for the public, with potential positive mental health and wellbeing outcomes.

9.9.33 *DC5 Open Space, Outdoor Sport and Recreation Provision:* the policy sets out requirements for the delivery of open space, play equipment, sports and recreational facilities. A positive effect is predicted as this should ensure new developments provide adequate open and recreational space to avoid pressures on existing provision and to meet the needs of new residents. As the policy is comprehensive, this should further ensure developers are pre-informed of requirements and can plan for well-designed schemes that meet the holistic aspirations of the policy, to secure high quality purposeful open and recreational spaces. The requirement for those town centre sites which lack space to provide onsite provisions to contribute towards offsite delivery (through new provisions or enhancements,) are also likely to ensure that beneficial health outcomes associated with this policy are seen more widely.

9.9.34 *DC6 Quality of Place:* This policy is likely to have a positive effect on health and wellbeing. The standards outlined in the policy should encourage design that reduces the perception and the occurrence of crime. Requirements to promote sustainable methods of transport and permeability should encourage healthy life choices, and higher quality environments ought to support wellbeing.

Overall effects of the Design Policies

9.9.35 In combination the design policies are predicted to have a **moderate positive effect** on health and wellbeing. Requirements to sustain and enhance green infrastructure and recreation spaces should ensure adequate recreational provision in new developments. The policies should also help to secure high quality places that foster wellbeing and reduce the opportunities for (and the fear of) crime.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance
<i>Broad implications</i>	↔	↑?	↔	↔	↔	↔	↑	↑	+

9.9.36 Policies ENV3, ENV4, ENV5 and ENV6 relate to minerals safeguarding, extraction and aftercare. Whilst there are some provisions to ensure that environmental issues are addressed, the effects with regards to human health are likely to be limited in spatial scale and magnitude. Therefore neutral effects are predicted.

9.9.37 *ENV1 Waste management:* The policy seeks to ensure no negative effects upon amenity, which is beneficial for human health and wellbeing.

9.9.38 However, the policy is not fundamentally different from the baseline policy context, and so neutral effects are predicted.

9.9.39 *ENV2 Flood Risk and Water Management*: Measures to address flood risk and improve green infrastructure are positive with regards to health and wellbeing, as they will help to ensure that people and property are not put at increased risk of flooding. Where enhancements are secured (such as through a reduction in surface water run-off rates on previously developed land) then a minor positive effect could be generated.

9.9.40 *ENV7 Renewable and Local Carbon Energy Development*: The policy seeks to minimise carbon emissions and ensure development does not cause any unacceptable environmental harm. Securing energy from decentralised sources could help to reduce fuel poverty, and improved efficiency in new developments could also help to reduce fuel costs. This is positive for health and wellbeing, particularly for the elderly and low income populations and reducing fuel poverty. The policy also stipulates particular support for community-led energy schemes, which would be beneficial in terms of community cohesion.

9.9.41 *ENV8 Environmental and Amenity Protection*: This policy is likely to have a positive effect on health and wellbeing as it sets out broad measures to protect environmental quality and to restrict potential effects of development on amenity. Requirements to ensure that development is located and designed so as to not adversely affect amenity should ensure new development does not undermine the wellbeing of existing communities (*i.e. the current baseline is maintained*) and that they are of a good standard that does not adversely affect the amenity of its occupants.

Overall effects of the environment policies

9.9.42 In combination, the policies are predicted to have **minor positive effects** upon health and wellbeing. The effects are mostly indirect and would not likely be widespread, which is why they are not predicted to be of moderate or major significance.

Major development policies

Policies	<i>MD1</i>	<i>MD2</i>	<i>MD3</i>	<i>MD4</i>	<i>MD5</i>	<i>MD6</i>	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+++

9.9.43 Each of the policies set out requirements for affordable housing and for housing to consist of a range of tenures, types and sizes. For policies MD1, MD3 and MD4 there is also additional detail relating to the number of beds to be provided at specialist care homes. These policies supplement policy DEV2, and will generate positive effects with regards to accommodation for a wide range of communities.

9.9.44 Each policy also sets out the requirement for comprehensive masterplanning that takes on board the views of communities. This ought to reduce opposition and help to foster good community relations.

9.9.45 The policies also set out detailed requirements for health facilities, education facilities, open space, sports and recreational and transport infrastructure. This will either involve entirely new facilities (such as health care, primary schools and a secondary school for the SEWUE, or contributions towards ‘off-site’ provision (such as for Peel Hall and Thelwall Heys).

9.9.46 The policies also seek to provide comprehensive enhancements to green infrastructure networks, and would involve new areas of park land, which ought to provide health and wellbeing benefits to a substantial proportion of the borough’s communities.

9.9.47 With regards to phasing, provisions are made to ensure that development does not proceed without the necessary infrastructure in place to avoid negative effects upon the road networks, and in terms of social infrastructure access. This will help to avoid negative short term effects that might otherwise be more prominent.

Overall effects of the major development policies

9.9.48 Collectively, a **major positive effect** is predicted, as the detailed requirements proposed for each area should avoid any adverse effect with regards to accessibility to services and facilities. Furthermore, the policies provide guidance on types of homes that will be required and clarify that substantial infrastructure improvements will be required in support of new developments. These enhancements could also benefit existing communities too.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+

9.9.49 These policies seek to ensure all of the developments covered by them contribute towards improvements in community facilities and green infrastructure, including health and education provisions, open space, leisure facilities and sports and recreational space. These are all likely to promote positive outcomes in terms of mental and physical health.

9.9.50 A focus on the provision of infrastructure to support active travel is also likely to be beneficial for health and wellbeing outcomes.

9.9.51 Furthermore, Policies OS4 and OS5 require development to take account of the Lymm Neighbourhood Plan, which is likely to lead to a development which is more in harmony with community needs and desires. This would be expected to lead to improved community cohesion and acceptance of new development, helping to add to a sense of community wellbeing.

9.9.52 Overall, a **minor positive effect** is predicted for each policy individually and in combination with one another.

9.9.53 Whilst the policies set out a range of measures that will be needed to make development acceptable and attractive, the improvements are less likely to be strategic in nature (compared to the major urban fringe sites), and so the effects are not predicted to be of moderate or major significance).

Monitoring and review policy

Policies	M1	Overall significance
<i>Broad implications</i>	↑	+

9.9.54 A **minor positive effect** is predicted, as the monitoring of housing delivery will allow for potential issues to be identified early and addressed through a range of measures or a Local Plan Review. Therefore, if health and wellbeing trends are not improving as anticipated, the Council will be able to respond quickly.

Combined effects of the Plan on Health and Wellbeing

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	+++ -
<i>Green Belt policy</i>	-
<i>Town centre policy</i>	+
<i>Infrastructure policies</i>	+++
<i>Design policies</i>	++
<i>Environment policies</i>	+
<i>Major development policies</i>	+++
<i>Outer settlement policies</i>	+
<i>Monitoring and review policy</i>	+
<i>Cumulative effects</i>	<p>Major positive effects</p> <p>Minor negative effects</p>

9.9.55 Overall, the Plan is predicted to have mixed effects upon health and wellbeing. The effects differ in terms of the timescales when they would occur, and the geographical extent of impacts.

9.9.56 On one hand **major positive effects** are predicted with regards to long term trends in health and wellbeing. This relates to the strategy to deliver sufficient high quality housing and employment growth in locations that will benefit a range of communities. Detailed plan policies are also established to support sustainable growth, with an emphasis on the enhancement of green infrastructure, health care, education facilities, recreational opportunities, transport and utilities infrastructure.

9.9.57 Community cohesion should also be supported through a number of plan policies, especially those which seek community involvement in decisions such as the strategic masterplan site policies.

9.9.58 Despite positive effects occurring in the main, there are **minor negative effects** that will occur throughout the Plan period. These are related to perceived or actual loss of amenity, and disturbance to recreational land at the green belt. The effects are not predicted to be significant, as they ought to be temporary (in the case of disturbance), and would be offset by improvements in other areas.

9.10 Built and Natural Heritage: Landscape

9.10.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Built and natural heritage: landscape'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance	
<i>Broad implications</i>	↑↓	↔	↔	↑↓	↔	+	---?

9.10.2 *DEV1 Housing Delivery*: The policy sets out that the majority of new homes will be delivered within the existing urban area of Warrington and inset settlements, which is broadly positive as it would avoid excessive sprawl into the countryside in the outer settlements, avoiding adverse effects on its character. However, major urban extensions and the release of green belt land for the delivery of the garden suburb and the SW Warrington garden village will lead to substantial changes to landscape character in these areas. Smaller release of Green Belt at the outer settlements is also likely to lead to changes to the character of the urban fringes in these locations.

9.10.3 The implications at key areas of growth are discussed in turn below:

9.10.4 *Waterfront*: Development at the Waterfront area falls within the Mersey Flood Plain, which is characterised by industrial activity. However, parts of this landscape type have become important for wildlife, and present important landscapes against the generally lower quality of the surrounding areas. The Waterfront has some sensitivity to change in this respect. Overall, there is potential for minor negative effects on landscape character, though it ought to be possible to introduce enhancement measures.

9.10.5 *South East Warrington Urban Extension*: This location is within the Green Belt and Appleton Park and Grappenhall (Red Sandstone Escarpment). Development would reduce the openness of a significant amount of land to the south of inner Warrington, in effect agglomerating areas in between Stockton Heath, Dudlow's Green, Appleton Thorn and Grappenhall. Whilst complete coalescence between settlements would be possible to avoid, there would be noticeable reductions in open space, and a perception of urban sprawl is likely. There would be a mix of Green Belt parcels involved of varying sensitivity. The majority of parcels would either have a weak or moderate contribution. With layout and design, and avoidance of inappropriate development in the more sensitive locations, the effects could be managed somewhat. However, the cumulative effects of such large scale development would be difficult to eradicate completely. Therefore, moderate negative effects are predicted overall.

9.10.6 *Fiddlers Ferry*: Whilst this site is within the Green Belt, it is partly brownfield within an industrial area and as such it does not currently contribute positively towards the local landscape character or openness of the Green Belt.

- 9.10.7 The southern parcel of the site is mostly within the River Mersey/Bollin (river flood plain) landscape character type, whilst some of the northern parcel sits within the Penketh (undulating enclosed farmland) character type. Considering the current site use and adjacent areas (a disused power station and associated land uses), the development of this site with design and landscaping which is sensitive to the surrounding landscape types could promote minor positive effects upon the landscape.
- 9.10.8 *Thelwall Heys*: This site is within the Green Belt and Appleton Park and Grappenhall (Red Sandstone Escarpment). The development of the site would reduce the openness of the land which is currently predominantly open fields. Whilst these points suggest loss of landscape and negative effects, the scale of the site and its position adjacent to areas of existing built-up land mean that effects would to some extent be minimised, and this is reflected by a weak categorisation of parcels in the Green Belt assessment. Further to this, the scheme design would be expected to take account of the impacts proposals would have on the landscape. Minor negative effects are predicted.
- 9.10.9 *Peel Hall*: The site is located in enclosed vacant land, and has local amenity value. It is not within the green belt, and is enclosed on three sides by development. Therefore, effects upon landscape (whilst negative) are unlikely to be significant provided appropriate green infrastructure is adopted.
- 9.10.10 *Croft*: Though the site falls within an area that makes a moderate contribution to Green Belt functions, it is small scale, and currently used for equestrian purposes. Sensitive low density development would therefore not be a drastic change to the current character of the area, and there would be ample areas of open landscape beyond the development. Therefore, neutral / minor negative effects are predicted.
- 9.10.11 *Culcheth*: Though the site allocated is relatively small scale, it is in a gateway location to Culcheth. Changes to the open landscape in this location could therefore be perceived to be negative. Effects are unlikely to be significant though given that this parcel of land makes a weak contribution to the Green Belt, and areas of open space would remain between the site and the main urban area.
- 9.10.12 *Hollins Green*: The site allocation would involve the release of land that makes a weak / moderate contribution to the Green Belt function, is likely to be Grade 2 agricultural land, and would significantly increase the scale of the settlement. However, the site is relatively well screened, not in a gateway location, and with appropriate design could be delivered without generating significant effects upon landscape character. However, there could be impacts in terms of visual amenity for nearby residents.
- 9.10.13 *Lymm*: Three relatively small sites are allocated at Lymm, all of which fall within areas that make a moderate contribution to Green Belt function. The sites are relatively well screened, and their scale would not substantially alter the settlement form or character.

- 9.10.14 *Winwick*: One site allocation is proposed in an area that makes a moderate contribution to Green Belt function. This is at a Gateway location, but the landscape is not particularly sensitive to change. Nearby built development is low density large housing, and so a higher density scheme would potentially be detrimental to the sense of place in this location.
- 9.10.15 *DEV2 Meeting Housing Needs*: The types of housing delivered and the provision of a proportion of affordable homes will not significantly affect landscape or townscape character. Therefore, neutral effects are predicted.
- 9.10.16 *DEV3 Gypsy & Traveller and Travelling Show People Provision*: this policy will likely have a minor positive effect on landscape, as it requires new sites to be well-integrated within the townscape in a manner in-keeping with the local character. Furthermore, the scale of development would be very minor and restricted to a handful of locations.
- 9.10.17 *DEV4 Economic Growth and Development*: The policy seeks to maintain key employment areas as the focus of development, which will help to reduce pressure on landscape and townscape. However, the proposed employment extension at the South East Warrington Employment Area (SEWEA) are predicted to have negative effects upon landscape character. In particular, the land involved at the SEWEA involves a large area of Green Belt that makes a strong contribution to its function. This entire area would be lost to development, and despite the inclusion of green infrastructure, the residual effect would be negative. On the contrary, development at Fiddlers Ferry ought to lead to an improvement in the landscape through the change in use from a power station to a well-designed mixed use development.
- 9.10.18 *DEV5 Retail and Leisure Needs*: Focusing on town centre development for retail and leisure (as opposed to out of town locations) is an approach to support the vitality of centres and to reduce reliance on car based transport. In this respect, the policy is positive, as it should help to ensure that centres remain viable (which could be positive for townscapes). However, the effects are not predicted to be significant, as impacts will be dependent upon available sites and design.

Overall effects of the development policies

- 9.10.19 The overall strategy has some benefits by directing growth to the urban areas and seeking to support town centre vibrancy. However overall, the development policies are likely to have mostly negative effects. This relates primarily to the significant changes to the landscape that would occur as a result of the South East Warrington Urban Extension. Though development in the outer settlements and at Thelwall Heys could also have some negative effects on landscape character, these are not expected to be significant.
- 9.10.20 The effects on landscape character associated with Green Belt loss will be mitigated to an extent through the inclusion of green infrastructure as a key part of strategic developments.

9.10.21 However, residual effects are likely to remain due to the sheer scale of growth involved. Potentially **major negative effects** are recorded alongside **minor positive effects**.

Green Belt policy

Policies	GB1	Overall significance
<i>Broad implications</i>	↓	-

9.10.22 This policy is likely to have mixed effects on the built and natural heritage objective.

9.10.23 Placing a number of smaller settlements into the green belt (green belt settlements) is predicted to have a positive effect, as it would preserve their built extent and avoid urban sprawl which would otherwise undermine their character. In contrast, the policy removes land that was previously within the green belt.

9.10.24 Although the amount of land at each area and the parcels proposed for removal do not make a strong contribution to the green belt, this is still substantial and would adversely affect landscape character and extend the built form. In this regard, a negative effect is predicted. From a borough-wide perspective, the overall effects constitute a **minor negative effect**.

Town Centre policy

Policies	TC1	Overall significance
<i>Broad implications</i>	↑	+

9.10.25 With regards to landscape, townscape and sense of place, the policy is likely to have a positive effect by seeking to maintain and enhance the function and character of the town centre. The effects are less prominent with regards to landscapes at the urban fringes and countryside though, hence the effects are not significant overall.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad implications</i>	↔	↔	↔	↑	↑	↑	+

9.10.26 Policies INF1 and INF2 are concerned with the management of transport infrastructure and support for sustainable travel. There is unlikely to be a loss of land in areas with sensitive landscape as a result of these general policies. Therefore, neutral effects are likely.

9.10.27 *INF3 Utilities and Telecommunications:* the policy sets out measures to ensure the delivery of required utilities and telecommunications infrastructure. Although broadly irrelevant to landscape and townscape character, requirements for telecommunications developments to not cause any significant harm to the character and appearance of an area should avoid negative effects. Essentially, this is a continuation of the existing policy context, and is likely to have neutral effects.

9.10.28 *INF4 Community Facilities:* This policy is not directly related to landscape and townscape, and is unlikely to have notable effects with regards to settlement character. However, some community facilities can help to contribute to a sense of place, which is a potential minor positive effect.

9.10.29 *INF5 Delivering Infrastructure:* this policy is predicted to have a minor positive effect with regards to landscape and townscape.

9.10.30 The policy sets out requirements for developer contributions to infrastructure and this includes public realm improvements, public art, improvements to heritage assets and the delivery of open space. This should ensure adequate developer contributions can be sought to deliver enhancements to the townscape and to protect and enhance heritage assets, where appropriate.

9.10.31 *Policy INF6 Aerodrome Safeguarding:* This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This could serve to restrict large, tall structures which may interfere with airport safety or radar operations, in turn protecting the local landscape. Whilst any effects are inherently tied to any potential proposals for such a development, uncertain positive effects are likely due to its potential to protect the baseline scenario in relation to the local landscape.

Overall effects of the infrastructure policies

9.10.32 Overall, the INF policies are predicted to have either neutral or **minor positive effects** with regards to landscape and townscape. The positive effects relate mainly to the contribution that community facilities and improvements to the public realm that make to townscape and a ‘sense of place’, as well as the potential for large structures to be blocked due to potential interference with airport operations. The effects are not likely to be significant though.

Design policies

<i>Policies</i>	<i>DC1</i>	<i>DC2</i>	<i>DC3</i>	<i>DC4</i>	<i>DC5</i>	<i>DC6</i>	Overall significance
<i>Broad implications</i>	↑	↔	↑	↑	↔	↑	++

- 9.10.33 *DC1 Warrington's Places:* The policy is predicted to have minor positive effects by providing a broad framework for development that is appropriate to the scale, function and character of the different areas across Warrington.
- 9.10.34 *DC2 Historic environment:* With regard to landscape, the policy could have some benefit if there are important historic assets that rely upon the preservation of the countryside / open space.
- 9.10.35 The protection of historic assets should also help to generate positive effects upon townscapes and should help to retain a 'sense of place'. Consequently, neutral effects are predicted.
- 9.10.36 *DC3 Green Infrastructure and DC4 Ecological Networks:* These policies will help to protect areas of open countryside, river corridors, parklands and areas of ecological importance; all of which provide an important part of the borough's landscape character.
- 9.10.37 In particular, strategic networks such as the Mersey Valley and the Greater Manchester Wetlands Nature Improvement Areas are identified as being important assets that ought to be protected and enhanced. Overall, minor positive effects are predicted.
- 9.10.38 *DC5 Open space, Outdoor Sport and Recreational facilities:* Whilst open space and recreational facilities can provide areas of open space within townscapes, the focus is upon recreation, and this might not necessarily contribute positively to the character of landscapes.
- 9.10.39 *DC6 Quality of Place:* This policy is likely to have a moderate positive effect on the built and natural heritage objective. The standards outlined in the policy should encourage high quality design that is considerate of local character and distinctiveness. Requirements for the use of materials that respect the local context and the established character of the locality should ensure new developments complement the townscape, are in-keeping with the character of conservation areas (in particular those in outer settlements due to their distinctiveness such as Lymm and Walton), and heritage assets and their settings.

Overall effects of the design policies

- 9.10.40 Overall, the design policies are likely to contribute **moderate positive effects** with regards to landscape and townscape. This is primarily related to the protection and enhancement of open space, green infrastructure and historic features, as well as the need to deliver high quality design.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance
<i>Broad implications</i>	↔	↔	↔	↔	↔	↑	↔	↔	+

9.10.41 *ENV1 Waste Management:* The Policy seeks to locate waste management facilities in appropriate locations, with environmental factors a key consideration. This is beneficial with regards to landscape, but is not likely to lead to notable effects as the policy largely reflects the existing policy context.

9.10.42 *ENV2 Flood Risk and Water Management:* The policy is unlikely to have notable effects with regards to landscape and townscape, as it focuses upon flood management.

9.10.43 *ENV3, ENV4 and ENV5:* Each of these policies is predicted to have neutral effects. Though they involve the protection and extraction of mineral resources (with this industry having notable effects upon the environment) the policies seek to ensure that such practices are delivered in an appropriate manner; and broadly reflect existing policy requirements.

9.10.44 *ENV6 Restoration and aftercare of Mineral and Waste Sites:* The policy requires a comprehensive restoration plan to be in place before commencement of extraction works. This is standard practice, but nevertheless a minor positive effect is predicted.

9.10.45 *ENV7 Renewable and Local Carbon Energy Development:* The policy requires consideration of environmental factors, which includes the protection of landscape character. Whilst this is beneficial, it is unlikely to lead to additional positive effects beyond what would be expected as a result of the existing policy context.

9.10.46 *ENV8 Environmental and Amenity Protection:* this policy is unlikely to have any significant effect on the built and natural heritage objective, thus a neutral effect is predicted overall.

Overall effects of the environment policies

9.10.47 These policies are predicted to have either neutral or **minor positive effects** with regards to landscape and townscape. Though the direction of the policies is beneficial, they are broadly in keeping with the current policy context / national requirements, and so significant effects are unlikely.

Major development policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+

9.10.48 *MD1 Waterfront:* This policy requires a net gain in biodiversity, green infrastructure enhancements and good access to green space for new residents and those in the surrounding areas. This should help to address potential negative effects on landscape character.

9.10.49 *MD2 South East Warrington Urban Extension:* Sets out a wide range of measures to address the wide-scale loss of countryside that will occur in this location. This involves green infrastructure networks, habitats and open space. A mix of densities are being proposed, interspersed with extensive areas of open space, which should help to maintain a more 'rural' feel. These factors will go some way to helping address the negative effects that will occur as a result of development. Consequently, minor positive effects are predicted.

9.10.50 *MD3 Fiddlers Ferry:* The policy requires development to take account of landscape features, and be guided by a green infrastructure strategy.

9.10.51 There is a specific requirement to incorporate three new parks and a range of smaller open spaces into the layout. This should help ensure negative effects are mitigated and so the policy is positive with regards to landscape.

9.10.52 *MD4 Peel Hall:* The policy explicitly requires landscape features to be taken into account, included named features such as Radley Plantation.

9.10.53 There will also be a need to implement a green infrastructure strategy, which should include a major new park. This should help ensure negative effects are mitigated and so the policy is positive with regards to landscape.

9.10.54 *MD5: Thelwall Heys:* The policy requires development to take account of landscape features, and be guided by a green infrastructure strategy.

9.10.55 *MD6: South East Warrington Employment Areas:* The policy requires development to take account of landscape features, and be guided by a green infrastructure strategy.

9.10.56 Overall, a **minor positive effect** is predicted as a result of these site policies. Whilst development at these sites will have negative effects on landscape, these policies seek to address these issues, and are therefore beneficial inclusions within the plan with regards to landscape.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	+

9.10.57 These policies support the development strategy, which allocates sites for development in the outer settlements. The effects on landscape would be difficult to fully mitigate, but these policies seek to ensure that developments provide a reinforced boundary to the Green Belt through landscaping considerations. Further to this, inclusion of open space across the sites should help to preserve a degree of openness and a requirement to consider existing landscape features in any scheme design would also ensure the most significant disruptions to landscape outcomes were avoided.

9.10.58 The policies for the outer settlement sites all set out an average density of 30dph. This should help to ensure that development is not insensitive to the rural nature of these locations. However, for land which was previously Green Belt and / or on the outskirts of relatively small built-up area, lower density development would offer further mitigation potential. As such, only minor positive effects are attributed to these policies.

Monitoring and plan review

Policies	M1	Overall significance
<i>Broad implications</i>	↔	0

9.10.59 This policy is unlikely to have notable effects with regards to landscape character. Monitoring of indicators could potentially help to identify and rectify any downward trends with regards to character and function of landscapes and townscapes. However, the direct effects of this policy are not likely to be notable. Therefore, **neutral effects** are predicted.

Combined effects of the Plan on Landscape

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	+ ---
<i>Green Belt policy</i>	-
<i>Town centre policy</i>	+
<i>Infrastructure policies</i>	+
<i>Design policies</i>	++
<i>Environment policies</i>	+
<i>Major development policies</i>	+
<i>Outer settlement policies</i>	+
<i>Monitoring and review policy</i>	0
Cumulative effects	<p>Minor positive effects</p> <p>Moderate negative effects</p>

9.10.60 A focus on maximising opportunities for development in the urban area, alongside targeted regeneration in the inner areas of Warrington and Fiddlers Ferry, will help to reduce pressure on sensitive landscape whilst supporting the improvement of the built environment. These are **minor positive effects**.

9.10.61 However, the release of Green Belt land will have unavoidable effects upon landscape character throughout the borough, particularly at the large developments that involve multiple parcels of land. Notable effects are identified as a result of employment expansion to the south east of Warrington.

9.10.62 There are various policies within the Plan which seek to minimise these effects though, notably the site specific policies.

9.10.63 These seek to deliver improvements to green infrastructure, respect landscape features, require lower density developments that respect the open countryside, and maintain strategic gaps between settlements.

9.10.64 These measures will mitigate effects to an extent in some locations, but negative effects are likely to remain. Taking into consideration the policies in the Plan, residual **moderate negative effects** are predicted in this respect.

9.11 Built and natural heritage: Historic environment

9.11.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Built and natural heritage: historic environment'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance	
<i>Broad implications</i>	↓↑	↔	↔	↓	↑?	+?	---

9.11.2 *DEV1 Housing Delivery*: The effects of development in the urban area are predicted to be mixed. In many locations, the built environment is not particularly sensitive to change, and the proposed regeneration of sites would either have neutral or minor positive effects. However, there are several sites in the Warrington urban area that consist wholly or partly of listed buildings. Development in these locations could lead to appropriate uses being found for neglected assets. However, there is also potential for minor negative effects should any loss or change to important features occur.

9.11.3 At the outer settlements the level of growth proposed in most settlements should not undermine the character of the settlement or heritage assets and their settings, if delivered sensitively, and thus a broadly neutral effect is predicted in this regard. However, in other settlements a negative effect is predicted, including at Winwick (which is adjacent to a Registered Battlefield) and Lymm (with allocations located close to listed buildings).

9.11.4 *Croft*: The allocation at Croft is very small scale, and is not within an area that is sensitive with regards to historic or cultural heritage. Consequently, neutral effects are predicted.

9.11.5 *Culcheth*: The proposed allocation at Culcheth is relatively small scale in the context of the settlements, and is not within close proximity to any heritage assets. From a historic environment perspective, the effects are therefore predicted to be neutral.

9.11.6 *Hollins Green*: The site allocation at Hollins Green is relatively large in the context of the settlement, but it falls within an area characterised by modern housing with limited historic or cultural value. Consequently, neutral effects would be predicted.

9.11.7 *Lymm*. At the west of Lymm, the site at Pool Lane falls within fairly close proximity to a Grade 2 listed building (Statham Lodge Hotel). This heritage asset enjoys an open setting, including Green Belt and that is immediately adjacent to the proposed site.

9.11.8 There is therefore potential for negative effects on the setting of this asset, should views from Warrington Road towards the site be affected. The site at Rushgreen Road is surrounded on three sides by built up areas of limited cultural, historic or visual amenity value. Development is therefore unlikely to have negative effects in this respect.

- 9.11.9 *Winwick*: The site is adjacent to a Registered Battlefield, but other than this is absent of any features of historic importance. The scale of development is not substantial, and is unlikely to have a significant effect on townscape and settlement character.
- 9.11.10 *Waterfront*: Development at the Waterfront area is unlikely to significantly affect the character of urban built up areas, or countryside settlements. There is a Grade 2* listed Transporter Bridge, which is also an Ancient Monument, but the effects ought to be possible to mitigate given it is 1km from the site.
- 9.11.11 *South East Warrington Urban Extension*: There are several designated heritage assets scattered across this location. Currently, the area is characterised by open countryside, which contributes to the setting of various listed buildings. The proposed residential development will change the character of the landscape surrounding these assets, which could have negative implications with regards to their setting. There is also the issue of increased built up areas being proposed in proximity to existing settlements such as Grappenhall Heys, Appleton Thorn and Grapenhall. In particular, residential development is proposed adjacent to Grappenhall Conservation Area, and given that it the boundary extends to the urban fringes, there is likely to be notable changes in the character of this settlement.
- 9.11.12 *Peel Hall*: There are no designated heritage assets within close proximity to the site, and it is an enclosed site with limited visible historic features. There is evidence of archaeological remains, but these are relatively well understood from previous surveys, and so development is unlikely to have significant effects.
- 9.11.13 *Fiddlers Ferry*: The Fiddlers Ferry site is not identified as being sensitive in terms of the historic environment. Further to this, part of the site is a brownfield development with historic industrial uses, as such it would provide some potential to promote a historic character which is symbolic of Warrington and its industrial past. Whilst this is a possibility, it is not likely to lead to significant effects.
- 9.11.14 *Thelwall Heys*: This site has two Grade II listed buildings in close proximity to it, one in its centre (though not included in the site's boundary) and one to the east. The listed building at Cliff Lane (Thelwall Heys) is a residential property, and so unlikely to be lost to new development. However, it currently enjoys an open, countryside setting, which would be affected by new development. Whilst there are two conservation areas nearby (Thelwall Village and Grappenhall Village), current land uses provide screening and the size of the proposed site would not be likely to lead to additional traffic volumes of a magnitude with the potential to be detrimental to the historically sensitive areas. Overall, potential moderate negative effects could arise.
- 9.11.15 *DEV2 Meeting Housing Needs*: The types of housing delivered and the provision of a proportion of affordable homes will not significantly affect the historic environment. Therefore, neutral effects are predicted.
- 9.11.16 *DEV3 Gypsy & Traveller and Travelling Show People Provision*: this policy will likely have a neutral effect. The scale of development would be very minor and restricted to a handful of locations.

9.11.17 *DEV4: Economic Growth and Development:* The retention and expansion of existing employment areas is unlikely to have implications for the historic environment, as these areas are industrial in nature with limited cultural or historic importance.

9.11.18 With regards to new employment land allocations, a major expansion of employment land is proposed at the South East Warrington Employment Area. This overlaps with Bradley Hall Moated Site Ancient Monument. The concept masterplan seeks to mitigate potential effects by providing an area of open space in the immediate vicinity of the hall and moat. However, it is highly likely that the setting of the asset will be affected adversely. There is currently a very open countryside setting, which contributes to the significance of the ancient monument. This will be entirely altered by large scale employment units, and so negative effects are predicted. To help reduce the significance of effects, the employment uses ought to be carefully buffered and designed to retain as much ‘green’ space and characteristics as possible. This could be achieved by introducing green walls and roofs to employment units, whilst also seeking to achieve a larger landscape buffer between the ancient monument and the built footprint of the site. This might involve a reduction in the scale of growth in this location, but would help to address this issue.

9.11.19 *DEV5 Retail and Leisure Needs:* Focusing retail and leisure needs in the town centre could help to support the use of buildings that might otherwise become underused / vacant. This is a minor positive effect, but involves some uncertainty.

Overall effects of the development policies

9.11.20 The development strategy is likely to bring about mixed effects with regards to the historic environment. In the urban areas, development ought to have neutral effects in the main, though there are locations where positive or negative effects could arise.

9.11.21 Development on Green Belt sites in the outer settlements is predicted to have broadly neutral or minor negative effects.

9.11.22 The SEWUE and the nearby employment area, along with Thelwall Heys have the potential to give rise to **major negative effects**, as development will lead to the loss of open space that contributes to the setting of designated heritage assets. Development will also change lead to changes to settlement form and character which can affect historic and cultural value.

9.11.23 Layout, design and mitigation measures will be important to address these potential effects (as discussed below)

Green Belt policy

Policies	GB1	Overall significance
Broad implications	↓	-

9.11.24 This policy removes greenbelt in locations that are characterised by open space, and could therefore affect the setting of assets associated with a rural character. These issues are discussed in the relevant Development Policies (DEV1 and DEV4).

9.11.25 Conversely, establishment of greenbelt is positive for a number of smaller settlements that will have their character preserved. On balance a **minor negative effect** is predicted.

Town centre policy

Policies	TC1	Overall significance
<i>Broad implications</i>	↑	+

9.11.26 The policy is likely to have a **positive effect** with regards to the historic environment, as it sets out requirements to ensure development in the town centre is in accordance with the masterplan (thus maintaining uniformity) and sustains or enhances the value of heritage assets, the public realm and the environmental quality. Although the policy itself is not specific on measures to sustain or enhance the built heritage and townscape, the masterplan would address this and set out the design standards required to safeguard and deliver a heritage-rich townscape.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad implications</i>	↔	↔	↑	↔	↑	↔	+

9.11.27 *Policies INF1 and INF2* are concerned with the management of transport infrastructure and support for sustainable travel. Whilst traffic can have detrimental impacts on the setting of heritage assets (for example on street parking and congestion), the link between this policy and the condition of heritage assets is weak. Therefore, neutral effects are predicted.

9.11.28 *INF3 Utilities and Telecommunications:* The policy sets out measures to ensure the early stakeholder engagement and delivery of required utilities and telecommunications infrastructure.

9.11.29 Although broadly irrelevant to the built and natural heritage objective, requirements for telecommunications developments to not cause any significant harm to the character and appearance of an area or a heritage asset should avoid detrimental impacts on the built heritage and encourage good design. Therefore, a **minor positive effect** is predicted.

9.11.30 *INF4 Community Facilities:* This policy is not directly related to the historic environment, and is unlikely to have notable effects with regards to the character and condition of heritage assets.

9.11.31 *INF5 Delivering Infrastructure:* this policy is predicted to have a minor positive effect with regards to landscape and townscape. The policy sets out requirements for developer contributions to infrastructure and this includes public realm improvements, public art, improvements to heritage assets and the delivery of open space.

9.11.32 This should ensure adequate developer contributions can be sought to deliver enhancements to the townscape and to protect and enhance heritage assets, where appropriate.

9.11.33 *Policy INF6 Aerodrome Safeguarding:* This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This policy would be unlikely to lead to effects relating to the historic environment.

Overall effects of the infrastructure policies

9.11.34 In combination, the policies are predicted to have a **minor positive effect** on the historic environment. With regards to sustainable travel and social infrastructure, the policies are predicted to have neutral effects, but some benefits ought to be achieved in relation to public realm improvements and consideration of the historic environment when delivery utilities and telecommunications.

Design policies

<i>Policies</i>	<i>DC1</i>	<i>DC2</i>	<i>DC3</i>	<i>DC4</i>	<i>DC5</i>	<i>DC6</i>	Overall significance
<i>Broad implications</i>	↑	↑	↑?	↑?	↔	↑	++

9.11.35 *DC1 Warrington’s Places:* The policy promotes high quality design and public realm improvements in the inner area of Warrington, which should help to protect the historic environment in this location. The presence of the Central Six Regeneration Masterplan is likely to ensure that appropriate development (including design) is directed to areas which are more historically sensitive. There is also a steer towards appropriate development in the sub-urban areas and the outer settlements, and specific guidance for important places such as Victoria Park. Minor positive effects are predicted.

9.11.36 *DC2 Historic Environment:* this policy is predicted to have a significant positive effect on the historic environment. The policy seeks to go beyond the statutory duties by providing an indication of what is locally important, how development affecting non-designated assets will be treated, and sets out a need for developments to explain impacts upon significance and setting.

9.11.37 There is also support for heritage –led regeneration schemes.

9.11.38 *DC3 Green Infrastructure Network and DC4 Ecological Networks:* Both policies support the protection and enhancement of green space. Whilst not always directly related to historic assets and features, they can add to the setting of heritage. There is therefore a potential minor positive effect to be gained by supporting strong GI networks.

9.11.39 *DC5 Open space, Outdoor Sport and Recreational facilities:* Whilst open space and recreational facilities can provide areas of open space within townscapes, the focus is upon recreation, and this might not necessarily contribute positively to the character of the built environment.

9.11.40 *DC6 Quality of Place:* This policy is likely to have a positive effect on the historic environment. The standards outlined in the policy should encourage high quality design that is considerate of local character and distinctiveness. Requirements for the use of materials that respect the local context and the established character of the locality should ensure new developments complement the townscape, are in-keeping with the character of conservation areas (in particular those in outer settlements due to their distinctiveness such as Lyme and Walton), and heritage assets and their settings.

Overall effects of the design policies

9.11.41 The policies are predicted to have mostly positive effects upon the historic environment as they seek to deliver high quality design that respects the character of the built environment. The enhancement of green infrastructure should also contribute positively to the character of townscapes. In combination a **moderate positive effect** could be generated. The baseline position could potentially improve in the longer term due to heritage-led regeneration schemes, public realm improvements and the recording of historic features.

9.11.42 These policies will also help to mitigate negative effects associated with the development policies.

Environment policies

Policies	<i>ENV1</i>	<i>ENV2</i>	<i>ENV3</i>	<i>ENV4</i>	<i>ENV5</i>	<i>ENV6</i>	<i>ENV7</i>	<i>ENV8</i>	Overall significance
<i>Broad implications</i>	↔	↔	↔	↔	↔	↔	↔	↔	0

9.11.43 *ENV1 Waste Management:* The policy requires consideration of environmental factors when assessing applications for waste management facilities. This is broadly reflective of the current baseline position and so neutral effects are predicted.

9.11.44 *ENV2 Flood Risk and Water Management*: The policy is unlikely to have notable effects with regards to heritage, as it focuses upon flood management.

9.11.45 *ENV3, ENV4, ENV5 and ENV6*: Each of these policies is predicted to have neutral effects. Though they involve the protection and extraction of mineral resources (with this industry having notable effects upon the environment) the policies seek to ensure that such practices are delivered in an appropriate manner; and broadly reflect existing policy requirements.

9.11.46 *ENV7 Renewable and Local Carbon Energy Development*: The policy requires consideration of environmental factors, which includes the protection of heritage assets. Whilst this is beneficial, it is unlikely to lead to additional positive effects beyond what would be expected as a result of the existing policy context.

9.11.47 *ENV8 Environmental and Amenity Protection*: Though consideration of amenity factors could have potential benefits with regards to the historic environment (for example avoidance of excessive noise, overshadowing, etc.) the effects are indirect and fairly tenuous.

Overall effects of the environment policies

9.11.48 Though the policies seek to protect environmental assets, which could have benefits for the historic environment, the requirements are unlikely to generate effects beyond the existing policy context. Therefore, **neutral effects** are predicted overall.

Major development policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↔	↑	↑	++

9.11.49 Each of the MD policies require a masterplan process to be undertaken and for development to be guided by a heritage impact assessment (HIA). The HIAs have already been undertaken and suggest a number of mitigation and enhancement measures, which should ensure that important features are protected. In some instances, the policies reference specific features and measures that will need to be taken, which gives greater certainty that negative effects will be mitigated to an acceptable level. For example, MD5 makes specific reference to Thelwall Heys House (Grade 2), MD6 makes specific reference to the Bradley Hall Moated Site Ancient Monument and its importance. Overall, **moderate positive effects** are predicted.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall Significance
<i>Broad Implications</i>	↔	↔	↔	↑	↑	↑	+

9.11.50 For sites where there are potential negative effects upon heritage assets, the accompanying site policies make specific reference to need to take into consideration any local heritage assessments whilst ensuring that any development preserves and enhances any existing assets.. These are positive measures which ought to help reduce negative effects, and hence **minor positive effects** are predicted.

Monitoring and plan review

Policies	M1	Overall significance
<i>Broad implications</i>	↔	0

9.11.51 This policy is unlikely to have notable effects with regards to the historic environment. Monitoring of indicators could potentially help to identify and rectify any downward trends with regards to the historic environment. However, the direct effects of this policy are not likely to be notable. Therefore, **neutral effects** are predicted.

Combined effects of the Plan on Historic Environment

Plan Chapters / Policy groupings	Significance
<i>Development Policies</i>	+
<i>Green Belt Policy</i>	-
<i>Town Centre Policy</i>	+
<i>Infrastructure Policies</i>	+
<i>Design Policies</i>	++
<i>Environment Policies</i>	0
<i>Masterplan Policies</i>	++
<i>Site policies</i>	+
<i>Monitoring and Review Policy</i>	0
<i>Cumulative effects</i>	<p style="color: #4caf50;">Minor positive effects</p> <p style="color: #e67e22;">Minor negative effects</p>

- 9.11.52 Overall, the Plan is predicted to have mixed effects on the historic environment.
- 9.11.53 On one hand, there is a focus on supporting the continued regeneration of Warrington's inner areas, delivering high quality design and promoting heritage-led development. These should help to generate **minor positive effects** on the baseline position in the longer term.
- 9.11.54 Conversely, the Plan is predicted to have negative effects upon the historic environment due to the release of certain Green Belt sites. In the outer areas, the majority of development is unlikely to have significant effects, but at Lymm, there is the potential for negative effects on the setting of Statham Hall. There is also potential for negative effects on heritage at Winwick. Site specific policies seek to minimise these effects though, and should ensure that significant effects are avoided.
- 9.11.55 The scale of development at the South East Warrington Urban Extension could also have negative effects on a range of historic assets including listed buildings and ancient monuments in the open countryside and the character of Conservation Areas. There is also the potential for negative effects at Thelwall Heys due to the presence of Listed Buildings. Despite there being plan policies and measures that seek to minimise these impacts, it is likely that residual impacts will remain. However, there will be a need to respond to a heritage impact assessment for each specific location, and there are explicit policy requirements in relation to heritage measures at specific sites. Therefore, residual **neutral** and **minor negative effects** are predicted.

9.12 Biodiversity and Geodiversity

9.12.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Biodiversity and geodiversity'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall significance
Broad implications	↓↑↔	↔	↔	↓	↔	---?

9.12.2 *DEV1 Development Strategy*: In one respect, the strategy is positive, as it avoids some of the most sensitive locations in the Borough with regards to biodiversity and geodiversity. However, there is a large amount of Green Belt land that will be lost, which presents the potential for negative effects in a range of locations.

9.12.3 In terms of urban capacity sites (which makes up the majority of proposed development), broadly these sites are on land which is not considered ecologically sensitive, though some development related disruption to species and habitats may occur, especially considering the ecological potential of some brownfield sites. The principal of biodiversity net gain ought to result in longer term benefits to biodiversity across Warrington as a whole. Conversely, the proximity of some developments to the River Mersey may lead to some more negative effects. Overall, these sites are expected to result in mixed effects with positive, negative and neutral consequences.

9.12.4 *SEWUE*: Development is proposed in close proximity to various habitats. In most instances, such habitats would likely be retained as part of the green infrastructure strategy (e.g. mature woodlands, ponds, grasslands). However, development would be within close proximity and is likely to affect links between habitats. An important wildlife corridor runs alongside the edge of the current settlement boundary from Stockton Heath down to Pewterspear. The concept plan for the SEWUE seeks to retain this corridor, but there is development proposed in very close proximity. This could have negative effects with regards to disturbance from noise, light, recreation and domestic animals, with construction related impacts likely to see some more pronounced short term effects. It will be important to ensure that a sufficient buffer is secured between this area and residential development. The creation of a regional park could have benefits with regards to biodiversity, but it is considered that ecological links from east to west could be strengthened.

9.12.5 Development at Fiddlers Ferry would be expected to be able to accommodate protected species and habitats into the masterplanning process, ensuring that more sensitive areas of the site were protected. That said, non-protected features such as trees and hedgerows may see some losses, potentially harming ecological connectivity in the area. The housing element of the site is likely to be within the impact zone of the Mersey Estuary SSSI, with potential detrimental impacts relating to recreational and domestic pressures as well as construction related pollution which may disrupt species and habitats.

9.12.6 Further negative effects of a similar nature may be seen at the local wildlife site which is on the site. Whilst development would be expected to avoid this protected site, secondary impacts of nearby development both during construction and operation could be expected to cause some harm.

9.12.7 *Thelwall Heys*: The site falls within the Impact Zones for the Woolston Eyes SSSI, which suggests that development of more than 100 residential dwellings could have potential to cause adverse effects. Such effects are reduced somewhat as the site falls reasonably south of the Manchester ship canal, but nevertheless, impacts will need to be managed. The site also includes numerous trees, hedgerows and waterbodies with potential to support protected species, some of which form linear ecological corridors across the site (particular along the unnamed waterbody and path to the north of the site). These habitats include an area of BAP Woodland Orchard to the east and TPO covering the eastern part of the northern parcel. Whilst development is likely to result in some minor loss and cause disturbance from recreational pressures and pollution on habitats likely to be of ecological importance. Effects can likely be mitigated through buffering and the introduction of new green infrastructure and habitats, which should be possible due to the fairly low density of development proposed on the site. There is also potential for comprehensive biodiversity net gain.

Lymm: Development to the west of the settlement adjacent to Statham is in close proximity to extensive areas of sensitive grassland and wetland. A minimum of 170 homes is proposed across Pool Lane and Warrington Road site allocation, which is above the threshold for which potential impacts on Woolston Eyes SSSI need to be explored. This suggests that there is potential for negative effects upon ecology, especially when surrounding areas are also important as wetlands and may be supporting habitats for the SSSI. The potential for significant negative effects is noted at this location.

9.12.8 *Culcheth*: The allocated site is not likely to lead to effects on any designated habitats, and is agricultural in nature. Effects are therefore unlikely to be significant.

9.12.9 *Croft*: Though the site is within fairly close proximity to Croft Grasslands, it is very small in scale and unlikely to generate effects with regards to this site. The potential for additional effects on biodiversity is fairly limited given the lack of sensitive features on or surrounding the site.

9.12.10 *Hollins Green*: Though the site is in fairly close proximity to Rixton Clay Pits SSSI, negative effects are not likely given that the SSSI impact zone suggests that only residential development over 100 dwellings would trigger the need for consultation with Natural England. Any locally important features such as hedgerows could potentially be affected though (but unlikely in the presence of other plan policies).

9.12.11 *Winwick*: The allocated site is not likely to lead to effects on any designated habitats, and is agricultural in nature. Effects are therefore unlikely to be significant.

- 9.12.12 In combination, the effects on biodiversity as a result of site allocations for housing are mixed. The concept of biodiversity net gain (detailed in other plan policies) is likely to promote longer term positive effects across the Warrington area, though construction and operational phases of some developments may lead to recreational pressures on protected and non-protected biodiversity assets. Some sites, especially smaller ones in the urban areas are more likely to see neutral effects. A mixture of positive, negative and neutral effects are likely.
- 9.12.13 *DEV2 Meeting Housing Needs* – The type and tenure of housing is not likely to have an effect upon biodiversity and geodiversity.
- 9.12.14 *DEV3 Gypsy and Traveler and Travelling Show People Provision*: The policy will apply to a relatively small amount of development across the borough, and makes provisions for addressing environmental issues in the decisions about location and design of sites. Consequently, a neutral effect is predicted.
- 9.12.15 *DEV4 Economic Growth and Development*: Focusing on the retention and expansion of established successful employment areas ought to be positive, as it means that development is directed to areas that are already serviced by infrastructure and are relatively free from significant constraints relating to biodiversity or geodiversity.
- 9.12.16 The release of Green Belt land to support the South East Warrington Employment Area is not in a particularly sensitive location, and so impacts are likely to be of a local and small scale nature despite the scale of the site. Similarly, the employment element of development at Fiddlers Ferry is on previously developed land.
- 9.12.17 *DEV5 Retail and Leisure Needs*: The policy is likely to have neutral effects as it focuses on the revitalisation of town centres and retail centres. There is little connection to the enhancement of habitats and geodiversity.

Overall effects of the development policies

- 9.12.18 Whilst the strategy for employment and housing growth largely avoids the most sensitive parts of the borough in terms of biodiversity and geodiversity, there are potential major negative effects due residential growth associated with the Fiddlers Ferry and the South East Warrington Urban Extension.
- 9.12.19 The effects on sites at the outer settlements are less prominent, but could potentially be negative at Lymm (though less likely to be significant given the site specific measures that are proposed).
- 9.12.20 Without sufficient mitigation and enhancement in place, a **major negative effect** could arise. However, given that there are policies throughout the plan that seek to minimise impacts, the residual effects are likely to be less significant (see discussions below relating to other Plan policies).

Green Belt policy

Policies	GB1	Overall significance
<i>Broad implications</i>	↓	-

9.12.21 This policy will likely have some negative effects on biodiversity and geodiversity as it allows the release of land to support development.

Town Centre policy

Policies	TC1	Overall significance
<i>Broad implications</i>	↔	0

9.12.22 The Policy is predicted to have neutral effects with regards to biodiversity and geodiversity, as the policy focuses upon town centre uses and regeneration initiatives. Broadly speaking these areas do not overlap with sensitive habitats and effects are therefore unlikely. Seeking to enhance green infrastructure in the inner areas of the town centre in particular could be pushed more strongly to help secure enhancements to biodiversity links across the urban areas.

Infrastructure policies

Policies	INF1	INF2	INF3	INF4	INF5	INF6	Overall significance
<i>Broad implications</i>	↔	↔	↔	↔	↑?	↓?	0

9.12.23 *INF1 Sustainable Travel and Transport:* The policy could indirectly support the creation of new green infrastructure should walking and cycling links be framed in this way. However, the focus is on accessibility rather than adding value for biodiversity. Therefore, there is uncertainty whether such effects would occur.

9.12.24 In the longer term, beyond the Plan period even, supporting a modal shift could help to reduce other pressures on biodiversity that car travel can have (for example fatalities, air quality, noise, severance of habitats). There is considerable uncertainty about these linkages though, and so neutral effects are predicted.

9.12.25 *INF2 Transport Safeguarding:* The effects are likely to be neutral given that there is a focus on safeguarding land for transport infrastructure (though it is possible that land with biodiversity value could benefit whilst being safeguarded).

9.12.26 *INF3 Utilities and Telecommunications:* A neutral effect is predicted as the delivery of adequate utilities and telecommunications would be unlikely to have negative effects on biodiversity. In any case, these are standard requirements for new development.

9.12.27 *INF4 Community facilities:* The policy is predicted to have neutral effects as the focus is largely on facilities that will benefit people than biodiversity. Though provision of open space is involved, this is more likely to be playing fields rather than accessible wildlife sites.

9.12.28 *INF5 Delivering infrastructure:* The Policy is predicted to have potential positive effects on biodiversity, as this is listed as a potential factor that could benefit from developer contributions. The extent to which such schemes are implemented as a priority though (where viability is an issue for example) is unclear as there is no hierarchy of preference or list of specific improvement schemes that developments would fund.

9.12.29 *Policy INF6 Aerodrome Safeguarding:* This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This could potentially restrict the ability for future nature reserves to be bought forward in areas of Warrington, as well as other land uses which may attract birds. As such, uncertain negative effects are predicted.

Overall effects of the infrastructure policies

9.12.30 Overall, the effects are predicted to be **neutral** as there is no specific focus on biodiversity protection or enhancement and it is unclear whether knock-on positive effects would be generated. There is a considerable level of uncertainty as to whether Policy INF6 would prevent future schemes to improve biodiversity, and as such this is not likely to affect the overall thrust of these policies.

Design policies

<i>Policies</i>	<i>DC1</i>	<i>DC2</i>	<i>DC3</i>	<i>DC4</i>	<i>DC5</i>	<i>DC6</i>	Overall significance
<i>Broad implications</i>	↑?	↔	↑	↑/↓?	↑?	↑	+++?

9.12.31 *DC1 Warrington’s Places:* The policy does not make specific reference for the need to consider biodiversity when setting out the key principles for development in key locations throughout the borough. However, these factors are covered elsewhere in the Plan. Furthermore, enhancement of green infrastructure and protection of inset settlements for development could have knock-on benefits.

9.12.32 *DC2 Historic Environment:* The policy is predicted to have broadly neutral effects as the focus is on heritage. Whilst there could be some crossover such as the protection of parks, and structures that may support certain species (e.g. Bats in buildings and bridges), the effects are likely to be minor from a borough wide perspective.

9.12.33 *DC3 Green Infrastructure Network:* This policy is likely to contribute to a significant positive effect on biodiversity (and geodiversity to a lesser extent).

9.12.34 This relates to a focus on the protection and enhancement of green space, which would include features such as hedgerows, ancient trees and mature woodland. Where development impacts upon networks, there is also a firm requirement for a net gain in replacement habitat to be secured, which ought to ensure an overall improvement over time.

9.12.35 *DC4 Ecological Network:* The policy meets the requirement to protect biodiversity, but takes further measures to ensure that this extends to non-designated sites, and that a measurable net-gain in biodiversity is secured. This should contribute to **major positive effects** with regards to biodiversity. Whilst the policy seeks to enhance public access to nature, recreational pressures resulting from increased footfall may cause some damage to species and habitats, though it is not likely that this would be significant.

9.12.36 *DC5 Open Space, Outdoor Sport and Recreation Provision:* The policy focuses mostly on the recreational value of open space. However, there could be some synergies with biodiversity protection on a small scale (for example protection of parks and allotments). A minor positive effect is predicted.

9.12.37 *DC6 Quality of Place:* This policy includes requirements to consider protections against biodiversity loss within landscaping design and options for the provision of open space. A minor positive effect is predicted.

Overall effects of the design policies

9.12.38 Several of these policies are highlighted as having positive effects with regards to biodiversity as they seek to protect and enhance open space, green infrastructure and biodiversity. In particular, policies DC3 and DC4 which seek to achieve net gains in biodiversity could generate **major positive effects**.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance
<i>Broad implications</i>	↔	↑	↔	↔	↔	↔	↔	↑	+

9.12.39 *ENV1 Waste Management:* This policy seeks to ensure that waste schemes do not have an unacceptable impact upon environmental factors, of which biodiversity is a key issue. Whilst this is beneficial, it is broadly reflective of the existing policy context. Consequently, a **neutral effect** is predicted.

9.12.40 *ENV2 Flood Risk and Water Management:* By seeking to achieve a reduction in the risk of flooding, there ought to be knock-on benefits for wildlife and habitats that might otherwise be affected negatively by flooding.

- 9.12.41 The policy also seeks to minimise the use of culverts and other modifications to watercourses, which should help to avoid disturbance to aquatic environments and species. Overall, the policy is likely to have positive effects with regards to biodiversity.
- 9.12.42 *ENV3 Minerals Safeguarding:* Protecting areas which have value for minerals could potentially overlap with and have benefits for biodiversity and geodiversity in the short term. However, should these areas be commercially viable and technically feasible for extraction, then ultimately this would lead to negative effects due to extraction activities. Therefore, **neutral effects** are predicted on balance.
- 9.12.43 *ENV4 Primary Extraction of minerals:* The policy is beneficial in that it will seek to ensure that extraction activities do not have an unacceptable impact on biodiversity. However, it is broadly reflective of the existing policy context so a **neutral effect** is predicted.
- 9.12.44 *ENV5 Energy Minerals:* The Policy does not promote the extraction of energy resources as such, rather it provides a framework for the appropriate exploration and extraction of these minerals. Biodiversity will be a consideration as part of the development management process, but this would be required anyway as part of permitting, so the policy is predicted to have **neutral effects** in this respect.
- 9.12.45 *ENV6 Restoration and Aftercare of Minerals and Waste Sites:* The policy includes the consideration of biodiversity in the design of appropriate aftercare schemes. Whilst this is beneficial, it is broadly reflective of the existing policy context. Consequently, a **neutral effect** is predicted.
- 9.12.46 *ENV7 Renewable and Low Carbon Energy Development:* This policy seeks to ensure that energy schemes do not have an unacceptable impact upon environmental factors, of which biodiversity is a key issue. Whilst this is beneficial, it is broadly reflective of the existing policy context. Consequently, a **neutral effect** is predicted.
- 9.12.47 *ENV8 Environmental and Amenity Protection:* The policy ought to have indirect benefits for biodiversity as a reduction in pollution is positive. Furthermore, seeking to protect amenity in terms of noise and light pollution could have some benefit to species that come within close proximity of the urban area. The policy is focused on human health in this respect though, so the benefits would not be as widespread for biodiversity.
- 9.12.48 The policy does however provide specific reference to the need for developments to consider air quality impacts on the Manchester Mosses SAC, with developments likely to lead to a higher volume of traffic expected to deliver an increased range of measures to reduce car dependence.

Overall effects of the Environment Policies

9.12.49 Though the majority of these policies are predicted to have neutral effects, ENV2 and ENV8 provide better protection for wildlife habitats and species though the management of flood risk, water quality and noise and light pollution. These are not likely to lead to substantial net gains in biodiversity, but will certainly help to protect existing resources. Consequently, a **minor positive effect** is predicted overall.

Major Development policies

Policies	<i>MD1</i>	<i>MD2</i>	<i>MD3</i>	<i>MD4</i>	<i>MD5</i>	<i>MD6</i>	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	++?

9.12.50 *MD1 Waterfront:* The Policy seeks to minimise impacts upon the environment, protect and enhance existing wildlife corridors and achieve a net gain in biodiversity. This should help to minimise the potential for significant negative effects that could otherwise occur on adjacent local wildlife sites. Seeking to apply the mitigation hierarchy is positive, as it will help to ensure that the wildlife corridor along the River Mersey is not severed and in places enhanced.

9.12.51 *MD2 South East Warrington Urban Extension:* The policy seeks to deliver a comprehensive green infrastructure strategy to achieve a net gain in biodiversity. There is also specific mention of the need consider important features such as hedgerows, watercourses and woodlands. These are positive effects that should help to ensure that negative effects on biodiversity are minimised. The commitment to a proactive green infrastructure plan that achieves net gain in biodiversity is clearly positive. The effects could be made more certain at this stage by setting out explicit requirements to strengthening ecological links from east to west across the developable area.

9.12.52 *MD3 Fiddlers Ferry:* The policy requires a comprehensive green infrastructure strategy and aims to achieve a net gain in biodiversity whilst applying the mitigation hierarchy. There is also a need to protect and enhance wildlife corridors such as the River Mersey. Whilst this is positive, it is not clear how this would be achieved, and there is potential for increased recreational pressure. It would therefore be beneficial to stipulate that biodiversity features must be protected / integrated with the increased recreation that is likely to occur in surrounding areas.

9.12.53 *MD4 Peel Hall:* The policy seeks to deliver green infrastructure improvements, and explicitly mentions the need to protect and strengthen existing ecological corridors whilst achieving measurable net gains in biodiversity.

9.12.54 *MD5 Thelwall Heys:* The policy requires a green infrastructure strategy, a scheme for net gain and for development to take account of existing landscape features and ecological networks.

9.12.55 Whilst this is positive and leaves flexibility as to how biodiversity is protected, it does not give certainty that features of biodiversity interest will be prioritised for protection in the masterplanning process. Nevertheless, the policy should have positive implications.

9.12.56 *MD6 South East Warrington Employment Area*: The policy seeks to deliver green infrastructure improvements, and explicitly mentions the need to protect and strengthen existing ecological corridors whilst achieving measurable net gains in biodiversity.

Overall effects of the Major Development Policies

9.12.57 On balance the policies are predicted to have positive effects. The measures outlined will help to mitigate the negative effects that would otherwise occur as a result of development. If successfully implemented (i.e. net gains in biodiversity are secured), then **moderate positive effects** could be achieved. However, the policies do not stipulate specifics, and are left flexible to be dealt with through the masterplan and development application processes. In this respect, some uncertainties exist.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↑	++ [?]

9.12.58 Each site policy sets out requirements to consider and protect features such as hedgerows, ponds and watercourses with particular reference to hedgerows, woodlands and a canal which may require additional focus in this regard. Further to this, the policies require biodiversity net gain on all sites, with any mitigation measures for loss of habitat only permitted where the application of the mitigation hierarchy has been applied and it found favourable.

9.12.59 Open/green space provisions across the sites are also likely to lead to some habitat retention for species which may thrive in these environments. It will be important that these do not conflict with recreational uses though.

9.12.60 Overall, a **moderate positive effect** is predicted for the site specific policies, largely relating to the specific identification of features on sites and the principal of biodiversity net gain.

9.12.61 Policy OS4 sets out additional detail; the need for a buffer zone between the wetland habitats and residential development. Not only would this help to reduce disturbance to these habitats, it would also help to protect landscape character (which has also been identified as an issue). Consequently, the effects here are less likely to be significant than may otherwise be the case and there is a greater degree of certainty.

Monitoring and plan review

Policies	M1	Overall significance
<i>Broad implications</i>	↔	0

9.12.62 This policy is unlikely to have notable effects with regards to biodiversity and geodiversity. Monitoring of indicators could potentially help to identify and rectify any downward trends with regards to these topics. However, the direct effects of this policy are not likely to be notable. Therefore, **neutral effects** are predicted.

Combined effects of the Plan on biodiversity and geodiversity

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	---
<i>Green Belt policy</i>	-
<i>Town centre policy</i>	0
<i>Infrastructure policies</i>	0
<i>Design policies</i>	+++ [?]
<i>Environment policies</i>	+
<i>Major development policies</i>	++ [?]
<i>Outer settlement policies</i>	++ [?]
<i>Monitoring and review policy</i>	0
<i>Cumulative effects</i>	<p>Major positive effects?</p> <p>Minor negative effects</p>

9.12.63 The Plan strategy (including the development site allocations) involves development in several locations that are sensitive (in part) with regards to biodiversity. In particular, this includes Fiddlers Ferry and the South East West Urban Extension. Without sufficient mitigation, significant negative effects would be likely to occur.

9.12.64 However, there are 'plan-wide' and site specific policies which seek to mitigate negative effects and achieve a measurable net gain in biodiversity. Should these developments be implemented with proactive and comprehensive strategies for the protection and enhancement of biodiversity (as suggested in the Plan policies), then **major positive effects** would be generated. In the absence of development it is less likely that such improvements would be secured without a lack of funding from development, and so these effects would be significant.

- 9.12.65 There is a degree of uncertainty involved as effects will depend upon scheme details. The site specific policies are relatively high level, and therefore flexible. On the other hand, some locally important features could be negatively affected without being afforded explicit protection. Nevertheless, the avoidance of significant negative effects is likely.
- 9.12.66 With regards to development more generally, the potential for **minor negative effects** still remains, as there will be a widespread loss of greenfield / greenbelt land, and it may not be possible to avoid disruption and disturbance to wildlife on certain sites (at least in the short term).
- 9.12.67 With regards to geodiversity none of the sites proposed for development fall within close proximity to Regionally Important Geological Sites (RIGS). Effects are therefore **neutral** in this regard.

9.13 Accessibility

9.13.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Accessibility'.

Development policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall Significance	
<i>Broad implications</i>	↑↓	↑	↑	↑↓	↑	++?	-

9.13.2 *DEV1 Housing Delivery*: this policy is likely to lead to positive effects for accessibility throughout Warrington due to directing the majority of housing growth to the existing main urban areas where transport infrastructure is currently in place. This will ensure good accessibility for residents between where people live and work and allow a greater use of facilities within the town centres. It will also increase the viability of sustainable transport infrastructure and services, bringing benefits to prospective residents as well as existing communities. However, negative effects could be felt as increased pressure will be put on the existing transport infrastructure. Without significant upgrades being delivered alongside this housing and employment growth this could result in overcrowding on the current services. However, it is likely that certain infrastructure upgrades will need to be provided before the commencement of large scale developments, which should reduce these potential negative effects.

9.13.3 A key part of the strategy is to deliver a large amount of growth at the SEWUE site, and this provides the opportunity and critical mass to secure infrastructure improvements, local services and good access to the strategic road networks. It would be expected that this would reduce the need to travel long distances for existing and future residents nearby to this location, as well as improving the viability of new sustainable transport infrastructures and services such as mass transit. In this respect, positive effects are predicted. However, there could be increased pressure on nearby motorway junctions that would need to be managed.

9.13.4 The Thelwall Heys site would be unlikely to lead to similar effects on its own given that it is much smaller in scale. However, the close proximity of it to the SEWUE site means that cumulative effects may be seen and residents could experience benefits associated with the large scale growth at the SEWUE site. On the flipside, these residents may see some of the more negative effects which are associated with the increased congestion in and around the large area of growth nearby.

9.13.5 The Fiddlers Ferry site would be expected to see some benefits relating to extended bus routes to serve the proposed growth. Whilst the site may deliver some onsite services, other services such as a secondary school would not be likely to be delivered on site. As such, due to the more isolated nature of the site, some increased car dependency would be expected.

- 9.13.6 Whilst some active travel infrastructure may be developed to support the housing growth in this location, the relatively long distance into Warrington could act as a deterrent to behavioural changes from car dependency to active travel. On the other hand, the site is within fairly close proximity to Widnes.
- 9.13.7 Elsewhere at the outer settlements, the allocated sites are all broadly well connected to the bus network as well as being in walking or cycling distance to a local urban centre, including community facilities, shops and services; this should maximise the opportunities for active travel for prospective tenants. Whilst these locations are broadly accessible, inner Warrington has a greater offering of shops and services and it is unlikely that the smaller service centres which are close to the proposed sites would be able to meet the majority of the needs of the residents. As such, journeys into Warrington are expected. Whilst there are links to the public transport network, overwhelming behavioural norms mean that some car dependency would be expected from these sites. On balance, and considering the scale and distribution of the housing growth, neutral effects are predicted in this respect.
- 9.13.8 Overall, the development across Warrington would be expected to see mixed effects. Large growth and urban developments in Warrington itself may see some increase in sustainable travel infrastructure and services, benefitting both existing and future residents on and nearby to the growth. On the flip side, these sites would be expected to contribute towards some increased congestion in and around the growth, as well as on key routes into Warrington and within Warrington centre. Some more isolated housing developments may result in increases in car dependency, seeing more negative effects.
- 9.13.9 *DEV2 Meeting Warrington's Housing Needs:* this policy seeks to ensure that a minimum of 20% of all tenures should meeting building regulations M4 (2) 'Accessible and Adaptable Dwellings' therefore this is likely to lead to positive effects for the ageing population and their accessibility to their own homes whilst also being in accessible locations where there is an identified need within Warrington. The policy doesn't state whether all other housing will be in accessible locations to meet the housing need of the residents, therefore minor positive effects could be predicted for accessibility.
- 9.13.10 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* this policy looks to link up Gypsy & Traveller and Travelling Show People sites with the existing highway network along with being made accessible to key local services such as primary schools, GPs, shops and other community facilities, therefore this is likely to have positive effects on accessibility for this minority population, resulting in minor positive effects on accessibility.
- 9.13.11 *DEV4 Economic Growth and Development:* A focus of employment growth is within Warrington town centre which has strong links to the surrounding areas, therefore this is likely to be the most accessible location to direct growth.

9.13.12 The distribution of development should foster close links and accessibility between services, jobs and homes; helping to reduce car journeys and encourage more sustainable transport methods such as cycling or walking (which is a key message throughout the Plan). Overall, mixed effects are predicted.

9.13.13 Another focus of the plan is to deliver strategic employment sites to support logistics and distribution sectors. This is likely to encourage road freight travel, which is negative. The location of the main employment areas is near to motorway junctions and is likely to attract car travel to access employment. In this respect potential negative effects are predicted.

9.13.14 *DEV5 Retail and Leisure Needs:* This policy states that neighbourhood hubs should support the co-location of facilities and services which could encourage strong links between housing, economy and new leisure/retail facilities; however this may not always be possible.

Overall effects of the development policies

9.13.15 Overall, mixed effects are predicted. On one hand the majority of new development should be located in accessible locations, and the opportunity to walk, cycle and use public transport exists. At the more peripheral locations and large scale developments, new facilities should help to ensure that new communities are also well located in this respect. Also important is the planned improvements in road infrastructure, mass transit, walking and cycling links that large scale growth will support. Housing policies seek to ensure that homes are accessible both within and beyond the property, which is also beneficial. In this respect, **moderate positive effects** are predicted.

9.13.16 However, an increase in car use is still likely. Employment growth is also likely to lead to increased car and freight trips. These are **minor negative effects**.

Green Belt policy

Policy	GB1
<i>Broad implications</i>	0

9.13.17 This policy states it will “plan positively to enhance the beneficial use of the Green Belt as part of Warrington’s Green Infrastructure Network” which is likely to increase accessibility into the open countryside and encourage modal transport, leading to minor positive effects. However, resident development within the green belt is likely to result in the sprawling of built up settlements in locations where transport infrastructure may be lacking, therefore putting additional pressure on the use of the private car and excluding certain residents from accessing the transport infrastructure, resulting in negative effects for a small proportion of the population who may not have access to the private car. Overall, neutral effects could be predicted.

Town centre policy

Policy	TC1
<i>Broad implications</i>	+

9.13.18 This policy is likely to result in positive effects on accessibility as it focuses on supporting the town in its role as a regional transport gateway/interchange and improving linkages to it from the rest of the borough and beyond especially by active travel modes, therefore this is likely to increase the accessibility throughout the town centres, linking up where residents live and work and move around the built up centres, with a particular focus on active modes of travel with also leads to other health benefits. However, there is strong weight on increasing the density within the town centre, which will lead to additional high rise flats, which will be less accessible for certain residents who may have mobility issues and young children. Additionally, this may lead to an increase amount of pressure on the existing transport infrastructure if not effectively mitigated against via transport contributions from development. Overall, minor positive effects could be predicted.

Infrastructure policies

Policies	<i>INF1</i>	<i>INF2</i>	<i>INF3</i>	<i>INF4</i>	<i>INF5</i>	<i>INF5</i>	Overall significance
<i>Broad implications</i>	↑	↑	↑	↑	↑	↔	+++

9.13.19 Policy INV3, does not relate to Accessibility. Consequently, neutral effects are predicted.

9.13.20 *INF1 Sustainable Travel and Transport:* this policy is likely to result in positive effects for accessibility within the borough as there is a particular focus on enhancing the whole of the boroughs transport network. The council wishes to ensure all developments to be located in sustainable and accessible locations, or in locations that can be made sustainable and accessible. Where development is likely to occur, mitigation should be secured in order to address any negative impacts on Warrington Transport Network, balancing out these effects. This policy should also ensure priority is given to walking, cycling and public transport within its design, and reducing the need to travel by private car, all which are likely to lead to positive effects for accessibility.

9.13.21 *INF2 Transport Safeguarding:* Similarly to policy INF1 above, this policy will lead to positive effects for accessibility in the long term due to safeguarding land to create a Bridgefoot Link between the main town centre, transport hubs and the economic hub in Warrington increasing the sustainability of the city centre by increasing the accessibility via foot rather than increasing the reliance on the private car.

9.13.22 *INF3 Utilities and Communications:* This policy would help to ensure sufficient telecommunications infrastructure would serve any new development, including a requirement to futureproof developments in order to accommodate future and emerging technologies. This would be expected to ensure highspeed digital connectivity from sites, leading to some support for a continuation of patterns of home working. This reduction in the need to travel to places for work is likely to lead to some minor positive effects on the road network, by reducing congestion and thereby making transport systems more efficient.

9.13.23 *INF4 Community Facilities:* This policy focus on co-locating community facilities in locations in defined centres in order to increase accessibility for a wider proportion of the population who may otherwise struggle to use the facilities if location in an out of town centre location. Additionally, this policy states that when considering a future site for the expansion of Warrington’s hospital this will need to be well served by public transport and easy to access by the majority of residents, overall resulting in positive effects for accessibility.

9.13.24 *INF5 Delivering Infrastructure:* This policy focuses on delivering infrastructure within and around Warrington, which overall is likely to result in significant positive effects for accessibility due to the commitment to deliver improves transport infrastructure, including walking and cycling facilities which a higher proportion of the population will benefit from. Additionally, the infrastructure is required no later than the operational date of any particular development; therefore this should reduce any short term negative effects from an increased amount of pressure on the existing transport network across Warrington.

9.13.25 *Policy INF6 Aerodrome Safeguarding:* This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This is unlikely to lead to any effects on accessibility in Warrington.

Overall effects of the infrastructure policies:

9.13.26 Overall the infrastructure policies are likely to have **major positive effects** with regards to Accessibility. In combination the policies should help to support the overall improvement in infrastructure and reduce pressure on the existing network. There would be costs associated with some infrastructure requirements, but these ought not to affect viability of schemes.

Design policies

Policies	DC1	DC2	DC3	DC4	DC5	DC6	Overall significance
<i>Broad implications</i>	↑	↔	↑	↑?	↑	↑	+

9.13.27 *Policy DC1 - Warrington's Places:* This policy is likely to promote sustainable transport measures as well as ensuring services, infrastructure, employment and green infrastructure are accessible to local populations. Development is also likely to be focused in built-up areas, meaning that accessibility scorings should be positive. Overall, this policy would be expected to result in positive outcomes.

9.13.28 *Policy DC2 - Historic Environment:* this policy does not relate to accessibility; therefore neutral effects are predicted.

9.13.29 *Policy DC3 – Green Infrastructure Network:* this policy is likely to have positive effects on accessibility by seeking to secure recreational opportunities for communities within walking distance, and improving strategic networks, which could encourage active travel. Where attractiveness is a key principal of design and has been shown to improve user experience of active travel routes, the role of green infrastructure within active travel routes is important.

9.13.30 *Policy DC4 - Ecological Network:* This policy looks to enhance biodiversity, geological or ecological assets (including with improved public access) which could be incorporated with active travel networks. Uncertain positive effects are predicted.

9.13.31 *Policy DC5 - Open Space, Outdoor Sport and Recreation Provision:* By seeking to provide adequate provision for leisure activities for communities across the borough (including within town centres), a positive effect should be generated with regards to accessibility by sustainable modes of transport.

9.13.32 *Policy DC6 - Quality of Place:* The policy should help to achieve legible and permeable places, which are, by design, accessible to a range of people. Accessibility would be likely to be a feature within sites as well as to connect to destinations outside of sites with active and sustainable transport modes being the favoured modes. Therefore, positive effects are predicted.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance
Broad implications	↔	↔	↔	↔	↔	↔	↔	?	0

9.13.33 *ENV1 Waste Management:* The policy overall will have neutral to some positive effect on the accessibility objective. Majority of the policy focusses on waste management within the borough through where waste can be disposed through land use. However the policy does state that waste management facilities proposals should be compliant and protect sustainable transport.

9.13.34 *Policies ENV2 - ENV7*: The policies overall will likely have neutral effects on the accessibility objective as the policies focus on preventing flooding, mineral extraction, renewable energy development and environment amenity protection which does not directly relate to the reduction for the need to travel via private vehicle or creating a place that encourages more active travel or increases permeability.

9.13.35 *Policy ENV8* could have some minor positive effects as if there is better air quality and general environmental amenity such as noise pollution reduction it may encourage individuals in the borough to do more active travel and make the areas more accessible through those improvements of environmental factors. Measures which developments in certain areas must consider in order to mitigate air pollution issues are also likely to favour active and sustainable travel, thereby improving accessibility.

Major development policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance
Broad implications	↑	↑	↑	↑	↑	↑	++

9.13.36 Each of the strategic site policies seek to secure comprehensive mitigation and enhancement packages to ensure adequate and safe access to sites, improvements to public transport infrastructure (including expanded routes, improved walking and cycling, and the provision of a wide range of local services). These are all positive factors with regards to accessibility. In particular, the support for new mass transit routes and a focus on walkable neighbourhoods should ensure that accessibility is good for new developments.

9.13.37 To ensure that large scale new growth does not overwhelm the transport networks, there is a requirement for key infrastructure to be in place prior to development. For example, the Western Link Road. This should help to minimise negative effects that could otherwise arise in terms of traffic.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall Significance
Broad implications	↑	↑	↑	↑	↑	↑	+

9.13.38 The site specific policies are likely to result in a positive effect with regards to accessibility, as each seeks to promote sustainable modes of travel both within and to facilitate travel to destinations outside the site boundaries. Specific reference to linking the site to the public transport network is provided for all of the site specific policies, aside from OS3.

9.13.39 The requirement for all sites to provide onsite green/open space should help to boost active travel options on routes which are attractive to the user.

9.13.40 Further to this, the requirement to improve accessibility into Green Belt space would further boost this accessibility of attractive space for active travel.

9.13.41 **Minor positive effects** are predicted as a result of these policies in combination.

Monitoring and plan review policy

Policies	M1	Overall significance
<i>Broad implications</i>	↔	0

9.13.42 This policy is unlikely to have notable effects with regards to accessibility. Therefore, **neutral effects** are predicted.

Combined effects of the Plan on Accessibility

Plan Chapters / Policy groupings	Significance
<i>Development policies</i>	++ [?] -
<i>Green Belt policy</i>	0
<i>Town centre policy</i>	+
<i>Infrastructure policies</i>	+++
<i>Design policies</i>	+
<i>Environment policies</i>	+
<i>Major development policies</i>	++
<i>Outer settlement policies</i>	+
<i>Monitoring and review policy</i>	0
<i>Cumulative effects</i>	<p>Major positive effects ?</p> <p>Minor negative effects (short term)</p>

9.13.43 The Plan is predicted to have a moderate positive effect on the baseline position for Accessibility. The strategy and supporting allocations direct growth mainly to the urban areas of Warrington, which have better accessibility than smaller centres and villages. This ought to ensure that new development is located in areas that reduce the need to travel to access services, goods and employment.

- 9.13.44 The strategic site allocations are located on the urban fringes, which could give rise to additional traffic heading into the main urban area, and are in areas that are currently poorly served by services and public transport (these are minor negative effects). However, a number of key infrastructure improvements would need to be secured before development commenced (as required by site specific policies). There would also be a range of new social infrastructure to support new communities and help to reduce the need to travel. There would also be strategic routes through major developments such as the SEWUE which would support new public transport links from the town centre (potentially involving a mass transport solution).
- 9.13.45 Development at the Waterfront should benefit from the western link road, and will bring together employment opportunities with new homes within relatively easy access to the town centre.
- 9.13.46 The Plan also seeks to achieve increased use of sustainable modes of travel by supporting improvements to the town centre protecting and enhancing sustainable transport networks, and enhancing active travel opportunities through green infrastructure improvements.
- 9.13.47 The infrastructure policies could potentially help to achieve **major positive effects** in the longer term, but there is uncertainty.
- 9.13.48 Overall, the Plan should help to achieve a positive trend upon the baseline with regards to improving accessibility, minimising the need to travel, and increasing the use of sustainable modes of transport. However, some communities may not benefit from improvements as much as others (for example the outlying settlements), and there would likely be short term disruption to the road networks as a result of infrastructure improvements. These are recorded as **minor negative effects**.

9.14 Resource use and efficiency

9.14.1 This section presents an appraisal of the Plan against the SA Objectives within the SA topic 'Resource Use and Efficiency'.

Development Policies

Policies	DEV1	DEV2	DEV3	DEV4	DEV5	Overall Significance	
<i>Broad implications</i>	↑↓	↓	↔	↓	↑	+	--

9.14.2 In relation to resource use and efficiency, the urban growth is likely to support higher density development, which could be amenable to the efficient use of energy and water resources. Given the brownfield nature of many sites, the strategy makes good use of existing land / buildings and infrastructure, which helps to reduce the need for virgin raw materials and energy associated with construction. The location of sites also means they are unlikely to overlap with workable mineral resources. Overall, these are positive effects.

9.14.3 Most site options in the Warrington urban area further benefit from good access to the three household waste recycling centres in the borough, which fall within the town's built-up area. At the operational stage, this should provide new residents with access to important recycling and reuse facilities which should support the sustainable disposal of products and materials.

9.14.4 Taking the above factors into account, growth on the site options in urban areas is predicted to have minor positive effects on resource efficiency.

9.14.5 In relation to the outer settlement sites, they are broadly likely to promote resource efficiency in terms of design, material choice and construction as well as throughout the operational phase through energy efficiency measures and micro-renewable generation. The sites do not include important mineral resources with the exceptions of sites around Lymm and at Hollins Green, which include some limited areas safeguarded for resources. The extraction of these resources would be unlikely to be realistic due to the small scale of sites, limited amount of resources and their unsuitable location (in regard to amenity and other adverse effects on population). Therefore, the potential sterilisation of resources is not considered to have any significant effects.

9.14.6 Residual growth on Green Belt land will lead to the use of mineral resources, as considerable raw materials will be required during construction phases, particularly to support infrastructure improvements. As such, minor negative effects are predicted. The SEWUE contains areas that fall within Mineral Safeguarded Areas, but it is not anticipated that important, workable resources would be sterilised.

9.14.7 With regards to the energy and water efficiency of new developments, there could be potential for high quality design, but there may be pressures from other policy requirements, meaning positive effects are not certain.

9.14.8 Development at Fiddlers Ferry makes better use of existing resources and land, but will still require the use of raw materials during construction. Similar viability issues may also prevent the highest levels of sustainability from being achieved, but this is uncertain.

9.14.9 All the new developments will have good access to recycling facilities at kerbside, and will also be in close proximity to household waste recycling centres, which should encourage and enable wider recycling activities.

9.14.10 *DEV2 Meeting Warrington's Housing Needs:* The policy is concerned with the type and affordability of housing development. These factors can interact with resource use and efficiency by adding to development costs (and therefore potentially preventing more efficient designs).

9.14.11 *DEV3 Gypsy & Traveller and Travelling Show People Provision:* This policy is focused, and is only likely to lead to small scale effects with regards to resource use.

9.14.12 *DEV4 Economic Growth and Development:* The economic strategy is based partly on opportunities for the growth of distribution and warehousing sectors. Raw materials and resources will be required to build these large developments. There is also some overlap with Mineral Safeguarded Areas in these locations. The design of development could help to deliver efficient buildings, but this is not a certainty. Overall, minor negative effects are predicted with regards to resources.

9.14.13 *DEV5 Retail and Leisure Needs:* The policy sets out a hierarchy of centres, which essentially seeks to support town, district and local centres in preference to out-of-town retail developments. The use / reuse of town centre buildings and infrastructure instead of new out of town retail parks is positive in respect of minimizing the need for raw materials.

Overall effects of the development policies

9.14.14 Mixed effects are predicted as a result of the development policies. On one hand, growth will require raw materials and resource use, and this could be intensive, particularly where there is a need for new infrastructure. These are **moderate negative effects**. On the other hand, the strategy supports growth on brownfield land and in the locations which can benefit from existing infrastructure. In this respect, **minor positive effects** are predicted.

Green Belt policy

Policy	GB1
<i>Broad implications</i>	0

9.14.15 There are no direct effects in relation to resource use and efficiency.

Town centre policy

Policy	TC1
<i>Broad implications</i>	+

9.14.16 Supporting continued and varied use of town centres could have positive effects with regards to the use of materials that might otherwise be necessary for new buildings and infrastructure in out of town locations.

Infrastructure policies

Policies	<i>INF1</i>	<i>INF2</i>	<i>INF3</i>	<i>INF4</i>	<i>INF5</i>	<i>INF6</i>	Overall significance
<i>Broad implications</i>	↑	↔	↑	↔	↔	↔	+

9.14.17 *INF1 Sustainable Travel and Transport:* Principles set out within the policy all seek to improve the sustainability of travel by supportive walking and cycling, public transport and the use of rail freight. All these measures would help to achieve a reduction in the use of natural resources / fuel.

9.14.18 *INF2 Transport Safeguarding:* There are no direct effects in relation to resource efficiency and usage.

9.14.19 *INF3 Utilities and Telecommunications:* Support for adequate telecommunications infrastructure could help to reduce the need to travel and increase flexibility in terms of work locations. This is positive with regards to the use of natural resources.

9.14.20 *INF4 Community Facilities:* There are no direct links with the protection and provision of community facilities and resource usage.

9.14.21 *INF5 Delivering Infrastructure:* The policy outlines the arrangements for seeking contributions towards infrastructure upgrades. There are no specific details with regards to the use of raw materials and resources.

9.14.22 *Policy INF6 Aerodrome Safeguarding:* This policy seeks to ensure that any development that would adversely affect the operational integrity or safety of Manchester Airport or Manchester Radar will not be permitted. This is unlikely to bear a great influence in terms of the efficiency of resource use.

Overall effects of the infrastructure policies

9.14.23 Several of the infrastructure policies ought to help reduce the use of raw materials and fuel associated with transportation. As such, **minor positive effects** are predicted.

Design policies

Policies	<i>DC1</i>	<i>DC2</i>	<i>DC3</i>	<i>DC4</i>	<i>DC5</i>	<i>DC6</i>	Overall significance
<i>Broad implications</i>	↔	↔	↔	↔	↔	↑	+

9.14.24 *DC1 Warrington's Places:* The policy sets out the broad principles for growth and development at key locations throughout the Borough. There is no direct effect in relation to resource use and efficiency.

9.14.25 *DC2 Historic Environment:* The effects on energy efficiency and greenhouse gas emissions are limited. There may be potential to introduce an element to the policy that seeks to secure improvements to the efficiency of historic buildings.

9.14.26 *DC3 Green Infrastructure Network:* This policy is unlikely to have significant effects with regards to resource use and efficiency.

9.14.27 *DC4 Ecological Network:* The policy focuses on biodiversity habitats, species and networks. Whilst it is likely to help protect areas with mineral deposits, the focus is not upon resource use.

9.14.28 *DC5 Open Space, Outdoor Sport and Recreation Provision:* This is concerned mainly with access to facilities for local communities. Effects with regards to resource use are negligible.

9.14.29 *DC6 Quality of Place -* This policy sets the framework for the design of all development proposals. There are several elements to the policy which are supportive of design that is low in embodied energy / resources, improves sustainable travel opportunities and the strong wording which requires uptake of renewable/low carbon technologies in line with Policy ENV7. Whilst these are all positive, there are no firm requirements that would lead to a significant improvement in the use of resources.

Overall effects of the design policies

9.14.30 Overall, these policies are likely to have **minor positive effects** with regards to resource use. This is mainly due to the quality of place policy, which encourages sustainable design.

Environment policies

Policies	ENV1	ENV2	ENV3	ENV4	ENV5	ENV6	ENV7	ENV8	Overall significance
<i>Broad implications</i>	↑	↔	↑	↔	↑	↑	↔	↑	+

9.14.31 *ENV1 Waste Management:* This policy sets out the framework for the development of waste management related facilities in the Borough. Certain aspects reiterate national policy and the need to promote the waste hierarchy. However, further detail is provided with regards to the types of locations that waste facilities will be most appropriate. This should be positive as it will help to ensure that residents have access to facilities to support high rates of recycling and resource efficiency.

9.14.32 *ENV2 Flood Risk and Water Management:* There are no direct links with resource efficiency.

9.14.33 *ENV3 Safeguarding of Minerals Resources & ENV4 Primary Extraction of Minerals:* These policies seek to preserve resources and only support mineral extraction when there is a demonstrable need. This is positive with regards to resource efficiency.

9.14.34 *ENV5 Energy Minerals:* The principle of exploration and extraction of hydrocarbons is already established by the granting of a Petroleum Development License. Therefore, the impacts on resource use that this type of extraction and energy use brings cannot be attributed to this Policy. Rather, the policy sets out the conditions that will need to be satisfied to ensure that such exploration and exploitation can be undertaken with minimal environmental damage. These are fairly standard conditions, and so the policy is unlikely to have an undue restrictive or supporting effect. With regards to the absolute protection of peat resources, this is a positive effect.

9.14.35 *ENV6 Restoration and Aftercare of Mineral and Waste Sites:* The policy will help to ensure that land is used efficiently following extraction of mineral resources, which is positive in terms of the use of this resource.

9.14.36 *ENV7 Renewable and Local Carbon Energy Development:* This policy is focused upon renewable and low carbon energy technologies rather than the efficient use of resources. As such, neutral effects are recorded.

9.14.37 *ENV8 Environmental and Amenity Protection:* The policy could have some relationship to the protection of mineral resources, given that protection of amenity and environmental factors could restrict extraction.

Overall effects of the environment policies

9.14.38 In combination, the policies are likely to have **minor positive effects** with regards to the efficient use of minerals, waste and energy.

Major Development Policies

Policies	MD1	MD2	MD3	MD4	MD5	MD6	Overall significance
Broad implications	↑?	↑?	↑?	↑?	↑?	↑?	+ ?

9.14.39 There is a requirement for the developments to deliver efficient design, which is positive with regards to resource use. However, there are no set standards as such, and so a degree of uncertainty exists. Nevertheless, positive effects would be anticipated in terms of resource use as a result of this set of policies. Overall, a **minor positive effect** is predicted.

Outer settlement policies

Policies	OS1	OS2	OS3	OS4	OS5	OS6	Overall Significance
Broad Implications	↑?	↑?	↑?	↑?	↑?	↑?	+ ?

9.14.40 The site specific policies will support development of 801 dwellings collectively at a range of sites in the 'outer settlements'.

9.14.41 Each site policy seeks to ensure that developments are as 'energy efficient as possible' and secure a proportion of energy needs from low and renewable sources. Should developments demonstrate that these measures have been incorporated into design and construction, then there is potential for positive effects with regards to resource use and efficiency.

9.14.42 Overall, minor positive effects are predicted, as there are no firm requirements to reduce implement certain standards of efficient and sustainable design. Therefore, significant effects are unlikely.

M1 Monitoring and review policy

Policies	M1	Overall significance
Broad implications	↔	0

9.14.43 The policy sets out measures that will be taken to boost the supply of housing in the event that the annual target is not being achieved. This has no real effect upon resource efficiency, as it is focused on housing delivery and the need to trigger a Plan review. Resource use and efficiency issues would be taken into consideration as part of any plan review (which would also need to be accompanied by a fresh SA/SEA).

Combined effects of the Plan on Resource use and Efficiency

Plan Chapters / Policy groupings	Significance	
<i>Development policies</i>	+	--
<i>Green Belt policy</i>	0	
<i>Town centre policy</i>	+	
<i>Infrastructure policies</i>	+	
<i>Design policies</i>	+	
<i>Environment policies</i>	+	
<i>Major development Policies</i>	+ [?]	
<i>Outer settlement policies</i>	+ [?]	
<i>Monitoring and review policy</i>	0	
<i>Cumulative effects</i>	<u>Mixed effects</u> Minor positive effects Minor negative effects	

9.14.44 The Plan is predicted to have mixed effects with regards to resource use and efficiency.

9.14.45 On one hand, the Plan will lead to a short term demand for natural resources to support development, and in some cases, there is overlap with mineral safeguarding areas. In terms of resource use and protection, **minor negative effects** are recorded overall. Whilst the development strategy will result in large scale use of materials and resources, this is offset by the other Plan policies which direct growth to brownfield sites, encourage higher density in the urban areas, and support sustainable design.

9.14.46 Conversely, the Plan contains several policies which encourage the highest reasonable levels of energy and water efficiency. This will lead to **positive effects** in terms of resource efficiency in the longer term. However, the effects are minor given that there are no firm requirements or specific schemes identified.

9.15 Summary of Plan effects

<i>Cumulative effects (+ve)</i>	+++	+++	+++?	+++		+		++	+	+	+++?	++	+
SA Topics	Economy and regeneration	Health and wellbeing	Accessibility	Housing	Natural resources: Soil resources	Natural resources: Water Quality	Natural Resources: Air Quality	Natural resources: Flooding	Historic Environment	Landscape	Biodiversity and Geodiversity	Climate change	Resource use and efficiency
<i>Cumulative effects (-ve)</i>		-	-		--	-	-		-	--	-	-	-

9.15.1 The table above summarises the overall effects of the draft Plan graphically.

9.15.2 It is apparent that the Plan will generate mostly positive effects, with a number of these likely to be significant. In particular, the strategy for housing and employment will generate major positive effects for a wide range of communities, with knock on benefits for health and wellbeing (related to improved access to local services, facilities, green space, jobs and homes).

9.15.3 The growth involved will also contribute towards improvements in accessibility and social infrastructure which should benefit new and existing communities. Though could be minor negative effects felt at the same time for certain communities / locations. For example, amenity impacts and a loss of Green Belt could affect wellbeing for some communities. A small proportion of new development will also not have ideal connections to services and facilities.

9.15.4 Though there is a loss of substantial amounts of Green Belt, the adverse effects upon environmental factors are mostly minor, as sensitive areas are broadly avoided or potential impacts mitigated.

9.15.5 An exception is landscape quality, which could be affected significantly as a result of the Plan. The Plan acknowledges this and as a result it The Plan acknowledges this and as a result includes several policies that seek to mitigate harm on landscape character. In particular, this involves the use of buffer zones for strategic sites, the need for comprehensive green infrastructure strategies, appropriate use of density, and the need for high quality design. Taking these factors into account, the effects are predicted to be moderate negative effects overall.

9.15.6 Likewise, a significant negative effect will occur due to the loss of best and most versatile agricultural land. There is little that can be done about the loss of such resources at the scale of growth being proposed. However, the plan does seek to prevent further loss of soil resources and to encourage the rescue of land. As such, residual moderate negative effects are predicted.

9.15.7 For most sustainability factors, it ought to be possible to secure enhancements (through development contributions) that may not otherwise be likely in the absence of the Plan. Therefore, positive effects are recorded in terms of flood risk, biodiversity and the historic environment in the medium to long term. For example:

- In terms of flooding, all strategic developments will be expected to include sustainable drainage and there is also a policy which seeks a reduction in surface water run off rates in certain locations.
- With regards to biodiversity, net gain is mentioned several times throughout the plan and is a central policy requirement. The achievement of enhancement in the absence of the plan is considered less likely (due to a lack of funding or identified schemes to secure such measures), and so well planned strategic developments that include comprehensive green infrastructure plans should provide an opportunity for significant positive effects.
- Regeneration activities will offer the opportunity to make productive use of heritage assets.

Abstract geometric lines in black on a white background, consisting of two intersecting lines that form a large 'X' shape.

Mitigation and enhancement

10

10 MITIGATION AND ENHANCEMENT

10.1 Introduction

- 10.1.1 The sustainability appraisal (SA) of the Warrington Local Plan has been an iterative process, in which proposals for mitigation and enhancement have been considered at different stages.
- 10.1.2 Draft versions of each plan policy have been appraised through the SA process, and recommendations were made for improvements before the policies were finalised in the Plan.
- 10.1.3 Table 10.1 below sets out how recommendations made at previous stages of plan making were taken into account. The Council’s response to the recommendations of the SA and the implications of the response for the findings of the SA are also summarised. Table 10.2 which follows, sets out further recommendations made prior to the Plan being finalised for Regulation 19 consultation in 2021.

Table 10.1 *Mitigation and enhancement measures (Proposed Submission Version Local Plan (2019))*

SA Recommendations	Warrington’s Response	Implications for the SA findings
<p>Policy ENV8 states that no best and most versatile land should be affected. Would it be better to change the text to a more flexible approach that still promotes protection, and avoidance, but does allow for acceptable amounts of loss when necessary.</p>	<p>Amended clause 7 of Policy ENV8 to incorporate recommended changes.</p>	<p>Fewer negative effects with regards to renewable energy schemes, housing and economy.</p> <p>Benefits relating to soil resources and water quality are reduced, but this is not a significant issue.</p>

SA Recommendations	Warrington's Response	Implications for the SA findings
<p>Policy DC6 does not explicitly mention flood risk, but does encourage development at waterfront locations. Whilst such a focus is not a negative effect as such, it may be beneficial to explicitly mention the need to ensure that flood risk is addressed comprehensively in such locations (in terms of layout and design).</p>	<p>Amended clause 1d of Policy DC6 to incorporate recommended changes.</p>	<p>Positive effects associated with flood risk and the delivery of sustainable development.</p>
<p>Policy ENV6 makes no specific mention of flood risk, but it is presumed this is encapsulated within the requirement for development to be in accordance with all other relevant policies within the Plan. It would be beneficial to refer to the potential for minerals restoration to incorporate flood management measures, particularly where the site is within flood zones 2 or 3. This could help to increase the likelihood of positive effects.</p>	<p>Incorporated recommended wording into Policy ENV6.</p>	<p>Positive effects associated with flood risk.</p>
<p>Policy DEV2 - Increasing the percentage of affordable or social rent from 10% would lead to even greater benefits in this respect.</p>	<p>The Council is seeking the maximum reasonable level of affordable housing as evidenced by the Local Plan Viability Report. No changes are therefore proposed to this policy.</p>	<p>No changes have been made and so the effects in the SA remain the same.</p>
<p>It is suggested that a clear landscape and open space buffer is included within the Warrington Road policy (OS8) that creates a notable area of natural habitat to the west of the site. It will also be important to ensure that the site does not adversely affect drainage patterns negatively, as there are surrounding habitats that rely upon a 'wetland' environment.</p>	<p>Amended clause 12 of Policy OS8 to incorporate recommended changes</p>	<p>The likelihood of negative effects arising upon landscape and biodiversity is reduced.</p>

SA Recommendations	Warrington's Response	Implications for the SA findings
<p>It would be beneficial to explicitly mention the need for increased use of the waterways (freight for example) takes an approach that ensures that water quality is not adversely affected.</p>	<p>The Council consider that such matters will be dealt with satisfactorily through policies ENV8 and MD1.</p>	<p>No changes have been made and so the effects in the SA remain the same.</p>
<p>The concept plan for the Garden Suburb seeks to retain the wildlife corridor that incorporates The Dingle / Berry's Wood. However, there is development proposed in very close proximity. This could have negative effects with regards to disturbance from noise, light, recreation and domestic animals. It will be important to ensure that a sufficient buffer is secured between this area and residential development. This could be made clear as part of the principles for site development.</p>	<p>Policy MD2 is clear that a comprehensive approach will be needed in relation to Green Infrastructure and green space more generally throughout the Garden Suburb. It is expected that further detailed work will be produced as part of the Development Framework which will be prepared as an Supplementary Planning Document – this is also provided for within Policy MD2. The Development Framework will also address issues of amenity in more detail.</p>	<p>No changes have been made at this stage and so the effects in the SA remain the same.</p>
<p>It is considered that the Garden Suburb policy could be improved by demonstrating how ecological links from east to west across the Garden Suburb area will be strengthened.</p>	<p>Policy MD2 sets out a clear approach to the Natural Environment and makes provision for more detailed work to be undertaken and requirements to be set out as part of the Development Framework and Green Infrastructure Strategy.</p>	<p>No changes have been made at this stage and so the effects in the SA remain the same.</p>

Table 10.2 Further recommendations (Proposed-Submission Version Local Plan, 2021)

SA Recommendations	Warrington’s Response	Implications for the SA findings
<p><i>Policy DC3 Green Infrastructure</i></p> <p>Strengthen the focus on urban green infrastructure enhancement. Though this is acknowledged in the supporting text, an explicit clause within the policy which seeks to enhance links within the urban areas would be beneficial.</p>	<p>The policy does not differentiate between the types of green infrastructure. However, point 1 of the policy has been amended to include the word “all” when referring to the borough’s green infrastructure.</p>	<p>More certainty that positive effects could arise in the urban areas.</p>
<p><i>DC4 Ecological Network</i></p> <p>Consider supporting the retention of underused farmland through habitat creation and management.</p>	<p>Agree. However, it is considered that this should be addressed in Policy DC3. An additional clause has been added to Point 4 of Policy DC3.</p>	<p>Contribution to significant positive effects</p>
<p>Seek to ensure that any increased recreational pressures seen as a result of enhancing public access to nature do not lead to any detrimental impacts upon species or habitats (In particular, consider how this will be addressed at Fiddlers Ferry and other developments along the River Mersey corridor).</p>	<p>It is considered that this issue will be able to be addressed under points 5(f) and 6 of the policy. In addition, point 21 of Policy MD3 specifically requires the long term management and maintenance arrangements for the green infrastructure network within the development site to be secured. There are also specific requirements in point 24 to provide avoidance measures and mitigation on both the allocation site and adjoining land if they are found to be suitable for supporting significant populations of wildlife. There are similar requirements in the other main allocation policies</p>	<p>No change to the SA findings</p>

SA Recommendations

Warrington's Response

Implications for the SA findings

in the vicinity of the River Mersey.

ENV1 Waste Management

In the general principles, clarify that waste reduction will be required in all aspects of planning, including construction stages, design (using recycled materials) and operationally.

Agree. Policy ENV1 has been amended to include a specific reference to waste reduction in all aspects of development.

Contribute towards positive effects with regards to resource efficiency

SA Recommendations	Warrington's Response	Implications for the SA findings
<p><i>ENV2 Flood risk and water management:</i></p> <p>Policy could advocate for maximised use of permeable surfaces across developments, especially those on greenfield land.</p>	<p>It is considered bullet point 16 of ENV 2 already covers permeability. However, policy (16) has been amended to include the following: 'should' has been replaced with 'will need to' and 'maximize has been added for clarification and to secure permeable surfaces through development proposals. 'Should' has also been added to clarify that permeable surfaces includes soft and hard surfaces.</p>	<p>Contributes to positive effects on flooding</p>
<p><i>Policy ENV5: Energy Minerals</i></p> <p>Take a proactive approach with regards to peat resources (through links to ecological management) by encouraging the restoration of degraded bogs.</p>	<p>Agree. Policy DC3 has been amended at point 5(a) to include the wording "especially where this helps to mitigate the causes and address the impacts of climate change" and the supporting text outlines the value of the boroughs peat resource for carbon storage purposes and the need to take opportunities to restore it where possible (para 8.3.11).</p>	<p>Contributes to positive effects on climate change and biodiversity</p>
<p><i>Policy ENV7: Renewable and Low Carbon Energy Development</i></p> <p>Consider including an additional clause that will ensure development enables the retrofitting of additional low carbon technologies (for example, being mindful of solar orientation and allowing space on roofs for solar panels, making space</p>	<p>Agree. An additional clause has been added to Point 1 of the policy to make clear that retrofitting of infrastructure will be supported. Agree, the policy has been reworded to set a specific carbon emissions target beyond the current Building Regulation requirements as an alternative to the provision of a proportion of renewable energy. Point 5 of the policy is</p>	<p>Contributes to positive effects in terms of resource efficiency and climate change.</p>

SA Recommendations	Warrington's Response	Implications for the SA findings
<p><i>for air source heat pump / district heating equipment etc..).</i></p> <p>A specific carbon emissions target / requirement could be set beyond the current Part L requirements.</p> <p>Discourage the use of all electric heating systems and gas boilers, whilst encouraging low carbon alternatives as the 'norm' in new developments.</p> <p>Encourage a fabric first approach to dealing with emissions.</p>	<p>essentially seeking to discourage the use of all electric heating systems and gas boilers by requiring developments to establish or connect to an existing decentralised energy network or by making provision to enable future connectivity.</p> <p>The inclusion of the requirement to reduce carbon emissions by at least 10% when measured against the Building Regulation (Part L) as an option in Points 4 and 5 of the policy essentially requires a fabric first approach to dealing with emissions.</p>	
<p><i>Broadband provision</i></p> <p><i>Positive effects could be enhanced in terms of economy, health and wellbeing and transportation by making it necessary for new development to be supported by (at the least through provision of the necessary infrastructure and ducting) the latest generation of broadband infrastructure</i></p>	<p>Agree. Policy INF3 has been amended to include a specific policy criteria requiring the provision of Broadband infrastructure for all new residential and commercial development. This includes the future proofing of development through the provision of enabling infrastructure ducting during the course of development.</p>	<p>Positive effects on health, wellbeing, economy and accessibility.</p>
<p><i>Thelwall Heys</i></p> <p>Measures to ensure no significant effects on heritage assets on site could be strengthened to ensure that there is a buffer between new development and open space important to the setting of listed buildings. Furthermore, is it possible</p>	<p>The policy wording has been amended (Point 5) and agreed with English Heritage to take account of the impact on the Grade II Listed Thelwall Heys House. Point 23 of the policy already requires development proposals to be in accordance with the Heritage Impact Assessment (HIA) for the site. The HIA outlines the</p>	<p>Increased certainty that negative effects will be mitigated.</p>

SA Recommendations	Warrington's Response	Implications for the SA findings
that a lower average maximum density could be achieved than 30 dpa? The surrounding residential areas are considerably lower than this to the south and north for example.	mitigation and enhancement measures that should be undertaken. These include the requirement of an extensive landscaped buffer to preserve the setting of the primary heritage asset within the site and the other assets bordering the site. The average density across the whole of the site will be considerably lower than 30dph. The policy has been amended to refer to the net density being 30dph.	

- 10.1.5 Generally, the Plan has been positively prepared, but several potential major significant negative effects were identified through the SA. A range of mitigation and enhancement measures have been proposed in the Plan, primarily through thematic and site specific policies. These policies help to minimise the negative effects and enhance the positives.
- 10.1.6 Several recommendations were made in the SA which led to direct changes in policies. This further contributed to an improvement in the overall performance of the Plan in sustainability terms.



Monitoring and next steps

11

11 MONITORING AND NEXT STEPS

11.1 Monitoring

- 11.1.1 There is a requirement to outline the measures envisaged to monitor the predicted effects of the Plan. In particular, there is a need to focus on the significant effects that are identified. It is important to track predicted effects to ensure that positive effects are actually realised and to identify any unforeseen negative effects that may occur.
- 11.1.2 Table 11.1 below sets out monitoring measures under each SA topic which are intended to be used to monitor any significant effects and to track the baseline position more generally. At this stage the monitoring measures have not been finalised, as there is a need to confirm the feasibility of collecting information for the proposed measures.
- 11.1.3 The monitoring measures will be finalised once the Plan is adopted, and will be set out in an SA Statement in accordance with the SEA Regulations.

Table 11.1 Monitoring the effects of the Plan

SA Topics	Proposed Monitoring Measures
Housing Major positive effects are predicted as the Plan is likely to support identified needs for a range of community groups over the Plan period and beyond.	<ul style="list-style-type: none">• Housing completions analysis.• Strategic Housing Land Assessments (on a rolling basis).• % affordable housing delivered in accordance with Plan targets.• Analysis of progress with strategic sites.• Total number of pitches available for Gypsy & Traveller and Travelling Show People.• New pitches and plots approved and provided per annum.

SA Topics

Proposed Monitoring Measures

Climate Change mitigation

Minor positive effects are predicted to reflect support for low carbon energy generation and efficient developments.

There could be some increase in transport related emissions, which are **minor negative effects**.

Climate change adaptation

Moderate positive effects are predicted as resilience is likely to be improved through a focus on green infrastructure enhancement and flood risk management.

Although the effects predicted are only minor, the following indicators are proposed to track trends:

- Per capita emissions of greenhouse gases (domestic, transport and industrial).
- Number of planning approvals with conditions requiring the use of renewable/low carbon technologies.
- Number of developments with appropriate green infrastructure strategies

Natural Resources: Flooding

Moderate positive effects are predicted in the long-term with regards to flood risk.

- SUDs schemes incorporated into new developments.
- Planning permissions granted for sensitive uses in flood zones 2 and/or 3'.
- Application monitoring - Number of applications permitted against Environment Agency advice in regards to flood risk.

Economy and Regeneration

Major positive effects are predicted as the Plan is likely to result in an increase of economic output and employment whilst tackling deprivation.

- Employment land developed (Square feet).
- Loss of employment on existing employment sites.
- Employment land available per annum by type.

Natural Resources: Soil

Moderate negative effects are predicted as the Plan is likely to result in the loss of a substantial amount of agricultural land.

- Amount of agricultural land lost to development (by grade).
- % of new development that is previously developed land

Water Quality

The Plan is likely to have **minor negative effects** due to increased requirements for sewage and drainage infrastructure. However, a **minor positive effect** is likely in the long-term due to the need for exemplary SUDs and reduced pollution from agricultural land.

Although the effects predicted are only minor, the following indicators are proposed to track trends:

- Achievement of water framework directive objectives.

Air Quality

The Plan is likely to result in **minor negative effects** which should become neutral effects in the long-term.

Although the effects predicted are only minor, the following indicators are proposed to track trends:

- Assessment of the levels of CO₂, NO₂ and other forms of pollution in the air.

Health and Wellbeing

Major positive effects are predicted as the Plan is likely to support an improvement in social infrastructure, access to jobs, homes and quality green space. **Minor negative effects** are also predicted due to the loss of amenity and open space for some communities.

- Total Amount of Open Space (Hectares).
 - Total Amount of Equipped Play Open Space (Sites & Hectares).
 - Total Amount of Informal Play Open Space (Sites & Hectares).
 - Total Amount of Parks & Gardens Open Space (Sites & Hectares).
 - Number of playing pitches created, lost and or replaced (including AGP's) and/or S106 Contributions.
 - Review of PPS (3 yearly).
 - New major community/sports infrastructure projects delivered and/or S106 Contributions.
 - Percentage of new dwellings permitted within 800m of a health centre.
 - Housing register of people wanting to move to affordable housing
 - Access to natural green space.
-

SA Topics

Proposed Monitoring Measures

Landscape

Moderate negative effects are predicted as the Plan is likely to permanently affect the landscape character of the Borough, particularly as a result of the major development locations. Alongside this, there are **minor positive effects** associated with urban regeneration and reuse of Fiddlers Ferry.

- Net change in green infrastructure (area in ha).
- Number of developments allowed on appeal that had been initially refused on landscape character grounds.
- Developments with green infrastructure strategies in place.

Historic Environment

Mixed effects are predicted as the Plan is likely to promote heritage-led development which could lead to some **minor positive effects**. Equally, the loss of Green Belt land in some outer areas would undermine the character of settlements. There is also potential for heritage assets to be affected as a result of major developments. These are **minor negative effects**.

- Percentage of planning permissions granted in accordance with Heritage England advice.
- Number of applications refused on heritage grounds.
- Public realm improvements implemented.
- Number of updated Conservation Area Appraisals completed.
- Status of assets on the heritage at risk register.

Biodiversity and Geodiversity

The Plan is predicted to have **minor negative effects** related to the overall loss of green field land, and disturbance to habitats and species in some locations.

Though several developments would impinge upon important habitats, the Plan seeks to mitigate effects and achieve a net gain in biodiversity. This should lead to **major positive effects**. However, the effects are uncertain, as success would depend upon scheme details.

- Net loss / gain in designated habitats (ha).
- Net change in tree coverage (ha).
- Quantity and extent of additional land contributing to the ecological network as a result of planning permissions granted.
- Number of planning approvals with conditions to ensure works to manage/enhance the condition of SSSI / SAC / SPA / Ramsar sites / features of interest / local designations.
- The amount of new or improved PROWs (Km/Miles).

Accessibility

The Plan is likely to have mostly positive effects. These could potentially be **major positive effects** in the longer term should major infrastructure improvements be secured.

Temporary disruption may occur on road networks, and some communities are likely to be reliant on car usage to access certain services. These are **minor negative effects**.

- Number and proportion of trips made by car, public transport, walking and cycling.
- Changes in peak congestion along key routes.
- Net change in the number of HGV trips generated within Warrington (and proportion of total freight).
- Cycle and footpaths created.
- Application monitoring.

Resource use and efficiency

Minor positive effects are predicted reflecting the support for energy and water efficient developments.

However, **minor negative effects** are also predicted as development will require raw materials and resource use and in overlaps with mineral safeguarded areas.

- Percentage of developments exceeding minimum energy efficiency requirements.
 - Percentage of developments that deliver the optional water efficiency standard.
 - Mineral resources extracted prior to development.
-

11.2 Next Steps

- 11.2.1 The Council has prepared the Submission Draft of the emerging Warrington Local Plan. It proposes to publish the Plan and other 'proposed submission' documents in accordance with Regulation 19 of the Town and Country Planning (Local Planning) Regulations 2012. A 6 week period will be provided for any representations to be received.
- 11.2.2 This SA report documents the SA process that has been undertaken in preparing the Local Plan and sets out a discussion of the significant effects that are likely to arise.
- 11.2.3 The final Plan will be 'submitted' for Examination in Public (EiP). The Council will also submit a summary of issues raised (if any) through representations at the publication stage so that these can be considered by the Government appointed Planning Inspector who will oversee the EiP. At the end of the EiP, the Inspector will judge whether or not the Plan is 'sound'.
- 11.2.4 Further SA work may be required to support the Plan-making process as it moves through Examination (for example the preparation of SA Addenda to deal with any proposed modifications).
- 11.2.5 Upon adoption of the Plan, an SA Statement must be prepared that sets out:
- How SA findings and the views of consultees are reflected in the adopted Plan,
 - Measures decided concerning monitoring.

APPENDIX A: THE SITE APPRAISAL FRAMEWORK

SA objectives	Criteria	Use	Significant positive effects likely	Positive effects likely	Negative effects likely	Significant negative effects likely	Rationale, assumptions and limitations
Economy and regeneration							
Strengthen the local economy and ensure sustainable economic growth	EC1: Would site development lead to the loss of employment land?	Housing and jobs	Employment development proposed	Not allocated for employment	Yes – low quality employment site	Yes – High quality employment site	Creation of employment land will help to encourage investment and job creation. Loss of employment land may not necessarily affect the economy negatively. Low quality / high quality as defined in the Employment Land Review
	EC2: Distance to Principal Road Network by vehicle.	Jobs and housing	<1mile	<3miles	>3miles	>4miles	It is assumed that sites with good access to the principal road network will be more attractive to developers.
Improve the education and skills of the population overall	Not applicable	-	-	-	-	-	The location of development is not considered likely to have an effect on the level of skills and education. New development would be expected to contribute to new school places (if possible) However, accessibility to a school can have an effect on whether pupils can attend the schools they want and can get there in a sustainable, healthy way. Therefore, criteria ACC1 and ACC2 are relevant for this SA objective.
Reduce poverty, deprivation and social exclusion and secure economic inclusion	EC3: How close is the site to key employment sites?	Housing	<1200m away	1.2km – 3km away	3km – 5km	>5km away	It is assumed that access to a job will help to reduce levels of deprivation. The closer job opportunities are likely to be more accessible to communities that do not have access to a car.
Health and Wellbeing							
Improve physical and mental health and reduce health inequalities	Not applicable.	-	-	-	-	-	A range of factors influence health and wellbeing. The location of a site is unlikely to have a major effect, unless this impairs access to health facilities, open space and jobs. These factors are already covered by other aspects of the framework such as accessibility.

Appendix A: Site Appraisal Framework

SA objectives	Criteria	Use	Significant positive effects likely	Positive effects likely	Negative effects likely	Significant negative effects likely	Rationale, assumptions and limitations
Reduce crime, disorder and the fear of crime	Not applicable.	-	-	-	-	-	The location of a site is not likely to have a major effect on crime and the fear of crime. Scheme layout and design can have an effect, but this would be addressed for individual planning proposals.
Enable groups to contribute to decision making and encourage a sense of community identity and welfare.	HW2: Is the area supported by community facilities? (<i>Village halls, places of worship, community centres</i>)	Housing	New facilities could be delivered (only applicable for large scale development that creates critical mass)	Community facilities within 1200m	Community facilities within 1200m-2000m	Loss of community facilities. No community facilities within 2000m	Access to a community facility is considered positive in terms of enabling groups to meet, build identities and engage in decision making. It is recognised that physical access to facilities does not necessarily encourage community development. Qualitative data will also be sought about the usage, condition and capacity of facilities
Provide, protect or enhance leisure opportunities, recreation facilities, green infrastructure and access to the countryside	HW 3: Access to local natural greenspace (ANGST). To what extent do the sites meet the following ANGST ³ standards? 1. <i>Natural greenspace at least 2 hectares in size, no more than 300 metres from home;</i> 2. <i>At least one accessible 20 hectare greenspace site within two kilometre of home.</i>	Housing	Standards met for both criteria.	Standards met for 1 criteria only	Standards not met for either criteria.	Loss of open space on more than 10% of the site	A negative impact is scored where standards are not met as it would require further consideration of mitigation measures. In some instances development could enhance provision, but this is not assumed at this stage. ANGST is considered a useful measure of the sustainability of locations.
	HW4: Access to formal play space	housing	<200m / On site facilities	<400m	<800m	>800m	Play spaces provide opportunities for child and adult interaction. Such sites should be accessible within a short walk, hence the lower thresholds. It should be acknowledged that lack of facilities may actually not be an issue of new development contributes to or creates on site facilities.

³ Natural England (2010) Nature Nearby: Accessible Natural Greenspace Standards (available online) at: <http://publications.naturalengland.org.uk/publication/40004?category=47004>

Appendix A: Site Appraisal Framework

SA objectives	Criteria	Use	Significant positive effects likely	Positive effects likely	Negative effects likely	Significant negative effects likely	Rationale, assumptions and limitations
Accessibility							
Reduce the need to travel, especially by car, improve choice and the use of more sustainable modes Protect and enhance accessibility for all the essential services and facilities.	ACC1: How accessible is the site to the nearest primary school on foot?	Housing	0-5min walk (0-400m) / Site development will provide new school	5 - 12.5 min walk (400m-1000m)	12.5 - 25min walk (1000 - 2000m)	> 25 min walk (2000m)	2000m is considered to be a maximum 'reasonable walking distance' ⁴ which could encourage less car use or shorter journeys by other forms of transport. Distance is measured from site boundary. The capacity of nearby primary schools will also need to be taken into account and further evidence will be sought to establish whether schools are capable of accommodating growth, and if not whether expansion would be possible. 1200m is considered an acceptable walking distance to secondary schools ²
	ACC2: How accessible is the site to the nearest Secondary school?	Housing	<1200m away	1.2km – 3km away	3km-5km	>5km away	
	ACC3: How well served is the site by a bus service?	Housing and jobs	Regular bus service within 200m	Low frequency bus service within 200m Regular bus service within 200m-400m	Low frequency bus service within 200m-400m Regular bus service within 400m-800m	Low frequency bus service more than 400m away Regular bus service more than 800m away	The Manual for Streets suggests that 'walkable neighbourhoods' will typically have access to a range of services and facilities within 800m ⁵ . Inclusive mobility: A Guide to best practice on access to pedestrian and transport infrastructure (DfT, 2005) – suggests that 400m is a desirable distance, and this is reflected in the Warrington Planning Obligations SPD. 'Regular' is considered to be a stop which is serviced 3 times in one hour (i.e. every 20mins). Low frequency is considered to be a stop which is serviced less than 3 times in one hour.
	ACC4: How accessible is the site to the nearest train station?	Housing and jobs	<1200m away	1.2km – 3km away	3km-5km	>5km away	<1200m is considered a reasonable walking distance ⁶ .
	ACC5: What is the overall distance to a GP service or health centre?	Housing	<1200m away	1.2km – 3km away	3km – 5km	>5km away	It is assumed that closer facilities will enable communities to better access healthcare, particularly those without access to a car. If information is available about the capacity of GP facilities, this will need to be factored into the appraisal. If there is limited capacity at a nearby GP for example, then the reality might be that the nearest GP is much further away.

⁴ CIHT (2000) Providing for Journeys on Foot

⁵ Department for Transport (2007) The Manual for Streets

⁶ CIHT (2000) Providing for Journeys on Foot

Appendix A: Site Appraisal Framework

SA objectives	Criteria	Use	Significant positive effects likely	Positive effects likely	Negative effects likely	Significant negative effects likely	Rationale, assumptions and limitations
Housing							
Ensure access to good quality, sustainable, affordable housing	HO1: To what extent will the development help to meet housing needs? <i>Deliverability and scale</i>	Housing	Site is available for development within the next 5 years Or Site is available for development within the plan period and will deliver over 750 dwellings and a high amount of affordable homes	Site is available for development within the plan period	Site is <u>potentially</u> available for development over the plan period There may be issues with the delivery of affordable housing)	Site not available for development (i.e. screened out)	Provision of a higher level of development would contribute more significantly to the Borough's housing targets and would achieve economies of scale. As per policy SN2 in the Adopted Local Plan, affordable housing targets will be higher on sites on Greenfield and outside of inner Warrington. It is important to recognise that availability may change over time. This assessment does not consider viability.
Natural Resources							
Ensure the sustainable and prudent use and management of natural resources including the promotion of natural resources including the promotion of sustainable drainage and water conservation. Protect, manage and improve local environmental quality including land, air and controlled waters and reduce the risk of flooding.	NR1: What are the potential impacts on air quality?	Housing and jobs	-	Development more than 1km from AQMA	Development within 1km of an AQMA	Development within 75m of AQMA	An Air quality Assessment is generally requested for proposals within 75m of an AQMA. There may be the potential for cumulative effects if more than one site is proposed in any area. These factors will need to be taken into account when strategic options are being assessed. It is recognized that development in areas that are not currently AQMAs could worsen air quality in these areas. If possible a qualitative assessment of the effects on air quality in general will be undertaken to supplement this objective assessment.

Appendix A: Site Appraisal Framework

SA objectives	Criteria	Use	Significant positive effects likely	Positive effects likely	Negative effects likely	Significant negative effects likely	Rationale, assumptions and limitations
	NR2: Could development of the site lead to the remediation of land potentially affected by contamination?	Housing and Jobs	Site is potentially contaminated and could be remediated.	Site is not thought to be contaminated	Site is potentially contaminated but may be difficult to remediate.	-	Most contaminated land is unlikely to be remediated without development funding. The presence of contamination could therefore be viewed positively where viability is not adversely affected.
	NR3: Would allocation of the site result in the loss of High Quality Agricultural Land?	Housing and Jobs	Does not contain any agricultural land grade 1-3b	Contains less than 10 hectares of agricultural land 1-3	Contains more than 10 hectares of agricultural land class 1-2 or a total of 20 hectares 1-3	Contains more than 20 hectares of agricultural land class 1-2	Although there is little guidance, the loss of 20 hectares triggers consultation with DEFRA/Natural England, which can be considered significant.
	NR4: Does the site fall within a Groundwater Source Protection Zone, as identified by the Environment Agency?	Housing and Jobs	-	Falls outside	Site falls within Zone 2 or 3	Site falls within zone 1 (inner protection zone)	Potential for negative impacts in zones 1-3. However, type of use would be important and mitigation would be possible.
	NR5: Is the site (or part of) within an identified flood zone?	Housing and Jobs	-	Site predominantly within flood zone 1 (>70%)	Contains areas of flood zone 2/3 (>30%)	Site contains large areas within flood zone 2/3 (>80%)	Provided that a site is not wholly within a flood zone 2/3 it should be possible to avoid and/or mitigate impacts. However, proximity to zone 1 is preferable as it reduces the risk and potential cost of mitigation. Sites wholly within zones 2 and 3 should be sieved out. However, for those sites where it is considered mitigation could still be implemented a 'red' categorization is given.
	RU3: Is there potential for safeguarded or identified mineral reserves to be sterilised?	Housing and Jobs	-	Not within identified areas / no effects	Within safeguarded / identified areas of importance, but unlikely to be a significant issues / losses	Within safeguarded / identified areas of importance	This will be reliant upon availability of data.

Appendix A: Site Appraisal Framework

SA objectives	Criteria	Use	Significant positive effects likely	Positive effects likely	Negative effects likely	Significant negative effects likely	Rationale, assumptions and limitations
Built and natural heritage							
Protect and enhance places and buildings of historic cultural and archaeological value.	BNH1: Proximity to designated heritage assets <ul style="list-style-type: none"> • Conservation Area • Nationally listed buildings • Scheduled Ancient Monuments • Registered Park or Garden. 	Housing and jobs	Opportunity to protect and / or enhance heritage assets	No heritage assets within or adjacent (50m) to the sites	Site contains or is within 50m from: Grade II heritage features Conservation area Registered park or garden	Site contains or is within 50m from: Grade 1 and II* heritage assets, Registered park or garden	The criteria combine a consideration of various heritage features to avoid potential duplication. E.g. an asset could be listed, in a conservation area and also a SAM. Proximity to heritage assets does not necessarily mean that impacts will occur, but it is assumed that they may be more likely ad this provides an objective mechanism for identifying potential issues. Will seek to supplement this with a qualitative assessment as outlined below.
	BNH2: Effects upon the significance and setting of heritage assets / the historic environment.		Opportunity to enhance heritage the historic environment	The historic environment is unlikely to change from its baseline position	Development could have negative effects on the historic environment but mitigation ought to be possible	Development likely to have significant effects upon the historic environment that cannot be mitigated	A qualitative assessment of sites will be undertaken if possible. This would involve a more holistic assessment of the potential effects of development on the historic environment, which cannot be achieved through a proximity based criteria alone.
Protect and improve the quality and character of places, landscapes, townscapes and wider countryside whilst maintaining and strengthening local distinctiveness and sense of place.	BNH3: Capacity of the landscape to accommodate development, while respecting its character.	Housing and jobs	High	Medium-high Medium.	Medium-low	Low	Relies upon the findings of Landscape Character Assessments and capacity studies.
Ensure high quality and sustainable design for buildings, spaces and the public realm that is appropriate to the locality.	Not applicable	n/a	n/a	n/a	n/a	n/a	n/a

Appendix A: Site Appraisal Framework

SA objectives	Criteria	Use	Significant positive effects likely	Positive effects likely	Negative effects likely	Significant negative effects likely	Rationale, assumptions and limitations
Biodiversity and Geodiversity							
Protect, maintain and enhance biodiversity and geodiversity.	BG1: Could allocation of the site have a potential impact on a European Site SSSI, SPA or SAC?	Housing and jobs	-	Outside catchment area	Within catchment area	Within 400m	The distance thresholds used are greater for European sites, then SSSIs, then local sites to reflect their level of designation. This does not mean that effects are automatically more significant though.
	BG2: Could allocation of the site have a potential impact on a SSSI	Housing and jobs	-	>400m	<400m	Within or adjacent to a designated site (<50m from site boundary)	
	BG3: Could allocation of the site have a potential adverse impact on designated Local Wildlife Sites, Local Nature Reserve, RIGs, Potential Wildlife Sites or any other site of wildlife or geodiversity value such as Ancient Woodland (including where BAP species and habitats have been recorded)?	Housing and jobs	-	<200m No priority habitats or species recorded	Contains or is adjacent to (50m) a local wildlife site / priority habitats or species have been recorded within 50m of the site. Suitable for biodiversity offsetting.	Contains a locally important site not suitable for biodiversity offsetting	It is assumed that sites within or adjacent to (<50m) a SSSI are more likely to have a direct impact. However, it is recognised that proximity does not necessarily equate to impacts as this is dependent upon the scheme design and type/condition of wildlife sites, <i>Measurements to be taken from site boundaries</i>
	BG4: What is the potential impact on TPOs?	Housing and jobs	-	No TPOs on site	TPOs present that could potentially be protected (i.e. confined to boundaries)	Multiple TPOs that would be difficult to protect (i.e. scattered throughout)	Development on a site containing multiple TPOs that are not confined to one area would be likely to result in unavoidable loss of these assets.
Climate Change and resource use							
Limit, mitigate and adapt to the impacts of climate change. Increase energy efficiency and production of renewable energy.	Not applicable	n/a	n/a	n/a	n/a	n/a	Site location may present opportunities to develop heat networks. However, the information required to make an accurate assessment of potential is not available.

Appendix A: Site Appraisal Framework

SA objectives	Criteria	Use	Significant positive effects likely	Positive effects likely	Negative effects likely	Significant negative effects likely	Rationale, assumptions and limitations
Minimise waste and maximise reuse, recovery and recycling.	RU1: Would allocation of the site result in the use of previously developed land?	Housing and jobs	Predominantly brownfield (>70%)	Partial Brownfield (>30%)	Site is predominantly Greenfield (>70%)	-	Brownfield redevelopment is considered likely to have a positive effect on the baseline position by encouraging reuse of land.
	RU2: Is there good access to a Household Waste Recycling Centre (HWRC)?	Housing	<5km	5km-10km	>10km	-	Use of HWRCs is by car. Access by foot is typically prohibited and unlikely.

APPENDIX B: APPRAISAL OF STRATEGIC ALTERNATIVES – HIGH LEVEL OPTIONS (PREFERRED DEVELOPMENT OPTION STAGE)

Methodology

The appraisal identifies and evaluates ‘likely significant effects’ on the baseline / likely future baseline associated with each alternative, drawing on the sustainability topics and objectives as a methodological framework.

The task of forecasting effects is inherently challenging due to:

- The high level nature of the policy measures under consideration;
- Being limited by definition of the baseline and (in particular) the future baseline;
- The ability of developers to design out/mitigate effects during the planning application stage.

In light of this, where likely significant effects are predicted this is done with an accompanying explanation of the assumptions made.⁷

It is important to note that effects are predicted based upon the criteria presented within the SEA Regulations.⁸ So, for example, account is taken of the nature of effects (including magnitude, spatial coverage and duration), the sensitivity of receptors, and the likelihood of effects occurring as far as possible. The potential for ‘cumulative’ effects is also considered. These effect ‘characteristics’ are described within the appraisal as appropriate under each sustainability topic. A table is also presented under each topic summarising the predicted effects and their characteristics (i.e. namely whether they are significant or not).

For each alternative, one of the following symbols has been allocated for each SA topic.

Significant negative effect	xxx	Minor positive effect	✓
Negative effect	xx	Positive effect	✓✓
Minor negative effect	x	Significant positive effect	✓✓✓
Neutral effect	↔	Effects are unclear	?

Assumptions

The requirement to maximise urban capacity was a constant for each of the options. The difference was in their approach to the allocation of Green Belt land for housing.

For each of the high level options, it was also presumed that employment growth would be delivered broadly in-line with the requirements set out in the EDNA and an understanding of the strategic opportunities for growth in specific sectors.

⁷ As stated by Government Guidance (The Plan Making Manual, see <http://www.pas.gov.uk/pas/core/page.do?pageId=156210>): "Ultimately, the significance of an effect is a matter of judgment and should require no more than a clear and reasonable justification."

⁸ Schedule 1 of the Environmental Assessment of Plans and Programmes Regulations 2004

Economy and employment

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	✓✓*	B1. Focus entirely on the Warrington urban area	✓✓✓*	C1. Focus entirely on the Warrington urban area	✓✓✓**
A2. Incremental growth in settlements	✓✓	B2. Incremental growth in settlements	✓✓✓	C2. Incremental growth in settlements	✓✓✓*
A3. Increased dispersal of development	✓	B3. Increased dispersal of development	✓✓	C3. Increased dispersal of development	✓✓*

Discussion of effects

Focus entirely on the Warrington urban area

Under scenario A, the level of growth may not fully support the aspirations for accelerated and higher economic growth. This could mean that the size of the local labour source that businesses are able to draw from is smaller, and the economic benefits for the town might be lesser. In terms of matching employment to housing, new opportunities for employment are located to the South of the borough, but existing opportunities also exist to the north east at Birchwood, and there is proposed growth at J23 and 22 of the M6 that ought to be accessible to residents in Warrington. Therefore, growth to the north of the urban area, the central area itself and further south ought to be well matched to employment opportunities, geographically speaking. At higher levels of growth under B1 and C1 there would be increased local housing, which ought to better support aspirations for economic growth by increasing jobs in the construction trade as well as providing housing for a local labour force. This is recorded as having a significant positive effect.

By only focusing on the Warrington urban area though, this approach would not help to maintain the vitality and viability of services, facilities and businesses in the outer settlements, which could have negative implications for these areas. For example, a lower amount of spending on local businesses, less demand for public transport. Consequently, a minor negative effect is recorded for A1, B1 and C1. Conversely, a focus on the urban areas matches the vision for a ‘New City’, which should generate positive effects in the Warrington urban area by helping to support inward investment, more jobs and infrastructure improvements. For alternatives B1 and C1 a significant positive effect is predicted.

Levels of deprivation are highest in the inner parts of Warrington. Though development on the urban fringes would not necessarily have a direct positive effect upon the regeneration of such areas, it does provide new, affordable housing. This would create a larger, potentially more diverse housing market that people currently living in deprived areas could benefit from. There would also be an increase in jobs in the construction of such homes, but this will only benefit communities that possess the necessary skills or training. This is a positive effect for A1, B1 and C1. At higher levels of growth for B1 and C1, the effects ought to be more pronounced; therefore a significant positive effect is predicted for B1 and C1. For C1, however, the substantially higher amount of growth on Green Belt land at the urban fringes could discourage development (at least in the short term) on brownfield land in the inner parts of the urban area. This would be a negative effect in terms of regeneration.

Incremental growth in settlements / Increased dispersal of development

Levels of multiple deprivation in the outer settlements are low, and thus incremental development is unlikely to have a significant effect upon regeneration in these areas (which is not a priority here).

New homes would be available to residents from deprived communities, but it is less likely that they would be accessible if housing is priced similarly to those in the existing settlements (which are generally higher than the inner parts of Warrington). However, provision of new homes, including affordable homes, in settlements should have benefits by providing homes for people that wish to stay in the settlement but are struggling to afford a home there. Overall, an incremental or dispersed approach to development in the settlements is likely to have neutral effects in terms of deprivation. There would still, however be growth at the fringes of the Warrington area, and so positive effects should be experienced in these areas, as well as improved local housing choice in the settlements themselves.

For B2 and C2 these are predicted to be significant positive effects (for the same reasons described for B1 and C1).

Similar to C1, both C2 and C3 would also involve much higher levels of growth either in the settlements or on the edge of the urban area, all of which likely to be on Green Belt land, and potentially discouraging regeneration in the inner areas. This is recorded as a negative effect for C2 and C3.

A dispersed approach in particular does not match the aspiration for a 'New City' and so the positive effects predicted for B3 and C3 are not as great compared to B2 and C2.

Summary and recommendations

- All growth options ought to have positive effects on the economy and employment by supporting new jobs and homes. The higher the scale of growth, the more positive the effects are likely to be in this respect. However, at higher levels of growth (particularly under scenario C) the abundance of Green Belt land available for development could detract from efforts to regenerate inner Warrington (thus not supporting the Plan vision).
- A focus solely on the urban area would be unsupportive of the economies of the outer settlements, resulting in negative effects.

Health and Wellbeing

E. Meet OAHN needs 5,055		F. Economic aspirations 9,213		G. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	✓*	B1. Focus entirely on the Warrington urban area	✓✓*	C1. Focus entirely on the Warrington urban area	✓✓✓*
A2. Incremental growth in settlements	✓*	B2. Incremental growth in settlements	✓✓	C2. Incremental growth in settlements	✓✓✓
A3. Increased dispersal of development	✓	B3. Increased dispersal of development	✓✓*	C3. Increased dispersal of development	✓✓✓*

Discussion of effects

Focus entirely on the Warrington urban areas

The Warrington urban area is generally well served by health facilities and in parts serves some of the most deprived communities in the Borough. Therefore a focus on the urban area is generally positive with regards to regeneration and investment which can bring affordable homes and improvements to services and facilities. This is reflected by a positive effect of increasing magnitude for A1, B1 and C1. For B1 and C1, significant positive effects are predicted.

The capacity of health facilities varies in different parts of the urban area, with some areas being able to accommodate incremental growth (north and west) and others requiring expansion or new facilities (central, south, east). For A1, it would be possible to achieve incremental growth in certain parts of the urban area but other areas are more constrained, and so the effects on health facilities would be anticipated to be mixed. In some areas the growth might not be enough to support new facilities (central, south), and expansion could therefore just put pressure on existing facilities. In others (east, north, west) incremental growth could be accommodated more easily as existing health centres have some capacity and are not constrained in terms of expansion. Consequently, for A1, the effects in the urban area are predicted to be negative at this lower level of growth. At a higher level of growth under alternative B2, there would be a need for more than incremental growth in one or more of the urban areas. This would most definitely require expansion to health facilities, but this would be more viable with higher levels of growth. Expansion to facilities could also potentially benefit surrounding communities. This would be particularly helpful in areas of deprivation. A positive effect is predicted for B1. At a higher level of growth still (C1), there would be a need for multiple urban extensions and / or maximisation of opportunities in the urban area. It would be likely at this level of growth that development of larger extensions to the South might be necessary. Access to health facilities in this area is not ideal at the moment, and so substantial growth could help to improve access to services provided that new facilities are secured. A significant positive effect is predicted to reflect the potential investment in multiple new facilities in the urban area.

For each alternative A1, B1 and C1, there would be no growth in the outer settlements. This could have mixed effects. On one hand it would prevent additional pressure on those facilities that are nearing capacity. However, it also presents a missed opportunity to support extensions to facilities that could benefit new and existing communities. For each alternative, this is recorded as a negative effect. It should be noted though that residents in the outer settlements may not choose to register with a local practice anyway, as they might register in proximity to their place of work.

Incremental growth in settlements

Incremental growth at settlements ought to have a positive effect on health and wellbeing as it would support affordable housing provision across the borough. It should also help to support the viability of local services and public transport. Some settlements could absorb incremental growth without having a negative effect on health services (Culcheth- *together with Croft and Glazebury which rely on services here, Winwick – which could rely on services in the urban area*) whilst at others there would be a need to find solutions as capacity is limited (*Burtonwood, Lymm*). Overall, a positive effect is predicted for A2 and B2, with a significant positive effect for C2 to reflect the delivery of new facilities. With regards to effects in the urban area, the effects would be very similar to those described under A1, B1 and C1. For A1, there would still be a need for incremental growth in the urban area, and this is reflected by a neutral effect. At a slightly lower level of growth it may also be possible to avoid areas with capacity and expansion issues. For B2 and C2 the effects are the same as B1 and C1 in the urban area as there would still be a need to deliver expansions or new facilities, which could benefit new and existing communities.

Increased dispersal of development

With increased dispersal, some outer settlements might be unable to accommodate growth without new health facilities being provided. This is particularly the case should development be focused to only one or two specific settlements (rather than an overall increase in growth for all settlements). For A3, the amount of additional growth could possibly be managed if the pattern of growth was proportionate. However, focusing growth into particular settlements would more likely necessitate enhancements to services. In locations where existing facilities are at or near capacity and landlocked (Lymm for example) an increased scale of growth may have minor negative effects unless new facilities are secured. Increased growth would also lead to the loss of open space, for which standards are not being met at a number of settlements across the borough. It would therefore be important to ensure that new facilities were secured as part of development. For higher levels of dispersal under B3 and C3 (in particular), the increased level of growth might necessitate larger urban extensions at some settlements. These would require new facilities to be secured, and without them would lead to negative effects in terms of health care delivery. Conversely, the delivery of new facilities at higher scales of growth would constitute a positive effect. Increased development in the outer settlements would also better help in the provision of affordable housing, and could support the viability of existing community facilities (or new facilities). This would depend upon the scale of growth in particular settlements, but the potential for significant positive effects for the outer settlements is likely to be higher for C3.

With regards to the urban areas, the level of growth under A3 would be the lowest of all the alternatives. At this level of growth it would be expected that growth could be distributed so as to avoid putting pressure on health facilities. A neutral effect is predicted for the urban areas in this respect. Under B3, the level of growth in the urban area would most likely involve some incremental and some urban extensions. A mixed effect is predicted with positive effects in some areas and negative effects where growth puts pressure on services without delivering expansion or new facilities. The level of growth in the urban area under C3 would most likely require the development of several urban extensions, with the presumption that new facilities could be delivered to benefit new and existing communities. Consequently, the effects are predicted to be significantly positive.

Summary and recommendations

- Focusing on the urban areas would be most likely to benefit communities of need. At lower levels of growth however, the benefits in terms of expanded or new facilities might not be significant.

- Less than incremental growth in the outer settlements could generate negative effects on health and wellbeing as it does not support the vitality and viability of these settlements nor does it provide possible affordable housing.
- Incremental growth in some parts of the urban area may simply put pressure on existing services without securing the critical mass of growth required to enhance service provision. This is particularly the case for central and southern Warrington.

Accessibility

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	✓	B1. Focus entirely on the Warrington urban area	✓✓*	C1. Focus entirely on the Warrington urban area	✓✓**
A2. Incremental growth in settlements	✓*	B2. Incremental growth in settlements	✓✓*	C2. Incremental growth in settlements	✓✓**
A3. Increased dispersal of development	✓*	B3. Increased dispersal of development	✓*	C3. Increased dispersal of development	✓✓**

Focus entirely on the Warrington urban area

The Warrington urban area is generally well served by education facilities and other services, with regular bus services from most parts towards the centre. It ought to be possible to extend bus services to the urban fringes should it be proven viable and supported by the scale of growth. For some areas (west, east) incremental growth ought to be possible to accommodate at education facilities, and the effects on the local transport network therefore ought not to be significant. In other areas such as the central and south areas, incremental growth would be more difficult to support from existing facilities. Overall, A1 is predicted to have a minor positive effect with regards to accessibility, with the majority of development likely to be located in accessible locations, and able to be accommodated with incremental growth. However, there may be some pressures on school facilities that would be difficult to resolve without securing expansions / a critical mass to support new facilities.

At a higher scale of growth under B1 a number of urban extensions or site maximisation would be required in the urban area. It would be necessary to support such growth with new facilities and services. This would be positive in one sense as it could bring enhancements to communities where services are not ideal (for example to the south of the central area). However, this scale of growth would also be more difficult to accommodate on the road network without network upgrades and/or mitigation measures. Consequently a mixed effect is predicted. At the highest level of growth in the urban area under C1, the pressure for facilities would be significant and a number of new services would be required. The pressure on the road networks into and out of the urban areas would also be more substantial and would need to be explored. The potential for negative and positive effects is heightened under this option.

For A1, B1 and C1, there would be no growth in the outer settlements. This is positive on one hand, as it places development in the urban area which is in broad terms more accessible than these outer settlements. However, it also would not support any growth in areas that might benefit from some level of growth to support new facilities and services. Consequently, the effects on the outer settlements are recorded as neutral for these alternatives.

Incremental growth

Some settlements are not directly served by a GP, secondary school or leisure facilities (e.g. Burtonwood, Glazebury, Winwick, Hollins Green, Croft). Incremental growth in these areas would be unlikely to support these types of facilities. Development in these locations would therefore lead to an increased number of people living in areas that are not very accessible to such services. However, for Lymm and Culcheth development is more likely to be accessible to a wider range of services and facilities. Overall, a minor negative effect for A2, B2 and C2 is recorded to reflect these issues. With regards to the urban areas, A2, B2 and C2 would also involve growth in the urban areas at a similar level to A1, B1 and C1. The effects would therefore mirror those identified above for the urban area.

The difference here would be that slightly lower levels of growth would occur in the urban areas, and there would be incremental growth at the outer settlements.

Increased dispersal

Increased dispersal to the outer settlements could have mixed effects. On one hand, it may support new facilities and services in areas including Culcheth and Lymm. However, it would draw a greater amount of development from the more accessible urban centre of Warrington. At lower levels of dispersal, the effects are similar to A2, but as dispersal increased, the positive effects associated with growth in the urban area would be less prominent. Pressure on local road networks would need to be modelled to ascertain potential effects of dispersal compared to urban concentration. However, it is assumed that growth in the outer settlements would still contribute to an increase of traffic into the Warrington urban area and towards key junctions on the Motorway network. It is difficult to ascertain the effects accurately without modelling of particular development locations though (which ought to support further stages of SA).

Summary and recommendations

- Focusing on the urban area ought to ensure that more development is located in areas of good accessibility to facilities such as schools, jobs, and to public transport services. This contrasts with a more dispersed approach, which could put more development in less accessible locations (though for some settlements, this might help to support improvements).
- Incremental growth can broadly be accommodated in most areas, but for some, it would be more beneficial to deliver higher levels of growth in order to support new facilities and services. This is the case for the central / south of urban area.
- Higher levels of growth could be beneficial for new and existing communities, but only if supported by new facilities, which are located in areas that would improve accessibility.
- Effects on the highways network are difficult to predict without a more firm understanding of the location of development. Regardless of location, higher levels of growth under scenarios B and C could put pressure on the network, both into and out of Warrington and towards Motorway Junctions.

Housing

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	✓*	B1. Focus entirely on the Warrington urban area	✓✓*	C1. Focus entirely on the Warrington urban area	✓✓✓*
A2. Incremental growth in settlements	✓	B2. Incremental growth in settlements	✓✓✓	C2. Incremental growth in settlements	✓✓✓
A3. Increased dispersal of development	✓	B3. Increased dispersal of development	✓✓✓	C3. Increased dispersal of development	✓✓✓*

Discussion of effects

Focus entirely on the Warrington urban area

Under this approach, housing delivery would be concentrated in the Warrington urban area, this could be spread between the different parts of the urban area, or (increasingly likely at higher levels of growth) at large scale urban extensions to particular locations (for example to the South). The effects on housing are positive nonetheless, though the selection of sites will affect when the effects would be most likely to occur (i.e. in the short, medium or long term) and also, which communities might benefit the most.

A positive effect is predicted for A1, B1 and C1, with the magnitude of effects increasing for B1 and being significant for C1. These higher growth options would accommodate projected housing needs associated with accelerated economic growth and therefore provide a bigger housing market with a better degree of choice and flexibility. Higher levels of market housing would also lead to a greater provision of affordable housing. However, this approach to distribution would not help to deliver housing in any other settlements, which could affect affordability and choice in the outer settlements. This is a minor negative effect for each of the alternatives A1, B1 and C1.

Incremental growth in settlements

As well as delivery of housing in the Warrington urban area, incremental growth in settlements ought to help deliver 'local housing needs' in a number of settlements across the borough. This should help to ensure that there is a greater choice of housing overall and that affordability issues are potentially tackled where needed. For A2, the commensurate reduction in growth in the urban area would reduce the positive effects in those locations, but not to a significant degree. Consequently, a minor positive effect is predicted for A2. At higher scales of growth (B2 and C2), the outer settlements would still experience incremental growth, which would have positive effects as described above. However, the increased amount of growth in the urban areas would generate significant positive effects in those areas.

Increased dispersal of development

Increased dispersal of development would drive the level of development in the urban area down for A3, which could mean that needs in the inner parts of Warrington are less well catered for. Conversely, the higher level of growth in other settlements would have minor positive effects in these areas. Overall a minor positive effect is predicted across the borough. The effects are not predicted to be significant at this level of growth, as it does not match economic aspirations for growth, and so housing needs may only be met in part. Overall a positive effect is predicted for A3. For B3, the increased dispersal of growth in other settlements should have further positive effects in these locations, helping to improve affordability, but a large scale extension might be necessary (which could

deliver new sustainable settlements perhaps). For C3, there would probably be a need for one or more extensions to outer settlements, which ought to address affordability issues. The balance of housing in outer areas may also lead to less housing being brought forward in the earlier stages of the plan in the Warrington Urban area, which could be a negative effect in the short term, as these areas are the focus of regeneration efforts. A negative effect is predicted here for C3, as it directs the greatest amount of growth away from the urban area.

To ensure that individuals with the greatest need would benefit from new housing, and that new communities are diverse, mixed-tenure developments would be beneficial for any of the housing distribution options.

Summary and recommendations

- There are sufficient available and deliverable sites to support housing growth in either an incremental, dispersed or focused manner.
- Focusing growth solely on the urban area would be the least positive approach as it does not support affordable housing across the borough. Similarly, the growth of expensive homes on the edge of existing settlements would not tackle affordability issues.
- Promote mixed-tenure communities on new development sites.

Natural Resources: Agricultural land

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	-	B1. Focus entirely on the Warrington urban area	xx	C1. Focus entirely on the Warrington urban area	xxx
A2. Incremental growth in settlements	-	B2. Incremental growth in settlements	xx	C2. Incremental growth in settlements	xxx
A3. Increased dispersal of development	x	B3. Increased dispersal of development	xx	C3. Increased dispersal of development	xxx

Discussion of effects*Focus entirely on the Warrington urban area*

Land at the edges of the urban area is classified mainly as a mix of Grade 3 and Grade 2 land, which would make those parts of the urban area more sensitive to development. In particular, there are areas of predominantly Grade 2 agricultural land to the east of the urban area, with some parts also being Grade 1. Development in this location would lead to negative effects upon soil due to a permanent loss of such resources. To the west of the urban area, available land for development is mostly Grade 2. To the south of the central area and the southern area of the urban area, the land is a mix of Grade 2 and 3 and so there ought to be more scope to avoid the higher quality soils (Grade 2 and 3a) at lower scales of growth. Under growth scenario A, the level of development involved should allow for the most sensitive land in the urban area to be avoided (a neutral effect for A1). At higher levels of growth (B1 and C1) the need to develop on best and most versatile land would increase and thus potential significant negative effects would be higher, especially for scenario C1. Each of these alternatives would avoid the loss of agricultural land around the outer settlements.

Incremental growth in settlements

The outer settlements are surrounded by a mix of Grade 3 and Grade 2 agricultural land. In Culcheth, land is mostly Grade 3; whilst there is a mix of Grade 2 or 3 lands around most other settlements (Croft, Burtonwood, Lymm). With incremental growth in the settlements, there could be a loss of agricultural land of best and most versatile classification. However, the effects could be managed through smaller scale developments, and avoiding the most sensitive sites. A neutral effect is therefore predicted for A2, B2 and C2 for the outer settlements. For B2 and C2 however, there would still be a need to release substantial amounts of land around the urban area, which constitutes a negative effect for both B2 and C2.

Increased dispersal of development

With greater dispersal of growth there would be a need to release additional land in the outer settlements. For A3, the amount involved would be likely to require some loss of best quality agricultural land, which is represented by a minor negative effect. However this would be offset by a lower amount of growth in the urban fringes, helping to reduce the loss of land in these areas. For B3, the scale of growth in the other settlements would be greater, and this could mean that greater amounts of Grade 2 land would be affected. Conversely, the amount of growth in the urban fringes would be lower, helping to avoid negative effects in these areas. For C3, the amount of growth in the outer settlements would most likely require the loss of further Grade 2 land and it would be difficult to avoid such loss, particularly if large scale extensions to Croft and Lymm formed part of the strategy. Consequently, a significant negative effect is predicted for C3. There would still also be potential losses of agricultural land on the urban fringes, though the choice of sites could allow for some

avoidance given that growth in the urban area would be lower than compared to C1 and C2. Overall, the negative effects for C3 are expected to be significant.

Summary and recommendations

- At higher levels of growth agricultural land of best and most versatile value is likely to be lost. Where possible Grade 2 land should be protected in preference of Grade 3 land (or non-agricultural land).
- Incremental growth in settlements should be possible without having to develop grade 1 or 2 agricultural land.

Natural Resources: *Water quality*

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	-	B1. Focus entirely on the Warrington urban area	*	C1. Focus entirely on the Warrington urban area	**
A2. Incremental growth in settlements	-	B2. Incremental growth in settlements	*	C2. Incremental growth in settlements	**
A3. Increased dispersal of development	-	B3. Increased dispersal of development	*	C3. Increased dispersal of development	**

Discussion of effects

Growth has the potential to affect water quality regardless of location through pollutants in surface water run-off and demands upon the waste water and drainage networks. The higher the scale of growth the effects are likely to be more prominent, as pressures on the water environment would increase. Therefore, A1, A2 and A3 are less likely to have negative effects upon water whilst C1, C2 and C3 would have effects of a higher magnitude. A dispersed pattern of growth would place less pressure on any particular area, though a concentrated approach might allow for infrastructure upgrades to be secured.

Development in some locations could occur where there are Nitrate Vulnerable Zones (surface water), including on land to the west of the urban area, to the South of Burtonwood, parts of Culcheth, and on land to the south/south east of the urban area. A change in use from agricultural land to housing could potentially help to reduce nitrates run off in such areas, particularly where appropriate SUDs are secured. This could help to reduce negative effects, or lead to positive effects. However, it should be noted that nitrate vulnerable zones are largely present on Grade 2 agricultural land, the loss of which would be negative in other respects.

Summary and recommendations

- Higher levels of growth are most likely to have negative effects upon water quality.
- SUDs should be implemented as part of developments to help protect and improve water quality

Natural resources: Air quality

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	-	B1. Focus entirely on the Warrington urban area	xx	C1. Focus entirely on the Warrington urban area	xxx
A2. Incremental growth in settlements	-	B2. Incremental growth in settlements	x	C2. Incremental growth in settlements	xx
A3. Increased dispersal of development	-	B3. Increased dispersal of development	x	C3. Increased dispersal of development	xx

Discussion of effects*Focus entirely on the Warrington urban area*

Focusing growth in/on the edge of the Warrington urban area could generate increased traffic in the town centre areas, contributing to air quality issues here. Conversely, these areas are most likely to have good access to services, public transport and employment, and so vehicular trips are likely to be lower compared to a dispersed pattern of growth. For scenario A1, the level of growth is predicted to have a neutral effect, as it would not lead to higher levels of growth than would be anticipated in the absence of the Plan. At a higher level of growth under scenario B1, a focus entirely on the Warrington Urban area could put pressure on routes in and out of the town centre, as well as 'outward' to the M62, M56 and M6. This could contribute to a worsening of air quality in the town centre and at motorway junctions. A moderate effect is predicted at this level of growth. At the highest level of growth under scenario C1, a significant negative effect is predicted, as there would be a substantial increase in traffic likely to be generated in the Warrington urban area. This could have an adverse effect on air quality in the town centre in particular.

Incremental growth in settlements

Under scenario A2, incremental growth at the outer settlements would mean a slightly lower level of growth in the urban area, thereby lessening traffic likely to be generated in these areas. However, there may still be trips from the outlying settlements to the town centre. The amount of growth at the outlying settlements (under an incremental approach) would be unlikely to have a significant effect on air quality, as trips generated at any one location would not be substantial. A neutral effect is predicted for A2. At a higher level of growth, there would be heightened pressure on the urban areas, which equates to a minor negative effect for B2. It is still considered unlikely that incremental growth in the outlying settlements would create air quality issues in those areas. Under Scenario C3, the level of growth in the urban area would be likely to be substantial, and therefore a moderate negative effect is predicted.

Increased dispersal of development

Under scenario A3, the level of growth in the urban area is predicted to have a neutral effect on air quality. The level of growth 'dispersed' to the outlying settlements would still be relatively modest under scenario A, and so neutral effects are also predicted with regards to these areas. For Scenario B3, the potential for negative effects in both the urban areas and the outlying settlements would be increased, and so a minor negative effect is predicted. For C3 the effects on the urban area could be increased still, and the focused growth associated with a higher level of growth in the outlying settlements could contribute to localised air quality issues (for example a major extension to Lymm

Appendix B: Appraisal of Strategic Alternatives – High Level Options

could contribute to air quality issues at motorway junctions). Consequently, a moderate negative effect is predicted.

Natural Resources: resource use and efficiency

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	✓	B1. Focus entirely on the Warrington urban area	✗	C1. Focus entirely on the Warrington urban area	✗✗
A2. Incremental growth in settlements	✓	B2. Incremental growth in settlements	✗	C2. Incremental growth in settlements	✗✗
A3. Increased dispersal of development	✓	B3. Increased dispersal of development	✗	C3. Increased dispersal of development	✗✗

Discussion of effects

The use of raw materials and resources is more dependent upon the level of growth rather than location. Therefore, growth scenario A is likely to have a positive effect in terms of the use of water, energy and raw materials. This scale of growth (A1) would be likely lower than might otherwise come forward given the level of economic growth and aspirations. Therefore a positive effect is predicted in terms of resource use.

As the scale of growth increases, so too would the use of resources. The efficiency of resource use is unlikely to be significantly different for any of the alternatives, as efficiency is more a product of design and operational practices rather than the distribution of growth. Therefore, the effects are not predicted to be more or less significant for any of the distribution approaches.

With regards to minerals, there are significant peat deposits to the east and north-east of the urban area, which is a constraint to development. There is an imperative to protect peat resources as they perform important functions such as carbon storage and biodiversity. It is likely that peat resources could be avoided at lower levels of growth for scenario A (provided that distribution is not focused to the east of the urban area). At higher levels of growth, peat resources could still be avoided, but this would require a deliberate avoidance of such areas (i.e. east of the urban area)

There are widespread deposits of glaciofluvial deposits across Warrington, giving rise to potential sand and gravel resources. These are located within parts of the urban area, extending into the countryside; with substantial areas to the north and east of the urban area, and smaller potential deposits on parts of the southern fringes of the urban area. The settlements of Culcheth, Croft and Lymm also have large areas of potential deposits to the north of those settlements.

At higher levels of growth, it is more likely that development could take place in areas that contain sand and gravel resources. In particular, under growth scenarios B and C, there would be an increased need for larger scale urban / settlement extensions; which could fall within areas identified as potential minerals safeguarding areas. A minor negative effect is predicted for B1, B2 and B3 and a negative effect for C1, C2 and C3. It is difficult to ascertain whether mineral resources would be sterilised or not, as further exploration may reveal that no deposits are on particular sites, or that they can be extracted feasibly before development (though this could affect rates of delivery). Therefore these particular effects are uncertain.

Summary and recommendations

- Higher levels of growth are likely to result in the use of a greater amount of natural resources. However, resource efficiency could potentially be improved if development strategies promote such behaviours.

Appendix B: Appraisal of Strategic Alternatives – High Level Options

- Development to the east of the urban area presents a constraint with regards to peat resources and should be avoided given the availability of ample alternative development locations across the Borough.
- Many of the submitted sites fall within areas that are identified as safeguarded areas for sand and gravel. It is important to undertake more detailed studies at a site specific level to understand which locations could possibly lead to the sterilisation of resources.

Natural resources: *Flooding*

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	-	B1. Focus entirely on the Warrington urban area	*	C1. Focus entirely on the Warrington urban area	**
A2. Incremental growth in settlements	-	B2. Incremental growth in settlements	*	C2. Incremental growth in settlements	**
A3. Increased dispersal of development	-	B3. Increased dispersal of development	*	C3. Increased dispersal of development	**

Discussion of effects*Focus entirely on the Warrington urban area*

In the main, potential development sites within the Warrington urban area and its fringes are not at risk of flooding from watercourses. The exceptions are parts of sites to the south west/south central areas which are intersected by flood zones 2 and 3, and to the east of the urban area. At lower levels of growth (A1) it ought to be possible to avoid these areas, or provide suitable uses and mitigation measures. At higher levels of growth (B1/C1) the potential for development in areas at risk of flooding increases slightly, but development strategies would still not necessarily need to involve areas at risk of flooding. Having said this, the overall effects of increased development could affect surface water run-off rates and infiltration rates. This could possibly be managed with SUDs and other infrastructure improvements, but is a potential negative effect for B1 and C1.

Incremental growth in settlements

In the main, at least one or more of the potential development sites around the outer settlements are not at risk of flooding. Incremental growth should therefore be possible without having a significant effect on flood risk in these areas. Some settlements present a greater risk of flooding than others (e.g. Glazebury) but at incremental growth, there are sites identified that would be able to accommodate development without locating in flood zones 2 or 3.

As for the overall levels of growth, increased development has potential to affect surface water run-off and infiltration, and so higher levels of growth are more likely to lead to an increased amount of hard standing. It should be noted though that strategic developments could perhaps present opportunities to implement SUDs, which would help to minimise negative effects and promote enhancements.

Increased dispersal of development

The effects for this pattern of growth would be similar to those described for incremental growth. It would still be possible to deliver larger scale developments at several settlements in areas of flood zone 1.

Summary and recommendations

- There are sufficient development sites available across the borough to accommodate growth under any of the scenarios.
- Land to the east of the urban area is at risk of flooding and ought to be avoided given the availability of land elsewhere in the borough within flood zone 1.

Built heritage

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	✓	B1. Focus entirely on the Warrington urban area	✗✓	C1. Focus entirely on the Warrington urban area	✗✗✓
A2. Incremental growth in settlements	-	B2. Incremental growth in settlements	✗	C2. Incremental growth in settlements	✗✗
A3. Increased dispersal of development	✗	B3. Increased dispersal of development	✗✗	C3. Increased dispersal of development	✗✗✗

Discussion of effects

Focus entirely on the Warrington urban area

There are heritage assets located both within and on the fringes of the Warrington urban area. Development therefore has the potential to have direct effects upon the significance of heritage assets, as well as their setting. For growth Scenario A, there are a number of ways development could be distributed. It is therefore difficult to ascertain effects on particular features/areas. However, in broad terms the scale of growth ought to be possible to accommodate by dispersing growth, avoiding sensitive areas (such as land to the west which shows ancient field patterns and parts of the south which exhibit evidence of medieval settlements). A Neutral effect is predicted for A1 regarding the urban area. For B1 and C1, the scale of growth in the urban area would be much higher, and would necessitate larger scale growth, or development in all parts of the urban area, making it more difficult to avoid sensitive areas, and also being more likely to affect the setting of heritage assets; particularly those that rely upon an open / rural character on the settlement fringes. A minor negative effect is predicted for B1, with a more pronounced negative effect for C1. Conversely, each of these three alternatives protects the outer settlements from development, several of which would be sensitive to changes to the settlements form and size. Consequently, a minor positive effect is recorded for each alternative reflecting the stronger degree of protection from development.

Incremental growth in settlements

For alternative A2, there would be less growth in the urban areas, but incremental growth in the other settlements, potentially at Lymm, Culcheth, Burtonwood, Croft, Winwick and Hollins Green. The potential for effects would depend upon the level and location of growth at each of these locations. However, broad effects can be predicted assuming a dispersed pattern of growth (which could be accommodated at this scale of growth). Croft is particularly sensitive to change given its small scale character, and the presence of ancient field systems, therefore, potential negative effects could occur, but these ought to be mitigated if growth is restricted. Similarly, Lymm is sensitive to change, but there is a greater range of sites here, which should allow incremental growth to be accommodated without significant negative effects. Culcheth, Burtonwood and Winwick are perhaps less sensitive to incremental growth compared to these other settlements, so significant negative effects ought to be avoidable at this level of growth under A2. The level of growth in the urban area under this alternative would also be commensurately lower, and thus the potential for effects here would too be avoided somewhat more so than for A1. Overall, the effects of A2 are expected to be neutral. For B2 and C2, it is assumed that the level of incremental growth in the outer settlements would be the same as for A1. Therefore, the effects in these areas remain the same (i.e. neutral). However, there would be increased growth in the urban areas (as per B1 and C1), and so negative effects are recorded.

Increased dispersal to settlements

For Scenario A3 growth in the settlements would be higher and there would be a reduction in the urban area. This could mean that some of the outer settlements would need to accommodate more intensive or higher levels of growth. Or alternatively, there could be one or several settlement extensions. In either case, the potential for negative effects increases, as the scale of growth is likely to affect the setting of heritage assets, and may also encroach onto agricultural land that exhibits ancient field patterns. For B3 and C3 even greater amounts of growth are proposed (both overall and in the outer settlements), which would put pressure on the most sensitive land and may make it difficult to avoid large scale changes to the character of settlements such as Croft, Burtonwood and Lymm. At the scale of growth required here, there would be significant negative effects anticipated. Though there would be a lesser amount of growth in the urban areas compared to A2, B2, and C2, it would still be substantial and would be likely to have negative effects in the urban areas/fringes.

Summary and recommendations

- High levels of growth are likely to have negative effects on the urban area, outer settlements or both.
- Broadly speaking, a dispersed approach to development generates more negative effects than incremental growth or focus on the urban area.
- Ensure appropriate densities are achieved on settlement extensions to help maintain the setting of heritage assets in these areas.

Landscape

A. Meet OAHN needs 5,055		B. Economic aspirations (9,213)		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	✓	B1. Focus entirely on the Warrington urban area	✓**	C1. Focus entirely on the Warrington urban area	✓***
A2. Incremental growth in settlements	-	B2. Incremental growth in settlements	*	C2. Incremental growth in settlements	***
A3. Increased dispersal of development to settlements	✓*	B3. Increased dispersal of development to settlements	**	C3. Increased dispersal of development to settlements	***

Discussion of effects

Focus on the Warrington urban area

At a lower level of growth under scenario A, growth focusing on the urban area (A1) could be delivered in a number of ways; either at an urban extension, or dispersed across a number of sites. The nature of effects would depend upon the pattern of development. As the level of growth increases under scenario B1, it would become more necessary to look at larger urban extensions as dispersal would become more difficult. This would be even more so under growth scenario C1. Common to each of these growth scenarios is a lack of development in the other settlements within the Borough. This would help to protect areas with sensitive landscape character such as land surrounding Lymm and Outrightington, Croft and Burtonwood. This is positive for the rural landscape character that is present in many of these areas. Consequently, a minor positive effect is recorded for A1, B1 and C1. The picture for the urban area would be different however, depending upon the scale of growth. At a lower level of growth (A1) the effects in the urban area could be managed easier, as it would be possible to disperse growth as well as avoiding large scale growth in the more sensitive areas. Therefore, the effects on the urban area under this growth scenario are negligible. At a higher level of growth under B1 (and more so for C1), the effects are more likely to be negative, as there would be a need to consider larger scale urban extensions. Landscape character surrounding the urban area is variable, but in most cases, the greater the amount of intrusion into the countryside will lead to encroachment into sensitive landscapes. Consequently, potential negative effects are recorded for B1 and C1 related to the urban fringes. At this stage, these effects are uncertain given the pattern of development in the urban area could vary; however, larger scale growth is more likely to lead to significant effects irrespective of location.

Incremental growth at settlements

Under this approach, incremental growth would occur at the outer settlements. The exact location of development will determine effects, but it is possible to make some broad assessments of potential effects at this level of growth for the 'outer settlements'. Under alternative A2, development could be more readily dispersed across a number of settlements, and so the negative effects on any one area would be less significant. Consequently, a neutral effect is predicted for A2 and B2 with regards to the outer settlements. Though there are sensitive landscapes here, a dispersed approach ought to be possible to accommodate. For A2, the amount of growth to be located in the urban area could also be accommodated without affecting the character of the urban fringe too greatly. Therefore a neutral effect is predicted overall for A2. For B2 and C2, growth in the outer settlements would still be incremental, and so effects in this respect would be the same as for A2 (i.e. broadly neutral).

However, the balance of development in the urban area would be much higher than for A2, and so large scale urban developments could be required to support this level of growth.

A potential negative effect is predicted to reflect this, with this being significant for C2.

Increased dispersal of growth to settlements

Increased dispersal of growth to settlements under A3, would not necessarily lead to the need for a large scale settlement extension, as the amount of growth involved could be more easily distributed across several settlements. However, a greater scale of growth could necessitate the need for denser development that affects rural character, or the need to release additional sites in one or more of the settlements. Given the sensitive nature of the landscape, a potential minor negative effect is predicted. Conversely, the level of growth at the urban fringes would be the lowest under this option than any other, which would mean that the character of these areas ought to be best protected under this approach (reflected by a minor positive effect for A3). For B3, the level of development in the outer settlements would be substantial, and would most likely require one or potentially more settlement extensions. This could have a significant negative effect on particular settlements, as none would be unaffected by such a scale of development. In particular, the settlements of Lymm and Outrightington, Croft and Hollins Green could be negatively affected. The scale of growth on the urban fringes would still need to be at a scale similar to that under A1, which ought to be manageable without having significant effects (depending upon distribution). For C3, the effects upon the outer settlements would be even more pronounced, with it being likely that one or more very large settlement extensions would be required. A significant negative effect could therefore be expected. The level of growth would also require substantial development at the urban fringes, which too would have negative effects, though at a lesser scale than for the outer settlements.

Summary and recommendations

- Anything more than incremental growth in the outer settlements is likely to lead to significant negative effects upon landscape and visual character. For some settlements, it may be more difficult to mitigate effects of more than incremental growth (Hollins Green, Croft, Lymm for example).
- The effects of growth on the urban fringes are likely to be significant and difficult to mitigate at the highest level of growth tested (scenario C).
- The distribution of growth in the urban fringes will affect landscape character. This will need to be tested. In broad terms, a concentration to the east is very constrained by sensitive landscape. Appropriate levels of growth to the north and south west ought to be possible to accommodate without significant effects upon landscape character.
- There may be opportunities to enhance the exposed crest landscape of Burtonwood, provided that growth is incremental.

Biodiversity and geodiversity

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	-	B1. Focus entirely on the Warrington urban area	✓*	C1. Focus entirely on the Warrington urban area	✓***
A2. Incremental growth in settlements	-	B2. Incremental growth in settlements	✓*	C2. Incremental growth in settlements	✓**
A3. Increased dispersal of development	*	B3. Increased dispersal of development	✓**	C3. Increased dispersal of development	✓***

Discussion of effects

Focus on the Warrington urban area

Parts of the Warrington urban area and fringes in particular are important locations for wildlife, including the River Mersey estuary and SSSIs to the east of the urban area in particular. Growth in these areas is most likely to have negative effects, either through increased recreational pressure, noise and land disturbance and pollution such as in surface water run-off. At the lower levels of growth under scenario A, it would be possible to avoid these sensitive areas by focusing growth more to the south, north and west, and/or at a more manageable level in these areas. Consequently, a neutral effect is predicted for A1. Though land surrounding the outer settlements would remain protected from development, this is considered to be a neutral effect rather than a positive. For B1, the level of growth almost doubles, and so there would be a need for increased release of land. Should this include land to the east, or more intense development to the south west and west, then the potential for negative effects on wildlife would be increased. Irrespective of development location, the quantum of growth involved is likely to have a negative effect on habitats and species in the urban area and fringes. Conversely, there may be opportunities to enhance green infrastructure networks, as well as protecting the rural areas. A minor positive and a minor negative effect is predicted for B1 reflecting these issues. For growth scenario C, the level of growth in the urban area would be substantial and could require the release of larger parcels of land in sensitive areas, and /or more intense development. The ability to mitigate effects could be more difficult given the need to accommodate a much greater number of homes, although similar to B2, there could be potential for enhancements to green infrastructure. Overall though, the effects would be mostly negative, and significant.

Incremental growth in the settlements

At an incremental scale of growth at the outer settlements, it ought to be possible to avoid direct effects on designated national wildlife sites and local wildlife sites in these locations. Consequently, a neutral effect is predicted for A1, B1 and C1 with regards to the outer settlements. At the scale of growth involved, it is not likely that strategic improvements to green infrastructure would be delivered in the majority of outer settlements.

Under B2 the increased level of growth in the urban area could have mixed effects (depending upon the precise location and spread of development). Though the level of growth in the urban area would be slightly less than for B1, the effects are likely to be similar for B2. For C2, the effects would be similar to C1, though the slightly lower levels of growth in the urban area may have a less significant negative effect (compared to C1). This is due to potentially avoiding the need to develop several parts of the urban area more intensively, or avoiding the most sensitive areas.

Increased dispersal of growth to settlements

At a higher level of growth to the outer settlements (increased dispersal) some areas may struggle to accommodate additional growth without having negative effects upon biodiversity. For example, Hollins Green is in very close proximity to a number of SSSIs; Burtonwood and Croft may need to involve development adjacent to local wildlife sites, and there are a number of sites in Lymm that could be affected depending on the scale and location of growth. The precise effects depend on the sites involved and the scale of growth between different settlements. In broad terms though, a minor negative effect would be likely overall for A3. As the level growth increased further under scenario B, so too would the level of growth at the outer settlements (and the urban area). It may still be possible to avoid the most sensitive areas, but there would be a need for more intensive growth in some settlements (and the urban area), which could potentially have negative effects. A Major extension to any of the settlements would be likely to have significant negative effects for biodiversity, whether this be due to sites being within or adjacent to Local Wildlife Sites (Croft / Burtonwood / Lymm), the loss of hedgerows and protected trees or cumulative effects upon SSSIs (Hollins Green / Lymm). Conversely, a large scale extension to settlements and increased dispersal in general may offer opportunities for GI enhancement, which is recorded as positive for B3 and C3.

Summary and recommendations

- Incremental growth is unlikely to have a significant effect upon biodiversity in both the outer settlements and the urban areas/fringes (i.e. it ought to be possible to avoid sensitive sites as well as avoiding cumulative pressure in any one part of the borough).
- A large scale settlement extension would lead to significant negative effects in some locations such as east of the urban area, which is in close proximity to a number of SSSIs. Dependent upon location, a large scale settlement could also have cumulative negative effects in Lymm (Several local wildlife sites).
- A strategy that focused on the east / south east of the urban area as well as a large scale growth at Lymm could have the potential for significant negative effects upon biodiversity as there are a number of connected habitats including SSSIs, forested areas and grassland.

Climate change and resource use

A. Meet OAHN needs 5,055		B. Economic aspirations 9,213		C. Past employment trends 14,064	
A1. Focus entirely on the Warrington urban area	-	B2. Focus entirely on the Warrington urban area	*	C1. Focus entirely on the Warrington urban area	**
A2. Incremental growth in settlements	-	B2. Incremental growth in settlements	*	C2. Incremental growth in settlements	**
A3. Increased dispersal of development	-	B3. Increased dispersal of development	*	C3. Increased dispersal of development	**

Discussion of effects

Irrespective of the distribution of development, growth is likely to lead to an increase in the use of energy and resources, and in the generation of waste. Therefore, scenarios B and C, which aspire to increased levels of economic growth, would have effects of a greater magnitude by encouraging more housebuilding to support increased economic activity. Scenario A is predicted to have a neutral effect, as this level of growth would be likely to come forward anyway to meet projected population needs.

Opportunities for district heating networks are more likely to be present where there is demand for heat and / or anchor loads, and no major obstacles to the development of a network. The type of development (i.e. multiple uses) also affects the viability of district heating for example. Given that the majority of development sites are on the urban fringes of Warrington, or the other settlements, the likelihood of district heating schemes being incorporated into such developments is unclear. At a large urban extension that promotes mixed-use development, the opportunities ought to be greater. This scale of development would be less likely to occur within the outlying settlements, and more likely at a major urban extension to the south east with supporting infrastructure.

Waste generation and collection regimes are most likely to be affected at higher levels of growth regardless of location (*given that development under any of the scenarios would be focused on established settlements where waste and recycling collection is already occurring*).

With regards to green infrastructure enhancement for climate change resilience, there is potential for networks to be affected (either positively or negatively) by development in both the urban areas and the other settlements. Effects are more likely to be identified at a site specific level and potential enhancement / mitigation measures should also be possible to establish (for example strengthening networks of GI and improving access to such areas).

Summary and recommendations

- Resource use and waste generate is likely to be most influenced by growth rather than distribution of development. Therefore, in road terms increased growth leads to more negative effects.
- The River Mersey Floodplain is an important green infrastructure corridor that ought to be protected and enhanced to improve resilience to climate change. With this in mind, growth running along this corridor has the potential for negative or positive effects dependant on the nature and design of development. Where GI networks are severed by the existing Warrington urban area, development on the fringes should seek to help connect the rural areas to the urban areas more effectively, as well as looking at how the existing urban areas could be 'greened' so that networks pass through urban areas and continue into the rural areas beyond. An example would be the improvement of the River Mersey Corridor as it passes through the urban area to the south of the town centre and then re-emerges to the east of the urban area joining with the Woolston Eyes SSSI.

Summary of appraisal findings

	Economy and regeneration	Health and wellbeing	Accessibility	Housing	Natural resources: Agricultural land	Natural resources: Water Quality	Natural resources: Air Quality	Natural resource; resource efficiency	Natural resources: Flooding	Built Heritage	Landscape	Biodiversity and Geodiversity	Climate change and resource use
A. Meet OAHN needs (5,055)													
A1. Urban area	✓✓✗	✓✗	✓	✓✗	-	-	-	-	-	✓	✓	-	-
A2. Incremental growth	✓✓	✓✗	✓✗	✓	-	-	-	-	-	-	-	-	-
A3. Further dispersal	✓	✓	✓✗	✓	✗	-	-	-	-	✗	✓✗	✗	-
B. Economic aspirations 9,213													
B1. Urban area	✓✓✓✗	✓✓✗	✓✓✗	✓✓✗	✗✗	✗	✗✗	✗	✗	✗✓	✓✗✗	✓✗	✗
B2. Incremental growth	✓✓✓	✓✓	✓✓✗	✓✓✓	✗✗	✗	✗	✗	✗	✗	✗	✓✗	✗
B3. Further dispersal	✓✓	✓✓✗	✓✗	✓✓✓	✗✗	✗	✗	✗	✗	✗✗	✗✗	✓✗✗	✗
C. Past employment trends 14,064													
C1. Urban area	✓✓✓✗✗	✓✓✓✗	✓✓✗✗	✓✓✓✗	✗✗✗	✗✗	✗✗✗	✗✗	✗✗	✗✗✓	✓✗✗✗	✓✗✗✗	✗✗
C2. Incremental growth	✓✓✓✗	✓✓✓	✓✓✗✗	✓✓✓	✗✗✗	✗✗	✗✗	✗✗	✗✗	✗✗	✗✗✗	✓✗✗	✗✗
C3. Further dispersal	✓✓✗	✓✓✓✗	✓✓✗✗	✓✓✓✗	✗✗✗	✗✗	✗✗	✗✗	✗✗	✗✗✗	✗✗✗	✓✗✗✗	✗✗

Discussion of options

With regards to the scale of growth, scenario A which would deliver the OAN is predicted to have the least negative effects upon environmental factors including landscape, agricultural land, natural resources, biodiversity and built heritage.

The effects against these factors increase with the scale of growth, with mostly minor negative effects recorded for scenario B (Devolution Bid) and moderate to major effects for scenario C (Higher growth rate). In particular, the higher growth rate would lead to significant effects upon agricultural land and landscape, regardless of distribution.

Conversely, scenario A would have the least positive effects with regards to economic and social factors. Broadly speaking, the options within scenario A would not generate more than a minor positive effect with regards to health and wellbeing, housing and accessibility. As the scale of growth increases as for scenario B and C, the positive effects upon the economy, housing and health are more pronounced. Whilst scenario C has broadly greater positive effects compared to the same distribution options in Scenario B, the differences are not substantial for housing or economy, but more pronounced for health and wellbeing. However, whilst accessibility improves for scenario B and C, the higher scale of growth under scenario C could lead to more pronounced negative effects associated with pressure on the road network.

On balance, growth scenario B performs the most favourably against the full range of criteria. It would have more pronounced positive effects upon social and economic factors that scenario A does not achieve; and whilst the environmental effects are more pronounced they are mostly minor in nature, and ought to be possible to manage.

Compared to Scenario C, the social and economic effects are not quite as great for Scenario B. However, the environmental effects for Scenario C are more significant, and could be difficult to mitigate. Furthermore, negative effects upon accessibility arise at a higher level of growth.

With regards to distribution, the effects of the distribution options are fairly similar (relative to the scale of growth). The main differences relate to the following sustainability factors:

For built environment, landscape and biodiversity the effects of greater dispersal are likely to be more negative compared to a focus on the urban area or incremental growth. Furthermore, whilst a dispersal approach could be beneficial for housing delivery, it would be less likely to support economic growth (i.e. the New City Concept) and would generate more accessibility issues.

With regards to social and economic factors an incremental approach to growth performs more favourably than a focus on the urban area alone, mainly because the urban focus could have negative effects upon the local economies, housing provision and facilities for the outlying settlements.

APPENDIX C: APPRAISAL OF STRATEGIC ALTERNATIVES: HIGH LEVEL OPTIONS

PRE-SUBMISSION

The following four alternatives have been identified with regards to the amount of housing to be planned for. Each have been tested in the SA taking into account three different forms of spatial distribution.

	D: Standard Methodology (2016 base)	E: Standard Methodology	F: Economic Growth scenario	G: Updated Standard Methodology
Annual requirement	735	909	945	816
D,E,F = 2017 to 2037 G = 2021 to 2038	14,700	18,180	18,900	14,688
Flexibility @ 10%	1,470	1,818	1,890	1,469
Total Requirement	16,170	19,998	20,790	16,157
Urban Capacity	13,726	13,726	13,726	11,785
Green Belt Requirement	2,444	6,272	7,064	4,372

Methodology

The appraisal identifies and evaluates 'likely significant effects' on the baseline / likely future baseline associated with each alternative, drawing on the sustainability topics and objectives as a methodological framework.

The task of forecasting effects is inherently challenging due to:

- The high level nature of the policy measures under consideration;
- Being limited by definition of the baseline and (in particular) the future baseline;
- The ability of developers to design out/mitigate effects during the planning application stage.

In light of this, where likely significant effects are predicted this is done with an accompanying explanation of the assumptions made.⁹

It is important to note that effects are predicted based upon the criteria presented within the SEA Regulations.¹⁰ So, for example, account is taken of the nature of effects (including magnitude, spatial coverage and duration), the sensitivity of receptors, and the likelihood of effects occurring as far as possible.

⁹ As stated by Government Guidance (The Plan Making Manual, see <http://www.pas.gov.uk/pas/core/page.do?pagelid=156210>): "Ultimately, the significance of an effect is a matter of judgment and should require no more than a clear and reasonable justification."

¹⁰ Schedule 1 of the Environmental Assessment of Plans and Programmes Regulations 2004

Appendix C: Appraisal of Strategic Alternatives – High Level Options (Pre Submission)

The potential for ‘cumulative’ effects is also considered. These effect ‘characteristics’ are described within the appraisal as appropriate under each sustainability topic.

A table is also presented under each topic summarising the predicted effects and their characteristics (i.e. namely whether they are significant or not).

For each alternative, one of the following symbols has been allocated for each SA topic.

Significant negative effect	xxx	Minor positive effect	✓
Negative effect	xx	Positive effect	✓✓
Minor negative effect	x	Significant positive effect	✓✓✓
Neutral effect	↔	Effects are unclear	?

Economy and employment

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	✓ / xx	E1. Focus entirely on the Warrington urban area	✓✓✓ ? / x	F1. Focus entirely on the Warrington urban area	✓✓✓ / x	G1. Focus entirely on the Warrington urban area	✓✓ / x
D2. Incremental growth in settlements	✓ / xx	E2. Incremental growth in settlements	✓✓✓	F2. Incremental growth in settlements	✓✓✓	G2. Incremental growth in settlements	✓✓
D3. Increased dispersal of development	✓ / xx	E3. Increased dispersal of development	✓✓	F3. Increased dispersal of development	✓✓	G3. Increased dispersal of development	✓✓

Discussion of effects

Focus entirely on the Warrington urban area

Under scenario D, the level of growth proposed would not meet housing needs identified under the government methodology. Furthermore, it would not be aligned with the strategic economic plan aspirations for economic growth. This could mean that the size of the local labour source that businesses are able to draw from is smaller, and the economic benefits for the town might be lesser, as well as leading to an imbalance between jobs and locally available homes. This is the case for each reasonable form of distribution. Consequently, significant negative effects are recorded for each option in this respect.

In terms of matching employment to housing, new opportunities for employment are located to the South of the borough, but existing opportunities also exist to the north east at Birchwood, and there is proposed growth at J23 and 22 of the M6 that ought to be accessible to residents in Warrington. Therefore, growth to the north of the urban area, the central area itself and further south ought to be well matched to employment opportunities, geographically speaking.

At a higher level of growth under scenario E1, there would be increased local housing, which ought to better support aspirations for economic growth by increasing jobs in the construction trade as well as providing housing for a local labour force. This is recorded as having a moderate positive effect.

By only focusing on the Warrington urban area though, this approach would not help to maintain the vitality and viability of services, facilities and businesses in the outer settlements, which could have negative implications for these areas. For example, a lower amount of spending on local businesses, less demand for public transport. Consequently, a minor negative effect is recorded for D1 and E1.

Conversely, a focus on the urban areas matches the vision to sustain urban regeneration, which should generate positive effects in the Warrington urban area by helping to support inward investment, more jobs and infrastructure improvements. This is a minor positive effect for option D1 (given the lower scale of growth), but a significant positive effect for options E1 and D1 (which better align housing and employment).

Levels of deprivation are highest in the inner parts of Warrington. Though development on the urban fringes would not necessarily have a direct positive effect upon the regeneration of such areas, it does provide new, affordable housing. This would create a larger, potentially more diverse housing market that people currently living in deprived areas could benefit from. There would also be an increase in jobs in the construction of such homes, but this will only benefit communities that possess the necessary skills or training. This is a positive effect for option D1. For options E1 and F1 more prominent effects are likely.

Overall, the effects for option D1 are mixed. On one hand, minor positive effects are generated through the provision of affordable housing in Warrington, and the location of homes and employment are well aligned. However, the scale of growth may not be sufficient to provide accommodation for a growing economy. The focus on the urban area would also do little to support the economies of these settlements. Together, these are minor negative effects also.

The effects for E1 and F1 are similar, but the positives ought to be more pronounced given the better alignment between housing provision and employment growth. The distribution would still remain the same though, and so benefits for settlements in the outer areas would be minimal. Overall, **significant positive effects** are predicted, along with a minor negative.

Growth Option G would have effects similar to Options E and Option F. Though the overall level of land release in Greenbelt is lower, the overall level of growth still seeks to take account of economic aspirations, but the plan period has been rebased and economic growth prospects have been reviewed. The positive effects in terms of regeneration and matching homes to employment opportunities would still be released, and overall, this amounts to significant positive effects. As per options E and F, there would be little support for outer settlements, and so minor negative effects exist too.

Incremental growth in settlements / Increased dispersal of development

Levels of multiple deprivation in the outer settlements are low, and thus incremental development is unlikely to have a significant effect upon regeneration in these areas (which is not a priority here). Therefore, alternatives D2, E2 and F2 would have neutral effects in this respect.

New homes would be available to residents from deprived communities, but it is less likely that they would be accessible if housing is priced similarly to those in the existing settlements (which are generally higher than the inner parts of Warrington). However, provision of new homes, including affordable homes, in settlements should have benefits by providing homes for people that wish to stay in the settlement but are struggling to afford a home there. Overall, an incremental or dispersed approach to development in the settlements is likely to have neutral effects in terms of deprivation for each alternative.

There would still, however be some growth at the fringes of the Warrington area, and so positive effects should be experienced in these areas, as well as improved local housing choice in the settlements themselves. For Option D2, the effects are likely to be minor, as the overall scale of growth involved at the urban fringes is low, and across the borough there may be an imbalance between housing and economic growth. For option E2, the effects are more likely to be **significantly positive**, as the scale of growth involved is much higher at the urban fringes.

Incremental growth at the settlements should have some benefits for the vitality of these settlements, and could bring with it improvements to infrastructure, which would be beneficial for existing businesses. A minor positive effect is predicted for both Options D2 and E2 in this respect.

Growth Option G would have minor positive effects in both the outer settlements and the urban fringes with regards to the vitality of settlements. There would also be potential to match housing with existing and planned employment opportunities. A degree of additional growth around the urban areas could also potentially help in terms of addressing deprivation. Overall, moderate positive effects are predicted.

Increased dispersal

A dispersed approach in particular does not match the aspiration to promote urban regeneration and so the positive effects predicted for D3 are unlikely to be significant. Furthermore, the benefits with regards to tackling deprivation would be fewer.

Greater dispersal to the outer settlements could involve a new urban extension in one settlement, plus incremental growth at others. This would have positive effects in these areas, and could help to promote investment. Similar to option D1 and D2, the overall scale of growth across the borough for D3 would not match economic aspirations, and so positive effects would be limited.

Overall, option D3 is predicted to have mixed effects. Whilst positives could be generated for the outer settlements, the balance between homes and jobs would not be optimal, nor would accessibility be as good for deprived communities. Consequently, a minor negative effect is predicted also for Option D3.

For Options E3 and F3, the higher scale of growth overall would mean that growth at the urban fringes would be involved as well as higher growth in the outer settlements.

There could be two urban extensions as part of this option in the outer settlements, as well as incremental growth at other settlements.

This ought to have positive effects on the economies in these locations, as well as potentially involving employment land at urban extensions or existing employment areas. This level of growth would also involve development at the urban fringes, which could help to match jobs with areas of need. Whilst the effects for the inner areas would not be as beneficial compared to Option E2, the overall effects are likely to be **significantly positive** for option E3 and F3 when combining the benefits in the urban and outer settlements.

Growth Option G would involve benefits and both the outer settlements and the urban areas in a similar way to Options E3 and F3. Overall, these are moderate positive effects given the scale of growth involved.

Summary and recommendations

- At the lowest levels of growth, there are some positive effects, but there may be a disparity between employment growth and accommodation, hence there are negative effects, and the positives are only minor.
- The higher growth scenarios are more likely to have positive effects on the economy and employment by supporting new jobs and homes. The higher the scale of growth, the more positive the effects are likely to be in this respect.
- A focus solely on the urban area would be unsupportive of the economies of the outer settlements, resulting in minor negative effects. Conversely, a focus solely on the outer settlements would not help to tackle deprivation as well, and would generate negative effects also.

Incremental growth plus urban focus involves a sensible balance of growth between the urban area and the settlements. With regards to economic benefits and regeneration priorities, a higher amount of growth in the urban areas is preferable, but not exclusively at the expense of growth in the outer settlements.

Health and Wellbeing

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	✘	E1. Focus entirely on the Warrington urban area	✓✓✘	F1. Focus entirely on the Warrington urban area	✓✓✘	G1. Focus entirely on the Warrington urban area	✓✘
D2. Incremental growth in settlements	✓	E2. Incremental growth in settlements	✓✓	F2. Incremental growth in settlements	✓✓	G2. Incremental growth in settlements	✓✓
E3. Increased dispersal of development	✓✘	E3. Increased dispersal of development	✓✘	F3. Increased dispersal of development	✓✘	G3. Increased dispersal of development	✓✘?

Discussion of effects

Focus entirely on the Warrington urban areas

The Warrington urban area is generally well served by health facilities and in parts serves some of the most deprived communities in the Borough. Therefore a focus on the urban area is generally positive with regards to regeneration and investment (in the more deprived areas of the borough) which can bring affordable homes and improvements to services and facilities. This is reflected by a neutral effect for D1 and a significant positive effect for E1 and F1 (due to increased likelihood of housing needs being met in full and carefully matching economic growth to housing provision).

The capacity of health facilities varies in different parts of the urban area, with some areas being able to accommodate incremental growth (north and west) and others requiring expansion or new facilities (central, south, east). For D1, the level of growth is relatively low and so neutral effects upon health facilities are predicted. For E1, it would be possible to achieve growth in certain parts of the urban area but other areas are more constrained, and so the effects on health facilities would be anticipated to be mixed. In some areas the growth might not be enough to support new facilities (central, south), and expansion could therefore just put pressure on existing facilities. In others (east, north, west) incremental growth could be accommodated more easily as existing health centres have some capacity and are not constrained in terms of expansion. Consequently, for E1, the effects in the urban area are predicted to be negative.

At a higher level of growth under scenario F1, there would be a need for more than incremental growth in one or more of the urban areas. This would require further expansion to health facilities, but might be more viable given the slightly higher levels of growth. Expansion to facilities could also potentially benefit surrounding communities. This would be particularly helpful in areas of deprivation. A minor positive effect is therefore predicted for F1.

For each alternative D1, E1 and F1, there would be no growth in the outer settlements. This could have mixed effects. On one hand it would prevent additional pressure on those facilities that are nearing capacity. However, it also presents a missed opportunity to support extensions to facilities that could benefit new and existing communities. For each alternative, this is recorded as a negative effect. It should be noted though that residents in the outer settlements may not choose to register with a local practice anyway, as they might register in proximity to their place of work.

Overall, alternative D1 is predicted to have a minor negative effect. On one hand, it would not lead to substantial pressure on existing services, but would miss opportunities to support new facilities. There would also be negative effects associated with a lack of growth in the outer settlements.

Overall, alternative E1 is predicted to have mixed effects. On one hand it would lead to greater pressure on health services, but the scale of growth ought to help support new facilities.

This scale of growth would also provide a much greater amount of affordable housing. Therefore, a minor positive effect is predicted. There would also be minor negative effects associated with a lack of growth in the outer settlements.

The overall effects for alternative F1 are predicted to be broadly the same as for E1, despite there being a slightly higher level of growth

Growth Option G has minor negative effects for the outer settlements, but also offers the potential for some benefits in terms of supporting new facilities in the urban areas. This option should also be able to address deprivation through improvements to urban facilities and services. As such minor positive effects are recorded. The magnitude of positive effects is lower than for option E and F due to the lower overall level of growth involved.

Incremental growth in settlements

Incremental growth would support affordable housing provision and the viability for local services and public transport across the borough, and thus a positive effect is predicted. Some settlements could absorb incremental growth without having a negative effect on health services (*Culcheth- together with Croft and Glazebury which rely on services here, Winwick – which could rely on services in the urban area*) whilst at others there would be a need to find solutions as capacity is limited (*Burtonwood, Lymm*). Overall, a positive effect is predicted for D2, E2 and F2 for the outer settlements. With regards to effects in the urban area, at a lower level of growth (such as D2), it should be possible to avoid areas with capacity and expansion issues. For E2, there would still be a need for incremental growth in the urban area, and this is reflected by a neutral effect. For F2, the effects are the same as F1 in the urban area as there would still be a need to deliver expansions or new facilities, which could benefit new and existing communities. Given that positive effects would be likely across many of the boroughs settlements, the positive effects are more likely to be significant.

Growth Option G is predicted to have minor positive effects for the outer settlements for the reasons discussed above. In addition, there would be growth in the urban areas which should be at a scale that can be accommodated without affecting facilities. In fact, the spread of growth ought to ensure that development has benefits across the borough and so potentially moderate positive effects are predicted.

Increased dispersal of development

With increased dispersal, some outer settlements might be unable to accommodate growth without new health facilities being provided. This is particularly the case should development be focused to only one or two specific settlements (rather than an overall increase in growth for all settlements). Depending upon the scale of growth though at a larger extension there would be a possibility of new facilities due to economies of scale.

For scenario D3 the amount of additional growth could possibly be managed if the pattern of growth was proportionate. However, focusing growth into particular settlements would more likely necessitate enhancements to services. In locations where existing facilities are at or near capacity and landlocked (Lymm for example) an increased scale of growth may have minor negative effects unless new facilities are secured. Increased growth would also lead to the loss of open space, for which standards are not being met at a number of settlements across the borough. It would therefore be important to ensure that new facilities were

secured as part of development. For higher levels of dispersal under E3 and F3 (to a slightly greater extent), increased levels of growth may require urban extensions or sufficient urban fringe growth that would subsequently facilitate improvements in health provision, resulting in a positive effect. Equally, where new facilities are not secured, a negative effect on health care delivery is possible. Increased development in the outer settlements would also better help in the provision of affordable housing, and could support the viability of existing community facilities (or new facilities). This would depend upon the scale of growth in particular settlements though.

With regards to the urban areas, the level of growth proposed under each alternative could be reasonably distributed to minimise pressures on health facilities. This is in particular the case for D3. Thus, a neutral effect is predicted. Under scenarios E3 and F3, the level of growth proposed would likely involved a combination of incremental and urban extensions / urban fringe developments. A mixed effect is predicted with positive effects in some areas and negative effects where growth puts pressure on services without delivering expansion or new facilities.

Growth Option G3 is predicted to have mixed effects, similar to E3 and F3. Incremental growth would likely bring some minor positive effects, as would the effects in the urban fringes. However, with regards to increased dispersal, this could potentially put pressure on services in certain settlements, which is an uncertain minor negative effect.

Summary and recommendations

- Focusing on the urban areas would be most likely to benefit communities of need. At the lowest levels of growth however, the benefits in terms of expanded or new facilities are likely to be absent.
- Less than incremental growth in the outer settlements could generate negative effects on health and wellbeing as it does not support the vitality and viability of these settlements nor does it provide possible affordable housing.
- Small amounts of Incremental growth in some parts of the urban area may simply put pressure on existing services without securing the critical mass of growth required to enhance service provision. This is particularly the case for central and southern Warrington.

A degree of growth (incremental) in the outer settlements should be part of the spatial strategy, as without this there are fewer opportunities to support enhanced social infrastructure and tackle affordability issues.

Accessibility

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	✓	E1. Focus entirely on the Warrington urban area	✓✓*	F1. Focus entirely on the Warrington urban area	✓✓*	G1. Focus entirely on the Warrington urban area	✓*
D2. Incremental growth in settlements	✓*	E2. Incremental growth in settlements	✓✓*	F2. Incremental growth in settlements	✓✓*	G2. Incremental growth in settlements	✓✓?*
D3. Increased dispersal of development	✓*	E3. Increased dispersal of development	✓✓* *	F3. Increased dispersal of development	✓✓* *	G3. Increased dispersal of development	✓✓?*

Focus entirely on the Warrington urban area

The Warrington urban area is generally well served by education facilities and other public services and retail, with regular bus services from most of the outer areas towards the centre.

Where proved viable and supported by the scale of growth, it should be possible to extend bus services to the urban fringes. For some areas (west, east), there is capacity at educational facilities, ensuring effects access to schools by sustainable means. In other areas such as the central and southern areas, incremental growth would be more difficult to support from existing facilities.

Overall for Option D1, growth is likely to be restricted to several urban extensions around the urban area. Alternatively, it might be at one larger urban extension. The effects would be dependent upon the precise configuration of growth. However, broadly speaking, growth ought to be in accessible locations, and able to be accommodated with incremental growth. There might be some pressure on existing facilities, but it ought to be possible to manage. If a larger urban extension was involved, new facilities would be supported, and so the effects could be positive also. Overall, a minor positive effect is predicted for this option. With regards to infrastructure improvements, the lower level of growth may be less likely to contribute financially towards major schemes, which could potentially have implications. For this reason, positive effects are not likely to be significant.

For alternative E1, there are likely to be some pressures on school facilities that would be difficult to resolve without securing expansions / a critical mass to support new facilities. In some instances this may be possible, but in others it may lead to new development having to travel further distances to access education and other services. At this scale of growth it would be more difficult to accommodate additional trips on the road network without network upgrades and/or mitigation measures. However, there would be a greater likelihood that enhancements could be secured in terms of expanded or new bus routes as well as financial contributions towards major infrastructure schemes (such as the Western Link Road). Consequently, mixed effects are predicted. On one hand moderate positive effects could be generated, but minor negatives may also be felt should access to services be lacking at some developments and congestion increases (even if only a short term impact).

At the scale of growth proposed under option F1, an additional large site would be required in the urban area. Depending upon the location, there could be further negative effects, but it would be unlikely to be substantially different to E1. The contributions towards infrastructure improvements would also be marginally higher.

For D1, E1 and F1, there would be no growth in the outer settlements. This is positive on one hand, as it places development in the urban area which is in broad terms more accessible than the outer settlements. However, it also would not support any growth in areas that might benefit from some level of growth to support new facilities and services. Consequently, the effects on the outer settlements are recorded as neutral for these alternatives.

Growth Option G could have positive effects with regards to investment in new infrastructure to support new development and existing urban areas. There is a degree of uncertainty though. New development in the urban fringes ought to have relatively good accessibility, but minor negatives may also be felt should access to services be lacking at some developments and congestion increases (even if only a short term impact).

Incremental growth

Some settlements are not directly served by a GP, secondary school or leisure facilities (e.g. Burtonwood, Glazebury, Winwick, Hollins Green, Croft). Incremental growth in these areas would be unlikely to support these types of facilities. Development in these locations would therefore lead to an increased number of people living in areas that are not very accessible to such services. However, for Lymm and Culcheth development is more likely to be accessible to a wider range of services and facilities. Overall, a minor negative effect for D2, E2 and F2 is recorded to reflect these issues. With regards to the urban areas, D2, E2 and F2 would also involve growth in the urban areas at slightly lower level compared to D1, E1 and F1. The effects would therefore be similar to those identified above for the urban area. The difference here would be that slightly lower levels of growth would occur in the urban areas.

Growth Option G is predicted to have minor negative effects to reflect potential accessibility issues in outer settlements related to incremental growth. In the urban areas, there could be some minor benefits in relation to improvement in accessibility. However, as per options E2 and F2, there could also be some minor effects in terms of congestion.

Increased dispersal

Increased dispersal to the outer settlements could have mixed effects. Whilst it may support improved provision of facilities and services in areas including Culcheth and Lymm, it would draw a greater amount of development from the more accessible urban centre of Warrington. For alternative D3, the effects are a positive with regards to potential improvements associated with larger urban extensions in Lymm / Culcheth, but negative in terms of limited investment in the most accessible locations.

For E3, there would be positive effects associated with growth in the urban area. Pressure on local road networks could increase, particularly in the short term, but the need to travel ought to reduce and investment in strategic infrastructure would be greater. Therefore, moderate positive effects are likely.

With incremental growth at the outer settlements, there would be mixed effects with regards to service accessibility. It is also likely that development here would contribute to an increase of traffic into the Warrington urban area and towards key junctions on the Motorway network. It is difficult to ascertain the effects accurately without modelling of particular development locations though. Broadly speaking though. The overall effects for E3 are moderate negatives and moderate positives.

For F3, the level of growth in the outer settlements increases somewhat further, which could put added pressure upon a particular location such as Lymm. This could generate potentially more prominent negative effects, and would also draw growth from the urban area to a greater extent compared to E3.

Growth Option G is predicted to have mixed effects. On one hand, negative effects are predicted to reflect the increased level of growth that would be in the outer settlements through both incremental growth and also a settlement expansion. Some minor positive effects could arise in relation to growth in the urban areas, which would be broadly accessible. There could also be some infrastructure improvements in both the urban areas and also associated with a larger extension in settlements such as Lymm.

Summary and recommendations

- Focusing on the urban area should ensure that more development is located in areas of good accessibility to facilities such as schools, jobs, and to public transport services. This contrasts with a more dispersed approach, which could put more development in less accessible locations (though for some settlements, this might help to support improvements).
- Incremental growth can broadly be accommodated in most areas, but for some, it would be more beneficial to deliver higher levels of growth in order to support new facilities and services. This is the case for the central / south of urban area.
- Higher levels of growth could be beneficial for new and existing communities, but only if supported by new facilities, which are located in areas that would improve accessibility.

Effects on the highways network are difficult to predict without a more firm understanding of the location of development. Regardless of location, higher levels of growth under scenario F could put greater pressure on the network, both into and out of Warrington and towards Motorway Junctions. Compared to scenario G though, the effects would not be substantially different.

Housing

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	***	E1. Focus entirely on the Warrington urban area	✓✓✓? *	F1. Focus entirely on the Warrington urban area	✓✓✓ / *	F1. Focus entirely on the Warrington urban area	✓✓ / *
D2. Incremental growth in settlements	***	E2. Incremental growth in settlements	✓✓✓?	F2. Incremental growth in settlements	✓✓✓	F2. Incremental growth in settlements	✓✓
D3. Increased dispersal of development	***	E3. Increased dispersal of development	✓✓	F3. Increased dispersal of development	✓✓✓?	F3. Increased dispersal of development	✓✓

Discussion of effects

Focus entirely on the Warrington urban area

Under this approach, housing delivery would be concentrated in the Warrington urban area, this could be spread between the different parts of the urban area, or (increasingly likely at higher levels of growth) at large scale urban extensions to particular locations (for example to the South). The effects on housing are positive nonetheless, though the selection of sites will affect when the effects would be most likely to occur (i.e. in the short, medium or long term) and also, which communities might benefit the most.

For Option D1, a negative effect is predicted. The overall scale of growth may not fully support economic growth aspirations. Furthermore, this level of growth does not meet housing needs when using the base year of 2016 for applying the standard methodology as required by Government Guidance.

For Option E1 and to a greater extent F1, the effects would more likely be significantly positive as the higher amount of housing involved would better support housing needs and economic growth. Higher levels of market housing would also lead to a greater provision of affordable housing in areas of need (i.e. inner Warrington).

However, this approach to distribution would not help to deliver housing in any other settlements, which could affect affordability and choice in the outer settlements. This is a minor negative effect for each alternative.

Growth Option G would give rise to significant positive effects, but these would be concentrated at the periphery of the Warrington Urban area. As such, minor negative effects are predicted too.

Incremental growth in settlements

As well as delivery of housing in the Warrington urban area, incremental growth in settlements ought to help deliver 'local housing needs' in a number of settlements across the borough. This should help to ensure that there is a greater choice of housing overall and that affordability issues are potentially tackled where needed. For D2, the commensurate reduction in growth in the urban area would reduce the potential for benefits in those locations, but some benefits ought to remain. Overall though, a moderate negative effect is predicted for D2, when considering the combined effects across the borough (i.e. housing needs would not be met in full).

At the higher scale of growth for E2, the outer settlements would still experience incremental growth, which would have positive effects as described above. However, the increased amount of growth in the urban areas would generate more prominent positive effects in those areas. It is uncertain whether the effects

would be significant, as this would depend upon the deliverability of sites, their locations and the benefits to communities of need.

For F2, the effects would be similar to E2 but the likelihood of significant effects occurring is greater.

Growth Option G would give rise to significant positive effects. There are likely to be benefits across the borough given that there would be development at both the outer settlements and the urban areas. The scale of growth is in line with updated economic aspirations.

Increased dispersal of development

Increased dispersal of development would drive the level of development in the urban area down for D3, which could mean that needs in the inner parts of Warrington are less well catered for. This is a significant moderate negative effect, as these areas suffer most from deprivation, and affordable housing provision is a key factor in tackling such issues.

Conversely, the higher level of growth in other settlements could have some positive effects in these areas. Overall a significant negative effect is predicted. Any benefits would be minor and localised at this level of growth. There would also be a lack of targeted growth in areas of need, which have good access to employment opportunities (i.e. the urban areas) and the overall housing needs would not be met. Consequently, a significant negative effect is predicted for Option D3.

For E3, the increased dispersal of growth in outer settlements should have further positive effects in these locations, helping to improve affordability, but one or two large scale extensions might be necessary (which could deliver new sustainable settlements perhaps).

The balance of housing in outer areas may lead to less housing being brought forward in the earlier stages of the plan in the Warrington Urban area, which could be a negative effect in the short term, as these areas are the focus of regeneration efforts. However, in the longer term, benefits would still be generated with regards to the urban areas, because this approach does involve development in these areas too. Overall, a moderate positive effect is predicted. Significant effects are less likely given that the growth directed towards the urban areas lower.

For option F3, the effects are similar to E3, though a slightly higher level of growth is involved. This could therefore help to better meet housing needs potentially generating a significant positive effect.

Growth Option G would give rise to significant positive effects as the overall scale of growth would be in line with revised levels of future projected economic growth, and would provide housing choice in attractive locations across the borough.

Summary and recommendations

- There are sufficient available and deliverable sites to support housing growth in either an incremental, dispersed or focused manner. However, the benefits to communities would differ for each.
- Focusing growth solely on the urban area would be the least positive approach as it does not support affordable housing across the borough. Similarly, the growth of expensive homes on the edge of existing settlements would not necessarily tackle affordability issues. There is therefore a need to deliver a range of homes in different locations across the borough.
- To ensure that individuals with the greatest need would benefit from new housing, and that new communities are diverse, mixed-tenure developments would be beneficial for any of the housing distribution options.

Appendix C: Appraisal of Strategic Alternatives – High Level Options (Pre Submission)

- Whichever approach is promoted, there is a need to balance large-scale urban extensions (*that will require substantial infrastructure*), with smaller strategic sites that can come forward more quickly and help to accelerate housing provision in the short and medium term.
- With regards to the overall scale of housing growth, the lowest growth scenario would not provide sufficient housing to meet identified needs. As such, negative effects are predicted. The highest scales of growth would give rise to the greatest magnitude of effects. However, positive effects would still arise for Option G, which meets needs and provides an element of flexibility.

Natural Resources: Agricultural land

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021- 2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	-	E1. Focus entirely on the Warrington urban area	xx	F1. Focus entirely on the Warrington urban area	xx	G1. Focus entirely on the Warrington urban area	x
D2. Incremental growth in settlements	-	E2. Incremental growth in settlements	xx	F2. Incremental growth in settlements	xx	G2. Incremental growth in settlements	x
D3. Increased dispersal of development	-	E3. Increased dispersal of development	xx	F3. Increased dispersal of development	xx	G3. Increased dispersal of development	x

Discussion of effects*Focus entirely on the Warrington urban area*

Land at the edges of the urban area is classified mainly as a mix of Grade 3 and Grade 2 land, which would make those parts of the urban area more sensitive to development. In particular, there are areas of predominantly Grade 2 agricultural land to the east of the urban area, with some parts also being Grade 1. Development in this location would lead to negative effects upon soil due to a permanent loss of such resources. To the west of the urban area, available land for development is mostly Grade 2. To the south of the central area and the southern area of the urban area, the land is a mix of Grade 2 and 3 and so there ought to be more scope to avoid the higher quality soils (Grade 2 and 3a) at lower scales of growth. Under growth scenario D, the level of development involved should allow for the most sensitive land in the urban area to be avoided (a neutral effect for D1).

At higher levels of growth (E1 and F1) the need to develop on best and most versatile land would increase substantially and thus potential negative effects could occur. Each of these alternatives would avoid the loss of agricultural land around the outer settlements, but equally sensitive land is present at some parts of the urban fringes. Alternative F1 involves a higher level of growth compared to E1, and so the effects would be greater, however, the effects are recorded as broadly the same in the context of agricultural resources available across the borough. At this high level of assessment, it is unclear whether effects would be significant, but there ought to be sufficient flexibility to avoid significant effects.

Growth Option G would involve the release of greenbelt land around the urban areas. The scale of growth involved would be such that best and most versatile agricultural land would be lost. However, there would be some flexibility to avoid Grade 2 land. As a result, minor negative effects are predicted.

Incremental growth in the outer settlements

The outer settlements are surrounded by a mix of Grade 3 and Grade 2 agricultural land. In Culcheth, land is mostly Grade 3; whilst there is a mix of Grade 2 or 3 lands around most other settlements (Croft, Burtonwood, Lymm). With incremental growth in the settlements, there could be a loss of agricultural land of best and most versatile classification. However, the effects could be managed through smaller scale developments, and avoiding the most sensitive sites. A neutral effect is therefore predicted for D2, E2 and F2 for the outer settlements. For E2 and F2 however, there would still be a need to release substantial amounts of land around the urban area, which constitutes a moderate negative effect for both alternatives.

Growth Option G would involve limited growth in the outer settlements, such that the more sensitive soil resources could be avoided. There could still be some loss of agricultural land in the urban areas though, hence minor negative effects are predicted overall.

Increased dispersal of development

With greater dispersal of growth there would be a need to release additional land in the outer settlements. For D3, the amount involved would be likely to require some loss of best quality agricultural land, which is represented by a minor negative effect. However this would be offset by a lack of growth in the urban fringes, helping to reduce the loss of land in these areas.

For E3 and F3 (to a greater extent), the scale of growth in the other settlements would be greater, and this could mean that greater amounts of grade 3a and grade 2 land would be affected. Conversely, the amount of growth in the urban fringes would be proportionally lower, helping to avoid negative effects in these areas somewhat. For F3, the amount of growth in the outer settlements would most likely require the loss of further Grade 2 land and it would be difficult to avoid such loss, particularly if large scale extensions to Croft and Lymm formed part of the strategy. There would still also be potential losses of agricultural land on the urban fringes, though the choice of sites could allow for some avoidance given that growth in the urban area would be lower lesser.

Growth Option G is predicted to have minor negative effects overall. There would be a greater likelihood of agricultural land being affected in the outer settlements, especially at larger urban extensions. Though flexibility in the urban areas would be increased, there would still be some potential for overlap with soil resources.

Summary and recommendations

- With the exception of growth Scenario D, agricultural land of best and most versatile value is likely to be lost regardless of distribution. However, certain areas are more sensitive and ought to be avoided. The effects are more difficult to avoid at higher scales of growth under Options E and F, and hence are of greater significance compared to Option G.
- Regardless of distribution strategy, Grade 2 land should be protected in preference of Grade 3 land (or non-agricultural land).
- Incremental growth in settlements should be possible without having to develop grade 1 or 2 agricultural land. However, this is highly dependent upon the choice of sites, and so negative effects cannot be completely ruled out.

Though significant negative effects have not been predicted at this stage for the higher growth scenarios, these cannot be ruled out as the precise effects will depend upon sites involved.

Natural Resources: *Water quality*

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	-	E1. Focus entirely on the Warrington urban area	x / ✓	F1. Focus entirely on the Warrington urban area	x / ✓	G1. Focus entirely on the Warrington urban area	x [?] /✓ [?]
D2. Incremental growth in settlements	-	E2. Incremental growth in settlements	x / ✓	F2. Incremental growth in settlements	x / ✓	G2. Incremental growth in settlements	x [?] /✓ [?]
D3. Increased dispersal of development	-	E3. Increased dispersal of development	x / ✓	F3. Increased dispersal of development	x / ✓	G3. Increased dispersal of development	x [?] /✓ [?]

Discussion of effects

Growth has the potential to affect water quality regardless of location through pollutants in surface water run-off, sedimentation and demands upon the waste water and drainage networks. The higher the scale of growth the effects are likely to be more prominent, as pressures on the water environment would increase. Therefore, D1, D2 and D3 are less likely to have negative effects upon water quality.

At a higher scale of growth the potential for negative effects is higher, and so minor negative effects are predicted for each option under scenario E and F. With regards to distribution, a dispersed pattern of growth would place less pressure on any particular area, though a concentrated approach would increase pressure but might allow for infrastructure upgrades to be more easily secured. Broadly speaking, each of the distribution options ought to be possible to support with regards to drainage and waste water infrastructure. Development in some locations could occur where there are Nitrate Vulnerable Zones (surface water), including on land to the west of the urban area, to the South of Burtonwood, parts of Culcheth, Lymm and on land to the south/south west of the urban area. A change in use from agricultural land to housing could potentially help to reduce nitrates run-off in such areas, particularly where appropriate SUDs are secured. This could help to reduce negative effects, or lead to minor positive effects in the longer term. However, it should be noted that nitrate vulnerable zones are largely present on Grade 2 agricultural land, the loss of which would be negative in other respects. In terms of distribution, both the urban fringes and the outer settlements contain land that falls into this category, and so the likelihood of such effects is broadly the same.

Growth Option G is predicted to have potential minor negative and positive effects for the same reasons discussed above for the options under scenario E and F. The uncertainty relates to the lower level of growth, which might make it easier to avoid sensitive areas, but would also limit the potential for positive effects.

Summary and recommendations

- Significant effects upon water quality are unlikely to be generated regardless of distribution or scale of growth. However, at higher levels of growth, there will be a greater likelihood of negative effects occurring.

Securing comprehensive packages of SUDs and green infrastructure for strategic developments ought to help minimise the potential for negative effects on water quality.

Air quality

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	-	E1. Focus entirely on the Warrington urban area	xx / ✓✓?	F1. Focus entirely on the Warrington urban area	xxx? / ✓✓?	G1. Focus entirely on the Warrington urban area	xx / ✓
D2. Incremental growth in settlements	-	E2. Incremental growth in settlements	x / ✓✓?	F2. Incremental growth in settlements	xx / ✓✓?	G2. Incremental growth in settlements	x / ✓
D3. Increased dispersal of development	-	E3. Increased dispersal of development	x / ✓✓?	F3. Increased dispersal of development	xx / ✓✓?	G3. Increased dispersal of development	x / ✓

Discussion of effects

Focus entirely on the Warrington urban area

Focusing growth in/on the edge of the Warrington urban area is likely to generate increased traffic in the town centre areas, contributing to air quality issues here. Conversely, these areas are most likely to have good access to services, public transport and employment, and so vehicular trips are likely to be lower compared to a dispersed pattern of growth. For scenario D1, the level of growth is predicted to have a neutral effect, as it would not lead to higher levels of growth than would be anticipated in the absence of the Plan. On the other hand, infrastructure improvements would be less likely to be supported.

At a higher level of growth under scenario E1, a focus entirely on the Warrington Urban area could put pressure on routes in and out of the town centre, as well as 'outward' to the M62, M56 and M6. This could contribute to a worsening of air quality in the town centre and at motorway junctions. A moderate negative effect is predicted at this level of growth. Conversely, the level of growth directed to the urban area would be required to support infrastructure improvements (For example, financial contributions towards the proposed Western link road). This could help to draw trips away from the inner town centre, potentially improving air quality in the longer term. This is reflected by a potential positive effect in the longer term regarding the town centre AQMA.

At the highest level of growth under scenario F1, a potentially significant negative effect is predicted, as there would be a further increase in traffic likely to be generated in the Warrington urban area. This could have an adverse effect on air quality in the town centre and Motorway junctions in particular. Conversely, infrastructure improvements would be more likely to be supported, which could lead to positive effects in the longer term.

Growth Option G1 would be likely to have negative effects with regards to air quality as it would place development in the peripheral areas which could draw development along routes into the town centre. This is offset to an extent by the generally good accessibility, but nevertheless, a moderate negative effect is predicted at this scale of growth. It is unclear whether the scale of growth would be such that new infrastructure would be supported to relieve traffic. Therefore, positive effects are minor.

Incremental growth in settlements

Under scenario D2, incremental growth at the outer settlements would mean a slightly lower level of growth in the urban area, thereby lessening traffic likely to be generated in these areas. However, there may still be trips from the outlying settlements to the town centre.

The amount of growth at the outlying settlements (under an incremental approach) would be unlikely to have a significant effect on air quality, as trips generated at any one location would not be substantial. A neutral effect is therefore predicted for D2.

At a higher level of growth, there would be heightened pressure on the urban areas, which equates to a minor negative effect for E2. It is considered unlikely that incremental growth in the outlying settlements would create air quality issues in those areas. Overall, the higher level of growth is likely to increase trips throughout the borough, but a greater degree of dispersal ought to reduce the potential for negative effects. Positive effects could still be generated in the longer term if transport enhancements are secured to reduce congestion in the town centre and at motorway junctions.

Under Scenario F2 the level of growth in the urban area would be likely to be substantial, and therefore a significant negative effect could occur, particularly in the short term.

Growth Option G2 is predicted to have minor negative effects, as it will still involve concentrated growth in the urban areas as well as generating additional trips overall across the borough. However, the effects are considered likely to be minor negative given the lower scale of growth compared to E2 and F2. The potential for positive effects is also reduced to a minor positive.

Increased dispersal of development

Under alternative D3, the level of growth in the urban area is predicted to have a neutral effect on air quality given that all development would be dispersed to the outer settlements. The level of growth 'dispersed' to the outlying settlements would still be relatively modest under scenario D, and so neutral effects are also predicted with regards to these areas. Furthermore, air quality is not a significant issue in the outer settlements.

For alternative E3, the potential for negative effects in both the urban areas and the outlying settlements would be increased compared to D3. However, the greater dispersal of growth could mean that fewer trips are generated in the urban area (instead moving directly to strategic routes). Therefore, minor negative effect is predicted. Increased dispersal would be likely to draw some trips away from the central areas, and so the impacts would also be minor. Overall, a minor negative effect is predicted. As per the other alternatives, growth in the urban area could also support infrastructure improvements in the longer term.

For F3 the effects on the urban area would be similar to E3. There would be further growth still at the outer settlements, and this could potentially contribute to more notable effects on air quality (for example a substantial extension at Lymm could contribute to air quality issues at motorway junctions). Consequently, a moderate negative effect is predicted overall. As per the other alternatives, growth in the urban area could also support infrastructure improvements in the longer term.

Growth Option G would disperse more growth away from the urban areas and this should reduce the effects on air quality in the inner areas. There could be concentrations of growth at urban extensions that contribute towards poorer air quality in these locations, but the sensitivity of these areas is such that only minor negatives are anticipated.

Summary and recommendations

- At the lowest level of growth, air quality is likely to remain similar to the baseline position. However, the contributions required towards major infrastructure improvements would be less forthcoming, and so potential long term positive effects would be minimal.
- For the two highest levels of growth (scenarios E and F), significant negative effects are most likely if development is focused entirely in the urban area.

- Where a degree of dispersal is involved, the effects are more likely to be moderate, but ought to be confirmed through transport / air quality modelling. The pattern of effects is similar for Scenario G, with only minor effects predicted under the incremental and dispersed approaches.

Longer term improvements could be secured if development helps to support / fund strategic transport schemes. However, to help minimise short term impacts the Plan should seek to secure strategic infrastructure in advance of major developments.

Natural Resources: resource use and efficiency

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	✓	E1. Focus entirely on the Warrington urban area	✗	F1. Focus entirely on the Warrington urban area	✗	G1. Focus entirely on the Warrington urban area	✗
D2. Incremental growth in settlements	✓	E2. Incremental growth in settlements	✗	F2. Incremental growth in settlements	✗	G2. Incremental growth in settlements	✗
D3. Increased dispersal of development	✓	E3. Increased dispersal of development	✗	F3. Increased dispersal of development	✗	G3. Increased dispersal of development	✗

Discussion of effects

The use of raw materials and resources is more dependent upon the level of growth rather than location. Therefore, growth scenario D is likely to have a positive effect in terms of the use of water, energy and raw materials. This scale of growth would be likely lower than might otherwise come forward given the level of economic growth and aspirations. Therefore a positive effect is predicted in terms of resource use for D1.

As the scale of growth increases, so too would the use of resources. Therefore, minor negative effects are predicted for options E1 and F1.

The efficiency of resource use is unlikely to be significantly different for any of the alternatives, as efficiency is more a product of design and operational practices rather than the distribution of growth. Therefore, the effects are not predicted to be more or less significant for any of the distribution approaches.

With regards to minerals, there are significant peat deposits to the east and north-east of the urban area, which is a constraint to development. There is an imperative to protect peat resources as they perform important functions such as carbon storage and biodiversity. It is likely that peat resources could be avoided at lower levels of growth for D1 (provided that distribution is not focused to the east of the urban area). At higher levels of growth, peat resources could still be avoided, but this would require a deliberate avoidance of such areas (i.e. east of the urban area).

There are widespread deposits of glaciofluvial deposits across Warrington, giving rise to potential sand and gravel resources. These are located within parts of the urban area, extending into the countryside; with substantial areas to the north and east of the urban area, and smaller potential deposits on parts of the southern fringes of the urban area. The settlements of Culcheth, Croft and Lymm also have large areas of potential deposits to the north of those settlements.

At higher levels of growth, it is more likely that development could take place in areas that contain sand and gravel resources. In particular, under growth scenarios E and F, there would be an increased need for larger scale urban / settlement extensions; which could fall within areas identified as potential minerals safeguarding areas. A minor negative effect is predicted for E1, E2 and E3 and a negative effect for F1, F2 and F3. It is difficult to ascertain whether mineral resources would be sterilised or not, as further exploration may reveal that no deposits are on particular sites, or that they can be extracted feasibly before development (though this could affect rates of delivery). Therefore these particular effects are uncertain.

Growth Scenario G will give rise to minor negative effects for all three distribution options with regards to the use of resources due to the higher scale of growth compared to **Option G?**. It ought to be possible to avoid peat resources at this scale of growth, but there could be overlap with mineral resources at the urban settlements or the outer settlements depending on the strategy taken.

Summary and recommendations

- Higher levels of growth are likely to result in the use of a greater amount of natural resources. However, resource efficiency could potentially be improved if development strategies promote such behaviours. As such, minor negative effects are predicted for all of the options apart from those under Scenario D

Development to the east of the urban area presents a constraint with regards to peat resources and should be avoided given the availability of ample alternative development locations across the Borough.

Many of the submitted sites fall within areas that are identified as safeguarded areas for sand and gravel. It is important to undertake more detailed studies at a site specific level to understand which locations could possibly lead to the sterilisation of resources. Effects could be generated regardless of distribution strategy, and so no option performs better or worse in this respect.

Natural resources: Flooding

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	-	E1. Focus entirely on the Warrington urban area	✘	F1. Focus entirely on the Warrington urban area	✘	G1. Focus entirely on the Warrington urban area	-
D2. Incremental growth in settlements	-	E2. Incremental growth in settlements	✘	F2. Incremental growth in settlements	✘	G2. Incremental growth in settlements	-
D3. Increased dispersal of development	✘?	E3. Increased dispersal of development	✘	F3. Increased dispersal of development	✘	G3. Increased dispersal of development	✘?

Discussion of effects*Focus entirely on the Warrington urban area*

In the main, potential development sites within the Warrington urban area and its fringes are not at risk of flooding from watercourses. The exceptions are parts of sites to the south west/south central areas which are intersected by flood zones 2 and 3, and to the east of the urban area. At lower levels of growth (D1) it ought to be possible to avoid these areas, or provide suitable uses and mitigation measures. At higher levels of growth (E1/F1) the potential for development in areas at risk of flooding increases slightly, but development strategies would still not necessarily need to involve areas at risk of flooding. Having said this, the overall effects of increased development could affect surface water run-off rates and infiltration rates. This could possibly be managed with SUDs and other infrastructure improvements, but is a potential minor negative effect for E1 and F1.

Growth Option G would be at a level of growth that allows for growth on land that is not at risk of flooding. There would be flexibility in the choice of sites, and larger sites would enable the avoidance of more sensitive locations, as well as the implementation of SUDs. As such, neutral effects are predicted.

Incremental growth in settlements

In the main, at least one or more of the potential development sites around the outer settlements are not at risk of flooding. Incremental growth should therefore be possible without having a significant effect on flood risk in these areas. Some settlements present a greater risk of flooding than others (e.g. Glazebury) but at incremental levels of growth, there are sites identified that would be able to accommodate development without locating in flood zones 2 or 3.

As for the overall levels of growth, increased development has potential to affect surface water run-off and infiltration, and so higher levels of growth are more likely to lead to an increased amount of hard standing. It should be noted though that strategic developments could perhaps present opportunities to implement SUDs, which would help to minimise negative effects and promote enhancements. On balance, the effects are neutral at the outer settlements. For options E1 and F1 there would still be growth in the urban areas though and so minor negative effects remain.

Growth Option G would have **neutral effects**. The level of growth involved in the urban periphery would be lower, and thus manageable from a flood risk perspective. Likewise, the incremental growth should be possible to accommodate without increasing flood risk.

Increased dispersal of development

The effects for this pattern of growth would be similar to those described for incremental growth. For alternative D3 it would still be possible to deliver developments at several settlements in areas of flood zone 1. For alternatives E3 and F3 the amount of dispersal would be greater and would most likely involve a large scale extension at Lymm and / or Culcheth. Depending upon location, this could potentially fall into areas that involve flooding. Therefore, a potential minor negative effect could occur. The potential for green infrastructure improvements and SUDs ought to minimise such issues though.

Growth Option G would also involve larger urban extensions, most likely at Lymm, and this could fall into areas at risk of flooding. Therefore potential minor negative effects could arise.

Summary and recommendations

- There are sufficient development sites available across the borough to accommodate growth under any of the growth scenarios (without generating significant effects in terms of flood risk). However, at the highest scales of growth (Options E and F) the potential for minor negative effects arises.
- Land at risk of flooding ought to be avoided given the availability of land elsewhere in the borough within flood zone 1.

For larger development sites that are intersected by small areas of flood risk, a package of flood management and SUDs should be secured to ensure that there is a net improvement in surface water management.

Built heritage

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Revised Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	✓	E1. Focus entirely on the Warrington urban area	* ✓	F1. Focus entirely on the Warrington urban area	**? ✓	G1. Focus entirely on the Warrington urban area	* ✓
D2. Incremental growth in settlements	-	E2. Incremental growth in settlements	*	F2. Incremental growth in settlements	**?	G2. Incremental growth in settlements	*?
F3. Increased dispersal of development	*	E3. Increased dispersal of development	**	F3. Increased dispersal of development	***?	G3. Increased dispersal of development	**?

Discussion of effects

Focus entirely on the Warrington urban area

There are heritage assets located both within and on the fringes of the Warrington urban area. Development therefore has the potential to have direct effects upon the setting of heritage assets, as well as their condition in some cases (should there be a loss). The amount of growth proposed under Alternative D1 could be distributed so as to avoid any adverse effect on sensitive heritage assets or areas though. Therefore, a neutral effect is predicted in this respect.

For E1, the scale of growth in the urban area is much greater and would necessitate development on sites that could potentially effect sensitive areas or change the rural character of the urban fringe. For example, there are heritage assets in the countryside to the south-west, east, south-east, north and west of the urban area. Thus, a minor negative effect is predicted.

Conversely, each of these three alternatives protects the outer settlements from development, several of which would be sensitive to changes to the settlements form and size. Consequently, a minor positive effect is recorded for each alternative reflecting the stronger degree of protection from development in these areas.

For alternative F1, the scale of growth in the urban area would be greater still, and so the degree of negative effects could be greater. However, there is uncertainty involved.

Growth Option G would have mixed effects. The minor positive effects associated with the protection of settlement character in the outer settlements would remain. With regards to the urban area, the scale of growth could necessitate development on sites that contribute to the setting of heritage assets. The nature of effects would depend upon the locations involved. However, it is considered likely that minor negative effects would arise given the quantum of growth required.

Incremental growth in settlements

The incremental growth option would reduce growth in the urban areas slightly and increment growth in the other settlements, including at Lymm, Culcheth, Burtonwood, Croft, Winwick and Hollins Green. The potential for effects would depend upon the specific location of growth at each of these locations, but there ought to be flexibility to avoid the more sensitive sites. Broad effects can be predicted assuming a dispersed pattern of growth (which could be accommodated at this scale of growth).

Croft is particularly sensitive to change given its small scale character, and the presence of ancient field systems, therefore, potential negative effects could occur, but these ought to be mitigated if growth is only

incremental. Similarly, Lymm is sensitive to change, but there is a greater range of sites here, which should allow incremental growth to be accommodated without significant negative effects. Culcheth, Burtonwood and Winwick are perhaps less sensitive to incremental growth compared to these other settlements. The amount of growth proposed for each alternative should avoid the need to develop in areas which would have significant negative effects, thus a neutral effect is predicted overall.

The level of growth in the urban area under alternative D1 would be low, and thus the potential for effects here would too be avoided, giving an overall neutral effect.

For alternatives E2 and F2, it is assumed that the level of incremental growth in the outer settlements would be the same as for D2. Therefore, the effects in these areas remain the same (i.e. neutral). However, there would be increased growth in the urban areas, and so negative effects are recorded for each alternative. An additional 800 homes in the urban area (for alternative F2 compared to E2) could potentially lead to a more negative effect depending upon the sites involved. However, this would not necessarily happen and so there are uncertainties.

Growth Option G would have the same effects at the outer settlements as Options D, E and F. With regards to growth in the urban area, the quantum of growth is such that avoidance and mitigation of negative effects is more likely. As such, there is uncertainty associated with the minor negative effects.

Increased dispersal to the outer settlements

An increased dispersal approach would place higher levels of growth in the settlements and as some settlements are particularly sensitive to change (such as Croft) this may require more intensive growth at select settlements or several settlement extensions.

The level of growth proposed under scenario D3 is unlikely to cause any significant negative effects.

However, under scenario E3 the potential for negative effects increases, as the increased dispersal of growth is likely to affect the setting of heritage assets, and may also encroach onto agricultural land that exhibits ancient field patterns. The release of one large urban extension could be involved under this option (most likely at Lymm), which could have negative implications for heritage assets which are present at the urban fringes.

For F3, additional growth would put further pressure on more sensitive land and may make it more difficult to avoid sizable changes to the character of settlements such as Culcheth and Lymm. At the scale of growth required here (perhaps two large urban extensions), there could be significant negative effects.

Growth Option G is predicted to have potentially significant negative effects with regards to heritage as the scale of growth involved would necessitate at least one urban extension on potentially sensitive land. There would also be cumulative pressures on other settlements. An uncertain effect is recorded to reflect the potential for mitigation and avoidance at this scale of growth compared to options E and F.

Summary and recommendations

- Higher levels of growth are likely to have negative effects on the urban area, outer settlements or both. However, the magnitude of effects need not be greater as there would still be flexibility in site choice. The effects become more difficult to avoid under the highest levels of growth though (Option F).
- Broadly speaking, a dispersed approach to development in the outer settlements generates more negative effects than incremental growth or a focus on the urban area.

Ensure appropriate densities are achieved on settlement extensions to help maintain the setting of heritage assets in these areas.

Landscape

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	✓	E1. Focus entirely on the Warrington urban area	✓*	F1. Focus entirely on the Warrington urban area	✓*	G1. Focus entirely on the Warrington urban area	✓*
D2. Incremental growth in settlements	*	E2. Incremental growth in settlements	*	F2. Incremental growth in settlements	*	G2. Incremental growth in settlements	*
D3. Increased dispersal of development	✓**	E3. Increased dispersal of development	***?	F3. Increased dispersal of development	***	G3. Increased dispersal of development	***?

Discussion of effects

Focus on the Warrington urban area

At lower levels of growth, such as under Scenario D the effects on Landscape depend upon the strategy for growth. An approach that disperses growth across a number of sites is likely to have a lower impact on Landscape compared to an approach towards one or two large fringe developments / urban extensions. At this level of growth though it would be possible to avoid negative effects.

At higher levels of growth, as proposed in scenario F, it would be necessary to consider urban extensions, as meeting needs through dispersal amongst sites integrated within the built area would become challenging.

Common to each of these growth scenarios is a lack of development in the other settlements within the Borough. This would help to protect areas with sensitive landscape character such as land surrounding Lymm and Outrightington, Croft and Burtonwood. This is positive for the rural landscape character that is present in many of these areas. Consequently, a minor positive effect is recorded for D1, E1 and F1.

Landscape character surrounding the urban area is variable, but in most cases, the greater the amount of intrusion into the countryside will lead to encroachment into sensitive landscapes. Consequently, potential negative effects are recorded for E1 and F1 related to the urban fringes. At this stage, these effects are uncertain given that the pattern of development in the urban area could vary; however, larger scale growth is more likely to lead to significant effects irrespective of location.

Growth Option G is predicted to have minor positive effects for the same reasons discussed above (protection of rural character). With regards to the urban areas, the scale of growth is likely to lead to some negative effects on landscape regardless of location. There should be scope to avoid the most sensitive locations though and to incorporate mitigation. Therefore, minor negative effects are predicted.

Incremental growth at settlements

Under an incremental growth approach, effects are dependent upon to the exact location of development at each settlement. However, a broad assessment of potential effects suggests that negative effects on any one area ought to be minor. For D2, the amount of growth to be located in the urban area could easily be accommodated without requiring any major growth at the urban fringe. Therefore, effects are neutral in this respect.

Growth in the urban area proposed under scenario E2 should be accommodated without affecting the character of the urban fringe too greatly. Therefore, a minor negative effect is predicted for D2 and E2. For F2,

the slightly higher amount of growth proposed would not be anticipated to lead to significantly different effects compared to E2.

Growth Option G would have the same effects as options D, E and F in the outer settlements (minor negative effects). There would also likely be minor negative effects in the urban edge locations.

Increased dispersal of growth to settlements

An increased dispersal of growth approach would reduce the need for a large scale urban extensions

However, at higher levels of growth at the outer settlements either additional sites would need to be considered or higher density levels would need to be achieved on sites, potentially affecting rural character. In this respect, a negative effect is predicted for option D3. Due to a lack of growth in the urban area under this dispersed approach, a potential minor positive effect is predicted for this option as well (as the urban fringes would be better protected).

For alternative E3, the effects at the outer settlements are potentially more negative as dispersal would be higher and several urban extensions might be required. This could have more profound effects on the character of settlements, as well as affecting heritage assets and their setting. There would also be minor negative effects in the urban area due to the overall increased level of development required in this area too. Overall, the effects are therefore potentially significant, especially with regards to the most vulnerable settlements including Lymm and Outrightington, Croft and Hollins Green.

The likelihood of effects being significant increases somewhat for option F3, and so the uncertainty is removed.

Growth Option G would have potentially minor negative effects in the urban areas, but the relatively lower scale of growth involved should give flexibility to avoid sensitive areas and / or to incorporate mitigation and enhancement. The increased scale of growth in the outer settlements could give rise to moderate negative effects, but this would be at a lesser scale compared to Options E and F.

Summary and recommendations

- Anything more than incremental growth in the outer settlements is likely to lead to negative effects upon landscape and visual character. For some settlements, it may be more difficult to mitigate effects of more than incremental growth (Hollins Green, Croft, Lymm for example). For the highest levels of dispersal, effects are more likely to be significant.
- The distribution of growth in the urban fringes will affect landscape character. In broad terms, a concentration to the east is very constrained by sensitive landscape. Appropriate levels of growth to the north and south west ought to be possible to accommodate without significant effects upon landscape character.

There may be opportunities to enhance the exposed crest landscape of Burtonwood, provided that development is not inappropriate in scale, layout or design.

Biodiversity and geodiversity

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	-	E1. Focus entirely on the Warrington urban area	✓✓? ✖	F1. Focus entirely on the Warrington urban area	✓✓? ✖✖	G1. Focus entirely on the Warrington urban area	✓ ✖
D2. Incremental growth in settlements	-	E2. Incremental growth in settlements	✓✓? ✖	F2. Incremental growth in settlements	✓✓? ✖	G2. Incremental growth in settlements	✓ ✖?
D3. Increased dispersal of development	-	E3. Increased dispersal of development	✓✓? ✖✖	F3. Increased dispersal of development	✓✓? ✖✖✖	G3. Increased dispersal of development	✓ ✖✖?

Discussion of effects

Focus on the Warrington urban area

Parts of the Warrington urban area and fringes in particular are important locations for wildlife, including the River Mersey estuary and SSSIs to the east of the urban area in particular. Growth in these areas is most likely to have negative effects, either through increased recreational pressure, noise and land disturbance and pollution such as in surface water run-off or air pollution. At the lower levels of growth under scenario D, it would be possible to avoid these sensitive areas by focusing growth more to the south, north and west, and/or at a more manageable level in these areas. Consequently, a neutral effect is predicted for D1. Though land surrounding the outer settlements would remain protected from development, this is considered to be a neutral effect rather than a positive.

For E1, the level of growth is much higher, so there would be a need for increased release of land. Should this include land to the east, or more intense development to the south west and west, then the potential for negative effects on wildlife would be increased. Irrespective of development location, the quantum of growth involved is likely to have a negative effect on habitats and species in the urban area and fringes. Conversely, there may be opportunities to enhance green infrastructure networks, as well as protecting the rural areas. This is particularly the case should the Plan seek to achieve net gains in biodiversity (which is likely given that this is an important government policy objective). Overall, negative effects are likely to occur in certain locations, and these could potentially be significant depending on location (mitigation, avoidance and compensation may be more difficult for example). Given the choice of sites available though, significant effects ought to be possible to avoid and so minor negative effects are predicted. In terms of enhancement, a potential moderate positive effect is recorded in the longer term should net gains in biodiversity be achieved. However, there is uncertainty.

For alternative F1, the level of growth in the urban area would be greater still and would therefore require additional release of land. The ability to mitigate effects could therefore be more difficult given the need to accommodate a greater number of homes, but similar to E2, there could be potential for significant enhancements to green infrastructure. Overall the effects would be moderately negative or potentially significant if growth is focused to the east or along the River Mersey.

Growth Option G may need to encroach upon land that is sensitive with regards to biodiversity. However, there would be flexibility to focus on less sensitive areas and to incorporate green infrastructure enhancements into new development. As a result, both minor positive and minor negative effects are predicted.

Incremental growth in the settlements

At an incremental scale of growth at the outer settlements, it ought to be possible to avoid direct effects on designated national wildlife sites and local wildlife sites in these locations. Consequently, a neutral effect is predicted for D2, E2 and F2 with regards to the outer settlements. At the scale of growth involved, it is not likely that strategic improvements to green infrastructure would be delivered in the majority of outer settlements though.

Under E2 and F2 there would still be a relatively high degree of growth in the urban area. For both alternatives a minor negative effect is predicted, with moderate positives also recorded to reflect the potential for enhancements in the longer term.

Growth Option G would have similar effects at the outer settlements to the other options (i.e. neutral effects). The effects at the urban periphery would be less likely to arise given the lower scale of growth compared to options E2 and F2. Therefore, the negative effects are minor and uncertain, whilst the positives are minor positives.

Increased dispersal of growth to settlements

At a higher level of growth to the outer settlements (increased dispersal) some areas may struggle to accommodate additional growth without having negative effects upon biodiversity. For example, Hollins Green is in very close proximity to a number of SSSIs; Burtonwood and Croft may need to involve development adjacent to local wildlife sites, and there are a number of sites in Lymm that could be affected depending on the scale and location of growth. The precise effects depend on the sites involved and the scale of growth between different settlements. In broad terms though, a minor negative effect would be likely overall for E2.

As the level of growth increases further under scenario F, so too would the level of growth at the outer settlements (and the urban area). It may still be possible to avoid the most sensitive areas, but there would be a need for more intensive growth in some settlements (and the urban area), which could potentially have negative effects. A Major extension to any of the settlements would be likely to have significant negative effects for biodiversity, whether this be due to sites being within or adjacent to Local Wildlife Sites (Croft / Burtonwood / Lymm), the loss of hedgerows and protected trees or cumulative effects upon SSSIs (Hollins Green / Lymm). Conversely, a large scale extension to settlements and increased dispersal in general may offer opportunities for GI enhancement, which is recorded as positive for both E3 and F3.

Growth Option G could possibly involve negative effects should growth in the outer settlements involve an urban extension or development in more sensitive locations. Though the scale involved is not as high as for Options E and F, there would still be potential significant negative effects overall. The increased flexibility means that there is a degree of uncertainty as to whether these effects would occur or would be of such significance. A minor positive effect is also recorded to reflect opportunities for enhancement of biodiversity.

Summary and recommendations

- The lowest scale of growth gives rise to neutral effects, with mixed effects predicted for all other options. The significance of effects (both positive and negative) are greater under the highest growth scenarios (Options E and F), whilst for Option G, the potential for negative effects is somewhat reduced.

- Incremental growth is unlikely to have a significant effect upon biodiversity in both the outer settlements and at urban areas/fringes (i.e. it ought to be possible to avoid sensitive sites as well as avoiding cumulative pressure in any one part of the borough).

Large scale extensions in the urban areas could lead to significant negative effects in some locations such as east of the urban area; which is in close proximity to a number of SSSIs. Dependent upon location, a large scale settlement could also have cumulative and significant negative effects in Lymm (Several local wildlife sites).

- A strategy that focused heavily on the east / south east of the urban area as well as large scale growth at Lymm could have the potential for significant negative effects upon biodiversity (as these are sensitive locations).

The potential for positive long-term cumulative effects is noted for the higher growth options. However, these would be dependent upon the Plan achieving net gains in biodiversity. The success of this may be affected if the more sensitive (irreplaceable) habitats are affected though. As a result, growth heavily centred along the River Mersey ought to be avoided.

Climate change and resource use

Scenario D: Government Methodology (2016) 2,444 greenbelt requirement		Scenario E: Standard Methodology 6,272 greenbelt requirement		Scenario F: Economic uplift with revised household rates 7,064 greenbelt requirement		Scenario G: Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement	
D1. Focus entirely on the Warrington urban area	-	E1. Focus entirely on the Warrington urban area	✘	F1. Focus entirely on the Warrington urban area	✘	G1. Focus entirely on the Warrington urban area	✘?
D2. Incremental growth in settlements	-	E2. Incremental growth in settlements	✘	F2. Incremental growth in settlements	✘	G2. Incremental growth in settlements	✘?
Increased dispersal of development	-	E3. Increased dispersal of development	✘	F3. Increased dispersal of development	✘	G3. Increased dispersal of development	✘?

Discussion of effects

Irrespective of the distribution of development, growth is likely to lead to an increase in the use of energy and resources, and in the generation of waste. Therefore, Scenarios E and F, which aspire to increased levels of economic growth, would have effects of a greater magnitude by encouraging more housebuilding to support increased economic activity.

Scenario D is predicted to have a neutral effect, as this level of growth would be likely to come forward anyway to meet projected population needs.

Opportunities for district heating networks are more likely to be present where there is demand for heat and / or anchor loads, and no major obstacles to the development of a network. The type of development (i.e. multiple uses) also affects the viability of district heating for example. Given that the majority of development sites are on the urban fringes of Warrington, or the other settlements, the likelihood of district heating schemes being incorporated into such developments is unclear. At a large urban extension that promotes mixed-use development, the opportunities ought to be greater. This scale of development would be less likely to occur within the outlying settlements, and more likely at a major urban extension to the south east with supporting infrastructure.

Waste generation and collection regimes are most likely to be affected at higher levels of growth regardless of location (*given that development under any of the scenarios would be focused on established settlements where waste and recycling collection is already occurring*).

With regards to green infrastructure enhancement for climate change resilience, there is potential for networks to be affected (either positively or negatively) by development in both the urban areas and the other settlements. Effects are more likely to be identified at a site specific level and potential enhancement / mitigation measures should also be possible to establish (for example strengthening networks of GI and improving access to such areas). At higher levels of growth, the potential for both positive and negative effects of a greater magnitude exists.

Growth Option G is predicted to have potential minor negative effects for each of the distribution options. It plans to support economic growth and this means a greater number of houses compared to Option D. Whilst the overall level of new development is lower than the higher economic growth scenarios, the likelihood of negative effects is less certain.

Summary and recommendations

- Resource use and waste generation is likely to be most influenced by growth rather than distribution of development. Therefore, in broad terms increased growth is more likely generate negative effects. The River Mersey Floodplain is an important green infrastructure corridor that ought to be protected and enhanced to improve resilience to climate change.

With this in mind, growth running along this corridor has the potential for negative or positive effects dependant on the nature and design of development. Where GI networks are severed by the existing Warrington urban area, development on the fringes should seek to help connect the rural areas to the urban areas more effectively, as well as looking at how the existing urban areas could be 'greened' so that networks pass through urban areas and continue into the rural areas beyond. An example would be the improvement of the River Mersey Corridor as it passes through the urban area to the south of the town centre and then re-emerges to the east of the urban area joining with the Woolston Eyes SSSI.

Summary of appraisal findings

	Economy and regeneration	Health and wellbeing	Accessibility	Housing	Natural resources: Agricultural land	Natural resources: Water Quality	Natural resources: Air Quality	Natural resources; resource efficiency	Natural resources: Flooding	Built Heritage	Landscape	Biodiversity and Geodiversity	Climate change and resource use
D Government Standard Methodology (2016 base): 2,444 greenbelt requirement													
D1. Urban area	xx / ✓	*	✓	xx	-	-	-	✓	-	✓	✓	-	-
D2. Incremental growth	xx / ✓	✓	✓*	xx	-	-	-	✓	-	-	*	-	-
D3. Further dispersal	xx / ✓	✓*	✓*	xxx	-	-	-	✓	x?	*	✓xx	-	-
E Government Standard Methodology (2017 base) 6,272 greenbelt requirement													
E1. Urban area	✓✓✓? / x	✓✓*	✓✓*	✓✓✓? / x	xx	x / ✓	xx / ✓✓?	*	*	x✓	✓*	✓✓?*	*
E2. Incremental growth	✓✓✓	✓✓	✓✓*	✓✓✓?	xx	x / ✓	x / ✓✓?	*	*	*	*	✓✓?*	*
E3. Further dispersal	✓✓	✓*	✓✓**	✓✓	xx	x / ✓	x / ✓✓?	*	*	**	xxx?	✓✓?*	*
F Economic Uplift with revised housing rates 7,064 greenbelt requirement													
F1. Urban area	✓✓✓ / x	✓✓*	✓✓*	✓✓✓ / x	xx	x / ✓	xxx? / ✓✓?	*	*	xx?✓	✓*	✓✓?*	*
F2. Incremental growth	✓✓✓	✓✓	✓✓*	✓✓✓	xx	x / ✓	xx / ✓✓?	*	*	xx?	*	✓✓?*	*
F3. Further dispersal	✓✓	✓*	✓✓**	✓✓✓?	xx	x / ✓	xx / ✓✓?	*	*	xxx?	xxx	✓✓?***	*
G Updated Standard Methodology (2021-2038) 4,372 greenbelt requirement													
G1. Urban area	✓✓ / x	✓*	✓*	✓✓ / x	*	x? / ✓?	xx / ✓	*	-	x ✓	✓*	✓ x	x?
G2. Incremental growth	✓✓	✓✓	✓✓?*	✓✓	*	x? / ✓?	x / ✓	*	-	x?	*	✓ *?	x?
G3. Further dispersal	✓✓	✓*?	✓✓?***?	✓✓	*	x? / ✓?	x / ✓	*	x?	xx?	xx?	✓ xx?	x?

Comparison of alternatives

Scenarios D, E and F

From an environmental perspective, growth scenario D would have the fewest negative effects regardless of distribution when compared with the higher levels of growth.

However, this scale of growth would have moderate to significant negative effects upon housing delivery and the economy. These are critical issues, and a key objective of the Plan is to help to deliver sustainable growth.

At the higher levels of growth, the socio economic benefits are positive, and in most cases the effects are significant (a dispersed approach performs less well) in terms of housing and employment.

From an environmental perspective, the higher levels of growth (scenarios E and F) perform very similar. With regards to soil resources, a moderate negative effect is predicted regardless of distribution, the same is the case for flood risk, resource efficiency, and climate change which generate minor negative effects regardless of distribution.

The key differences relate to the following factors:

For the historic environment, landscape and biodiversity a more dispersed approach generates the most negative effects. In fact, the dispersal approach performs either the same or less positively / more negatively when compared to incremental growth across all of the sustainability factors.

A focus on the urban area performs better than a dispersed approach in the main, but when compared to incremental growth, performs slightly less well in terms of housing and employment growth, health and wellbeing, air quality and biodiversity.

The incremental approach does perform as strongly with regards to built heritage and landscape compared to the urban focus, but these effects are only slightly difference.

The differences in effects between Scenario E and Scenario F are relatively minor, which is to be expected given that the overall release of Green Belt would only be 800 dwellings more for Scenario F. This higher level of growth though takes away some of the uncertainties that are noted at Scenario E (by giving greater flexibility for housing targets to be met). Conversely, it raises the potential for slightly more negative effects in terms of built heritage and air quality in particular.

Scenario G

The positive socio-economic effects recorded for the options under Scenario G are slightly lower when compared to Scenarios E and F. However, the effects are still significant. Conversely, the negative effects in terms of several sustainability factors would be reduced. In particular, there would only be minor negatives for soil, and the potential for effects on air quality, landscape, the built environment and biodiversity would be lower.

APPENDIX D: APPRAISAL OF STRATEGIC ALTERNATIVES – URBAN EXTENSION OPTIONS (PREFERRED DEVELOPMENT OPTION STAGE)

Each of the development options requires Warrington to accommodate 8,000 homes in the Green Belt. The five development options below focus growth upon different parts of the urban area, corresponding to the options set out within the Council Consultation document:

There are alternative locations that could deliver the 8000 homes and achieve the Plan objective of urban regeneration. These are set out below.

Option 1

- South East Garden City Suburb: approximately 8,000 homes

Option 2

- South East Garden City Suburb: approximately 6,000 homes
- South West Warrington Urban Extension (south of ship canal): up to 2,000

Option 3

- South East Garden City Suburb: approximately 6,000 homes
- Western extension: up to 2,500

Option 4

- South East Garden City Suburb: approximately 4,000 homes
- South West Warrington Urban Extension (south of ship canal): up to 2,000
- Western extension: up to 2,500

Option 5

- more dispersed pattern of Green Belt release (8000 homes)

Methodology

The appraisal identifies and evaluates 'likely significant effects' on the baseline / likely future baseline associated with each alternative, drawing on the sustainability topics and objectives as a methodological framework.

The task of forecasting effects is inherently challenging due to:

- The high level nature of the policy measures under consideration;
- Being limited by definition of the baseline and (in particular) the future baseline;
- The ability of developers to design out/mitigate effects during the planning application stage.

In light of this, where likely significant effects are predicted this is done with an accompanying explanation of the assumptions made.¹¹

It is important to note that effects are predicted based upon the criteria presented within the SEA Regulations.¹² So, for example, account is taken of the nature of effects (including magnitude, spatial coverage and duration), the sensitivity of receptors, and the likelihood of effects occurring as far as possible. The potential for ‘cumulative’ effects is also considered. These effect ‘characteristics’ are described within the appraisal as appropriate under each sustainability topic. A table is also presented under each topic summarising the predicted effects and their characteristics (i.e. namely whether they are significant or not).

For each alternative, one of the following symbols has been allocated for each SA topic.

Significant negative effect	xxx	Minor positive effect	✓
Negative effect	xx	Positive effect	✓✓
Minor negative effect	x	Significant positive effect	✓✓✓
Neutral effect	↔	Effects are unclear	?

Economy and Employment

Option 1	Option 2	Option 3	Option 4	Option 5
✓✓✓	✓✓✓	✓✓	✓✓	✓✓
<p><u>Discussion of effects</u></p> <p>Each option supports the New City aspiration (to differing extents) by providing for growth within and on the fringes of the Warrington urban area. This will help to deliver housing, which will have a direct positive effect in terms of generating associated jobs in construction, as well as providing homes for a local labour force.</p> <p>Growth to the South West of the Warrington Urban area is perhaps most likely to support inner Warrington regeneration, which makes options 2 and 4 more attractive in this respect. The benefits provided by the south western urban extension are likely to increase if the Western Link passes through the area, providing improved access into the Waterfront Development area and the town centre.</p> <p>The options that involve a substantial urban extension to the south east (a Garden City suburb) would provide enhanced opportunities for supporting mixed-use development within this area, and link well with employment land opportunities and existing employment sites. To be implemented successfully, development at this scale would also need to be supported by infrastructure upgrades, which in the longer term could have benefits for the economy by improving accessibility for residents and businesses. For options 1, 2 and 3, which involve a higher level of growth at a Garden City Suburb, it is more likely that the level of development could deliver the strategic and local infrastructure needed to support the development and contribute to the wider New City concept. At a lower level of growth at a Garden City Suburb (as per option 4), achieving these positive effects would be more uncertain. In particular, a more dispersed approach (option 5) would be less likely to deliver comprehensive mixed use developments, infrastructure upgrades and would not present the same opportunities to expand / build upon existing employment sites.</p> <p>Overall, option 1 is predicted to have a significant positive effect as it should deliver substantial improvements to infrastructure as part of a large Garden City Suburb. Option 2 is also predicted to</p>				

¹¹ As stated by Government Guidance (The Plan Making Manual, see <http://www.pas.gov.uk/pas/core/page.do?pagelid=156210>): "Ultimately, the significance of an effect is a matter of judgment and should require no more than a clear and reasonable justification."

¹² Schedule 1 of the Environmental Assessment of Plans and Programmes Regulations 2004

have a significant positive effect. It provides the opportunity to deliver infrastructure improvements as part of a substantial Garden City Suburb, as well as supporting growth to the south west of the urban area, which ought to support regeneration within inner Warrington.

Option 3 is predicted to have a moderate positive effect. Whilst it would secure the benefits associated with the Garden City Suburb, an extension to the west of Warrington contributes less to the New City concept and would be less likely to secure strategic improvements in infrastructure.

Option 4 is predicted to have a moderate positive effect. Whilst it would secure the benefits associated with the Garden City Suburb, these would be at a lesser scale compared to options 1, 2 and 3, and this could mean that supporting infrastructure was less comprehensive. Growth to the west would contribute less to the New City concept, but the extension to south west Warrington offsets this as it ought to best support regeneration of inner Warrington. This would be particularly the case should the western link-road be adopted.

Option 5 is predicted to have a moderate positive effect, though there are more uncertainties given that development could occur in a number of different places. Given the scale of growth required, it is likely that there would still need to be substantial growth concentrated in one location. This should contribute well to the New City concept, and could support some infrastructure improvements (though not at the scale as the Garden City Suburb). In addition, there would be potential for regeneration should some of the sites adjacent to the inner Warrington area be developed. Conversely, some of the sites could be to the north or to the west and contribute less positively to the New City concept. The smaller piecemeal nature of development could also make it less likely for strategic infrastructure improvements to be secured.

Health and Wellbeing

Option 1	Option 2	Option 3	Option 4	Option 5
✓✓✓	✓✓✓	✓✓✓	✓✓	✓
<p><u>Discussion of effects</u></p> <p>Each of the options will provide housing in / on the edge of the urban area, which ought to have positive effects on health and wellbeing, particularly through specialist and affordable provision.</p> <p>An extension to the west would be closest to the Penketh Medical Centre. This is at capacity, and though it is awaiting decision on a planning application for extension, it would likely need further capacity to support an urban extension to the west. There are other medical centres that the population in the west can use however, and some of these have capacity to expand. It should therefore be possible to accommodate growth to the west, but this might not be in locations that are accessible on foot. Consequently, growth in this location would need to be supported by a satellite health facility. In terms of access to open space, there is a deficit in natural greenspace in this area, but it ought to be possible to secure amenity space on a strategic urban extension. There are a range of community facilities within the urban area, including churches, community centres, Penketh Swimming Pool, a pharmacy, food shops and public houses. Further into the town centre there are a fuller range of leisure facilities.</p> <p>Overall, an extension to the west is predicted to have minor positive effects. Existing facilities in the area ought to be able to accommodate the growth, but this would not necessarily be accessible. However, it is expected that a new satellite facility would be secured. The development would take place in an area that has poor accessibility to natural greenspace, so the potential for positive effects from recreation are somewhat restricted. However, there are some local community facilities that could help to support the wellbeing of residents and provide recreational facilities for residents. It is unlikely that an urban extension here would bring significant benefits for existing communities though.</p> <p>An extension to the south west of Warrington would be located in an area that is fairly distant from health facilities and local community facilities. However, as part of any development there would be a need for new health facilities / satellite health facilities that would provide healthcare within walking distance for the new communities. A wider range of facilities would also be accessible by public transport or car further into the town centre. The site is within walking distance of local greenspace at Walton Gardens, and would also be likely to include a new park and improved links along the ship canal. This would help to provide better opportunities for communities to engage in recreation. There would be enhanced benefits for this site, should the western link road pass through the site, as this would better link it to the Waterfront Strategic Development. Without these links, the accessibility benefits would be less prominent. Overall, an extension to the south west of Warrington is predicted to have a positive effect, due mainly to the requirement to deliver new satellite health facilities and the existing accessibility to natural greenspace.</p> <p>A major urban extension to the south east would put new development in locations that are fairly distant from existing health facilities. Furthermore, these facilities are mostly operating at capacity with limited onsite ability for expansion. At all three scales, the Garden City suburb would justify and necessitate a new health facility, which ought to provide accessible healthcare facilities for new communities, as well as potentially benefiting existing communities. A significant positive effect is predicted for options 1,2, 3 and 4.</p> <p>This area has fairly good access to natural greenspace, but is lacking in a neighbourhood hub and community facilities. At the scale of growth involved in a Garden City Suburb it would be necessary to secure new recreational facilities. This ought to ensure that pressure upon existing facilities is mitigated and that new facilities create good opportunities for recreation for new and existing communities. There ought to be greater ability to incorporate major/strategic recreational facilities into a larger Garden Suburb (for example a country park, and new sports pitches), and therefore a significant positive effect is predicted for options 1, 2 and 3. As alternative 4 would involve a smaller Garden City Suburb the positive effects are considered to be lower (than alternative 1, 2 and 3) as the strategic green space secured would be expected to be lower too.</p>				

A dispersed approach to development would place some housing in areas with poor access to open greenspace, and others with good access. There would be less potential to support strategic improvements in greenspace provision through this approach as the size and connectivity of sites would be less accommodating. The pressure on healthcare facilities would not be as substantial in any one part of Warrington under this approach. However, there would still be a need to accommodate additional needs, and the dispersed nature of development could make it more difficult to justify new facilities in any particular area. This could mean that communities in need of improvements suffer from increased pressure, and / or need to travel further to access healthcare. Overall, a dispersed approach (option 5) would be less able to generate the critical mass required to support enhancements to healthcare, community facilities and green infrastructure. Therefore, only a minor positive effect is predicted.

Accessibility

Option 1	Option 2	Option 3	Option 4	Option 5
✓✓✓xxx	✓✓✓xx?	✓✓✓xx	✓✓xx?	✓xx
<p><u>Discussion of effects</u></p> <p>Expansion to the west of the urban area is within reasonable walking distance of existing primary schools, GPs and a district centre. However, a higher scale of growth may require the provision of a new primary school, and this would help to support current capacity in the area. There are also plans for new health facilities nearby, which could accommodate any additional needs from this area. An extension in this location however cannot be accommodated by the existing secondary school.</p> <p>There are existing bus routes nearby, which would be supported by an urban extension and could potentially be expanded. There is also access to a train station with hourly services towards Liverpool Lime Street to the west and Manchester to the east. Though access to services and facilities is relatively good in this area, the majority of travel is by car, and this would be likely to continue. Options that include an extension to the west are likely to generate a minor positive effect overall in relation to these factors above (i.e. option 3 and 4). In terms of traffic and congestion, development to the west could put pressure on some local junctions, but should be easier to accommodate without the need for major network upgrades compared to growth in the central and southern areas of the urban area.</p> <p>An urban extension to south-west Warrington would necessitate the provision of a new primary school, satellite health facility, new local park and local centre. Access to such facilities in this area is currently poor, but these new facilities and services would help to create a new community that has good accessibility to essential services such as these. Existing nearby communities at Higher Walton and Lower Walton might also benefit from an increased choice of services locally. There would also be opportunities to enhance pedestrian links to Stockton Heath, along the ship canal and into the Trans Pennine Route. A positive effect is predicted for options 2 and 4, which both include the extension to the south west of Warrington.</p> <p>In terms of access to public transport, it would be beneficial to expand bus routes onto the site, as the nearest bus stops would be fairly distant from parts of the site. In terms of the local and strategic road networks, there is also the possibility that development could increase traffic and congestion, particularly along the A56. Should development encourage travel into the town centre, this could have negative effects on areas that are designated as AQMAs. A potential negative effect is recorded at this stage for options 2 and 4.</p> <p>Development here would benefit from the completion of the Warrington Western Link road, which could achieve links to the wider Waterfront area and help to manage effects on the road network. . The route of the Western Link Road has not yet been confirmed, but the benefits in terms of accessibility would be stronger should the route directly run through the proposed site.</p> <p>A major extension to the south east of the urban area (A Garden City Suburb) would be partly located in the open countryside and would therefore have poor accessibility to existing services in part. However, an extension of such a size would inevitably be supported by new primary education, secondary education satellite health facilities, local and district centres and community facilities. Therefore, new communities ought to have good accessibility in this respect. These new facilities could also benefit existing communities where accessibility is not ideal such as Appleton Thorn, Grappenhall Heys, Dudlows Green and Pewterspear. Development at this scale would also be likely to establish new bus routes into a Garden City suburb, in particular providing connections to the town centre. This could help to improve accessibility for existing communities in the south / south east of the urban area. In this respect, a positive effect is predicted for options 1, 2, 3 and 4.</p> <p>At the highest levels of growth in a Garden City Suburb (Alternatives 1, 2 and 3), there would be support for a new secondary school and health facilities, which would generate a more pronounced positive effect for alternative 1, 2 and 3 (less so for alternative 4).</p> <p>Development of a Garden City Suburb would be likely to have major implications for the local and strategic road networks, and so would be reliant upon the provision of network upgrades, expanded public transport routes and active travel measures. At this stage, a potential negative effect is</p>				

predicted for options 2, 3 and 4, but it is recognised that transport packages to support growth could lead to relief in the inner areas of the town. At the highest level of growth for the garden city (alternative 1), there would be even further pressure on the transport networks, which is reflected by a potential major negative effect. The delivery of new infrastructure could help to mitigate these effects though.

A dispersed pattern of growth (option 5) would locate housing across the fringes of the urban area. Some locations are not well served by local facilities or public transport, (for example to the far south of the urban area near Stretton) and the scale of development proposed would not support new facilities. Other locations are located a reasonable distance from existing services, but development would need to be accommodated at these as new facilities would be unlikely to be supported. Therefore, the extent of positive effects would be diluted and would not benefit existing communities. In terms of congestion and travel, dispersed growth would be less likely to put pressure on one particular part of the urban area, but the overall increase in development could lead to increased congestion. This approach would not be supported by specific infrastructure improvement schemes, and so there is a potential negative effect predicted for option 5.

Housing

Option 1	Option 2	Option 3	Option 4	Option 5
✓✓	✓✓	✓✓	✓✓	✓✓✓

Discussion of effects

Each of the options is predicted to have a significant positive effect in terms of housing, as they would all seek to deliver approximately 8000 homes in the Warrington Urban Area. This would help to meet local needs, including addressing affordable needs and special needs. Options 1, 2, 3 and 4 include the majority (or all) of housing at a Garden City Suburb. The reliance upon this one location to provide housing could affect when housing can be delivered, as it would likely be a phased approach. In contrast, option 5 would spread development across a number of smaller strategic sites, which could be delivered sooner, and with a greater variety of locations. Consequently, this approach is likely to have a more pronounced positive effect.

Natural resources: Agricultural land

Option 1	Option 2	Option 3	Option 4	Option 5
xx	xx	xx	xx	x
<p><u>Discussion of effects</u></p> <p>Options 1-4 each involve a Garden City Suburb, and this would lead to a substantial loss of Grade 2 agricultural land. Though the options involve different levels of growth at the Garden City, the additional locations for each option also contain Grade 2 and Grade 3 land. For example, the south west urban extension involves mostly Grade 2 land, the western extension involves mostly grade 2 land. Therefore, the different combinations of land to be developed for each of these 4 options would likely lead to a similar overall loss of agricultural land. Therefore options 1-4 are predicted to have a moderate negative effect.</p> <p>A more dispersed approach that relies upon multiple sites along the urban fringe (option 5) would still lead to a loss of agricultural land, but it would be possible to avoid Grade 2 land in some locations and therefore only a minor negative effect is predicted. This approach would still be likely to require an urban extension, in one location though, with associated loss of agricultural land.</p> <p>For any of these approaches, thought needs to be given as to how the loss of soil resources can be compensated for.</p>				

Natural resources: water quality

Option 1	Option 2	Option 3	Option 4	Option 5
x	x	✓x	✓x	✓?x
<p><u>Discussion of effects</u></p> <p>Growth has the potential to affect water quality regardless of location through pollutants in surface water run-off and demands upon the waste water and drainage networks. A dispersed pattern of growth would place less pressure on any particular area, though a concentrated approach might allow for infrastructure upgrades to be secured. Overall, a minor negative effect is predicted for each alternative.</p> <p>For options 2-4, growth at a garden city suburb would not involve areas protected for groundwater quality. However for option 1, the increased scale of development at the garden city suburb would encroach onto areas that fall within groundwater protection zone 3, which is potentially negative.</p> <p>For options 2 and 4 which involve the south-west Warrington extension, there is potential for negative effects on groundwater as this is the location of a zone 2/3 groundwater protection zone.</p> <p>For options 3 and 4, development would be likely to occur where there are Nitrate Vulnerable Zones (surface water) to the west of the urban area. A change in use from agricultural land to housing could potentially help to reduce nitrates run-off in such areas, particularly where appropriate SUDs are secured. This could help to reduce negative effects, or lead to positive effects (though the magnitude of effects is likely to be limited) for options 3 and 4 in particular. A dispersed approach may also involve development in such areas, but this is more uncertain.</p>				

Natural resources: Air quality

Option 1	Option 2	Option 3	Option 4	Option 5
xx	x?	xx	x?	x
<p><u>Discussion of effects</u></p> <p>With regards to exposure to potentially poor air quality, the Garden City Suburb is not located near to areas of poor air quality, nor would new residential development be expected to generate significant air quality issues in those areas. However, depending upon patterns of travel, this level of development to the south east of Warrington is likely to contribute to air quality issues along the M56 (commuting) and could increase the number of trips along the A49 to and from Warrington town centre. This could potentially affect the town centre AQMA.</p> <p>An extension to the south west of Warrington could increase traffic through the town centre, having a negative effect on the AQMA. The Warrington West Link Road could offset these effects though, particularly if the route passed through the south west extension site. Although new residential development in this area would be within close proximity to the town centre AQMA, it is unlikely that human health would be adversely affected on site as new homes would be some distance away.</p> <p>An extension to the west of Warrington would not place residents in an area of poor air quality. Development could increase trips along the A57 into Warrington town centre, but would not be anticipated to have a significant effect on the town centre AQMA. Increased movements towards J7 and J8 of the M62 would be likely, which could affect air quality at these Junctions and connecting roads.</p> <p>A dispersed pattern of growth would be less likely to increase air quality issues along any one particular route / approach into the town centre. However, it is still likely that car trips would increase as a whole, and this could contribute to air quality changes across the borough.</p> <p>Overall, option 1 is predicted to have a moderate negative effect on air quality as there would be an increase in trips concentrated to the south east of the borough. This could increase emissions from transport, having a negative effect on air quality on routes into the town centre, and to/from the M56 and J20 of the M6 in particular. Though it is not likely that new or existing communities in these areas would be exposed to poorer levels of air quality, this option focuses all new growth to the south east, and therefore traffic (and air quality) implications are more likely to be pronounced.</p> <p>Option 2 also involves a Garden City Suburb, but at a lower scale of growth compared to option 1. The effects on air quality to the south east are therefore likely to be lesser. However, a south west extension could equally contribute to air quality issues, but focused more towards the town centre. In combination with increased traffic from the south east extension, this could have negative effects on the town centre AQMA. However, the western link road ought to help minimise these effects, and its closer proximity to services and facilities may also reduce the amount of trips into the town centre. A minor negative effect is predicted, with potential for a moderate negative effect (should mitigating factors not be effective).</p> <p>Option 3 involves the Garden City Suburb and is therefore predicted to have a minor negative effect on air quality. The western extension could also contribute to air quality issues at Junctions 7 and 8 of the M6, and local connecting roads. Overall, a moderate negative effect is predicted.</p> <p>Option 4 involves a Garden City Suburb, but at a lower scale than options 1-3. This would reduce the magnitude of effects upon air quality to the M56, and towards the town centre from the south on the A49. Therefore, whilst this option also involves a south west Warrington extension, the effects on the town centre AQMA from development in this location would be anticipated to be minor rather than moderate. As per option 3, the western extension could affect air quality associated with J7 and J8 of the M6. Overall, a moderate negative effect is predicted, but these could be lower if the western link road helps to mitigate increased traffic associated with a south western extension.</p>				

Option 5 would be likely to include a substantial south eastern extension, but this would be of a lower magnitude compared to the Garden City Suburb. Therefore the effects on air quality are likely to be of a lesser magnitude in this location compared to options 1-4. The remaining development would be more dispersed, and therefore the potential for significant effects on any one area would be lesser. This ought to reduce the pressure on specific routes and junctions, and therefore the likelihood of having significant effects on air quality are predicted to be lower than for options 1-4. Consequently, a minor negative effect is predicted.

Natural resources: resource use and efficiency

Option 1	Option 2	Option 3	Option 4	Option 5
x	x	x	x	x

Discussion of effects

The generation of waste and efficiency of resource use is unlikely to be significantly different for any of the options, as efficiency is more a product of design and operational practices rather than the distribution of growth. Therefore, the effects are not predicted to be more or less significant for any of the distribution approaches. The overall level of growth proposed is predicted to have a minor negative effect as it would be likely to encourage higher levels of growth compared to demographic change alone (due to economic aspirations).

Natural resources: flooding

Option 1	Option 2	Option 3	Option 4	Option 5
-	-	-	-	-

Discussion of effects

The location of growth at a south east garden city suburb would not be expected to be in areas at risk of flooding. There should also be sufficient land capacity to accommodate sustainable urban drainage systems to ensure that flood risk elsewhere does not increase. A western extension could involve development on sites that are intersected by Flood Zones 2 and 3, as could development to the south-west of Warrington. However, the strategic nature of these sites should allow for such areas to be avoided and/or planned for their appropriate development with less sensitive uses. It should also be possible to secure SUDs to help ensure that flood risk elsewhere does not increase. A more dispersed approach ought to allow for sensitive sites to be avoided as well. Each option is therefore predicted to have neutral effects. The avoidance of negative effects however, is dependent upon suitable mitigation measures being secured to ensure that surface water run-off rates and infiltration is not negatively affected.

Built heritage

Option 1	Option 2	Option 3	Option 4	Option 5
x	x	xx	xx	x
<p><u>Discussion of effects</u></p> <p>Development to the west of the urban area could have negative effects on the historic environment through the change of use in land on areas that are identified as demonstrating ancient field patterns. Development would also lie adjacent to listed buildings, with the potential for negative effects on the setting of these assets. Options 3 and 4 are predicted to have a negative effect to account for these potential effects.</p> <p>The broad development site south-west of Warrington runs adjacent to Walton Village Conservation Area, which contains several listed buildings. However, the site is physical separated from the Conservation area by the A56, and totally screened by trees. Therefore, direct effects upon the setting or significance of heritage assets are unlikely. To the southern edge of the site, there are three listed bridges, where setting could be affected should development extend to this edge. However, it ought to be able to mitigate / avoid negative effects with appropriate design. Consequently, neutral effects are predicted here.</p> <p>There are a number of listed buildings that could be affected by development of a south eastern extension to the urban area. The loss of open space would affect the setting of such assets, where open space forms an important aspect of their character. It could also lead to the loss of buildings, should the associated farmland be part of development plans. A more substantial extension in the form of a Garden City suburb would have potential to affect a wider area. Depending upon site design and layout, effects on the historic environment should be possible to manage. However, there is increased potential to affect the setting of assets that are within an open countryside setting such as Bradley Hall. A minor negative effect is predicted here for options 2, 3 and 4. Under option 1, where the geographical scale of development would be greater for the garden city suburb, the effects would not be anticipated to be substantially different to options 2, 3 and 4, as the additional areas involved do not contain any designated heritage assets. However, the character of the area would be changed, and this could affect the setting of buildings of local interest.</p> <p>A more dispersed approach to development around the urban fringe (option 5) would better avoid effects in the open countryside on heritage assets such as farm buildings. However, due to the smaller scale of the sites involved, there would be less potential to implement a buffer between the urban area and new development in the countryside. In some locations this could affect the character of heritage assets on the urban fringe and so a minor negative effect is predicted for option 5.</p>				

Landscape

Option 1	Option 2	Option 3	Option 4	Option 5
xx	xx?	xxx?	xx?	x
<p><u>Discussion of effects</u></p> <p>An extension to the west of the urban area would necessitate the loss of Green Belt that has a strong contribution to its function. This is predicted to have a permanent negative effect upon landscape character in this part of the borough (for options 3 and 4).</p> <p>An extension to the south-west of Warrington would lead to the loss of open Green Belt land. Although this would affect the open character of this area, this parcel of land is mostly considered to make a moderate contribution to the Green Belt and its development would be unlikely to alter the character of any nearby settlements. Therefore, the effects upon landscape character are predicted to be minor; with the potential to mitigate and or secure enhancements.</p> <p>A major extension to the south-east of the urban area is likely to affect the rural character of the countryside in this part of Warrington and would change the relationship between Appleton Thorn and Grappenhall Heys with their surrounding areas. Though some parcels of land in this area are only considered to make a weak contribution to the Green Belt; others are predicted to have a moderate or strong contribution and it would be difficult to avoid all these area. The cumulative loss of open land is predicted to be negative. However, the large scale nature of an extension at this location ought to provide opportunities for mitigation and enhancement to ensure that significant effects upon landscape are avoided.</p> <p>At a larger scale of growth required for a Garden City, further loss of Green Belt would be necessary, and development could expand into more sensitive parcels of land. This presents the potential for significant negative effects upon landscape character across this area. However, the M6 does provide a strong barrier to prevent the coalescence of the urban area with settlements such as Lymm. Similarly, the M56 forms a strong barrier to the south. The large scale nature of a Garden City suburb should also allow for green infrastructure enhancements to be an integral feature of the layout and design of any development. Therefore, whilst negative effects are predicted, it is possible the significance of these could be reduced with appropriate master-planning / landscaping and design.</p> <p>Overall a negative effect is predicted for option 2 to reflect the scale of growth to the south east of the urban area. However, there is potential for these effects to be managed, and so an uncertainty has been recorded. Though there is also development to the south west of the urban area, this is unlikely to have significant negative effects.</p> <p>Option 3 would have similar effects to option 2 in relation to a Garden City Suburb. However, the overall effects would be more adverse, as a western extension is likely to have more pronounced effects on landscape character compared to an extension to the south west of Warrington. Consequently, a significant negative effect is predicted.</p> <p>Option 4 would also have a negative effect to the south east of the urban area, though the magnitude would be lesser compared to option 2. However, this option would also lead to the loss of land with a strong contribution to the Green Belt to the west of the urban area. Overall, the combined effects on landscape are considered to be negative.</p> <p>A more dispersed approach (option 5) would allow for the more sensitive parts of land surrounding the urban area to be avoided. Indeed, much of the land immediately adjacent to the urban area to the south east of the urban area is considered to have a weak contribution to Green Belt. The scale of expansion into the countryside would also be lower in any particular location, which ought to ensure that effects are less widespread. Overall, a minor negative effect is predicted, as there would be a cumulative loss of</p>				

land around the urban fringes. However, these effects ought to be less dramatic compared to the urban extension and Garden City approaches.

For option1, the scale of growth at the Garden City Suburb would be the highest, resulting in further expansion into the countryside and / or increased densities. This would have more prominent effects on the character of the landscape to the south east, as the scope for retaining open greens space would be less compared to the alternatives involving a lower amount of growth at the garden city. Conversely, there would be no growth elsewhere, and so potential effects associated with growth to the west or south west of the urban area would be avoided. Overall, a moderate negative effect is predicted.

Biodiversity and Geodiversity

Option 1	Option 2	Option 3	Option 4	Option 5
xxx?	xx?	xx?	xx?	xx

Discussion of effects

An extension to the west of the urban area would not intrude upon any sites designated or identified as potentially important for biodiversity. Development would be mostly on agricultural land that is not known to contain any important habitats or species and so effects are predicted to be neutral. Should development involve land adjacent to the St Helens Canal / River Mersey, there may be some potential for effects upon water quality (and subsequently wildlife) through polluting and disturbing activities. However, the likelihood of effects is considered to be low given the need for mitigation during construction activities.

An extension to the south west of Warrington would not intrude upon any sites designated or identified as potentially important for biodiversity. Development would be mostly on agricultural land that is not known to contain any important habitats or species and so effects are predicted to be neutral at this stage. The development is nearby to Moore Nature Reserve, which attracts and provides habitat to a wide range of biodiversity. However, direct effects are unlikely to occur, and there are no known wildlife links between the reserve and land to the south of Warrington. This ought to be confirmed through more detailed studies should any development be proposed.

Development to the south east of the urban area has the potential to cause disturbance to several local wildlife sites (The Dingle and Fords Rough and Grapenhall Heys) and a network of BAP Woodland Orchard. This could be through increased recreational pressure from new development, and / or a loss of surrounding greenfield land. However, the scale of the development ought to allow for considerable inclusion of green infrastructure enhancements, and provided such measures were incorporated into layout and design then potential significant negative effects ought to be mitigated. Should the preservation and enhancement of woodland orchard habitat be adopted as a key design principle, then development could achieve enhancement perhaps, but the extent to which this would happen is unknown at this stage, and therefore negative effects have been recorded.

At a higher scale of growth associated with the Garden City suburb (options 1, 2, 3), there would be further expansion into the countryside. Whilst this could have some localised negative effects on wildlife that might be present on development sites, there are no designated habitats in the areas that would be likely to be developed. Therefore the effects are not predicted to be significantly different to those that are predicted for a major urban extension in the south east (reflecting the fact that much land of potential biodiversity value is located closer to the urban fringe). A Garden City proposal would also be likely to include an enhanced level of green infrastructure provision, perhaps in the form of a country park, which could potentially include benefits for biodiversity. Under option 1, the scale of growth would be larger still, and expand into areas to the south of Thelwall. There are local wildlife sites in this area, which could be potentially affected by development.

A more dispersed approach to development should allow for the more sensitive sites to be avoided, and would not necessitate as expansive development to the south east. This should help to minimise the potential for negative effects on biodiversity. However, growth along the urban fringes in the south east

could still cause disturbance to local wildlife sites and BAP habitats, so negative effects have been identified. The potential for strategic enhancements would be slightly lower for this option, as it would promote a more piecemeal form of development.

Overall, option 2 is predicted to have a negative effect, though this could potentially be offset through mitigation and enhancement. This relates mainly to development to the south-east of the urban area, as development to the south west is not predicted to have significant effects on biodiversity. Options 3 and 4 are also predicted to have similar negative effects, as both also involve large scale growth to the south-east. Though these alternatives also include growth to the west, this is not considered likely to have a significant effect on biodiversity. Option 1 could affect a wider area to the south east, with additional possible effects upon biodiversity to the south of Thelwall (compared to the smaller garden city approaches). Though it ought to be possible to mitigate such effects through avoidance and green infrastructure enhancement, the greater scale of growth here could present the potential for more prominent effects on wildlife overall. Consequently a major negative effect is predicted at this stage.

Climate change and resource use

Option 1	Option 2	Option 3	Option 4	Option 5
x / ?	x / ?	x / ?	x / ?	x

Discussion of effects

Irrespective of the distribution of development, growth is likely to lead to an increase in the use of energy and resources, and in the generation of waste. Each option aspires to increased levels of economic growth, and would encourage more housebuilding to support increased economic activity. Consequently, a minor negative effect is predicted for each alternative.

With regards to green infrastructure enhancement for climate change resilience, there is potential for networks to be affected (either positively or negatively) by development on the edge of the urban area. Effects are more likely to be identified at a site specific level and potential enhancement / mitigation measures should also be possible to establish (for example strengthening networks of GI and improving access to such areas). However, some broad observations have been made below.

Extensions to the west of the urban area and the south of the Waterfront would not be likely to sever any established green infrastructure links, nor would it present particular opportunities to enhance links / develop resilient developments. Consequently, effects are predicted to be neutral (though it is acknowledged that good design could possibly generate positive effects).

A potential extension to the south east of the urban area presents the potential for effects upon Green Infrastructure networks. Depending upon the nature of development, this could be positive or negative. There are bands of BAP Woodland Orchard, wildlife sites and mature trees surrounding Grappenhall Heys and extending down through the Dingle and Fords Rough. Development of a large extension or Garden City suburb could lead to the fragmentation of these networks on one hand, but on the other may provide opportunities to strengthen links between GI in this location and extend networks further out into the countryside. If well designed, this could help to deliver more resilient developments with good access to green infrastructure. At this stage, an uncertain effect is predicted for options 1, 2, 3 and 4. However, it should be possible to plan positively for green infrastructure given the scale of the development site being proposed.

The potential for decentralised energy networks ought to be most prominent for the Garden City Suburb, which will generate the level of growth to support a new district centre. For options 1, 2 and 3, which involve higher scale of growth (6000 or 8000 dwellings), the centre is likely to support new shops, a leisure centre (including swimming pool) some employment, health facilities and a secondary school. In addition to the new housing, this development could form the basis of a potentially viable network with suitable anchor loads for heat demand. However, at this stage, the viability and feasibility of a district energy network is unknown, and therefore uncertain effects are predicted. Should a Garden City Suburb be pursued it is recommended that an energy potential study is undertaken to explore these possibilities. Any opportunities would need to be an integral feature of the masterplanning process. Under a more dispersed approach (option 5), and at a lower

level of growth at the Garden Suburb (as per option 4) opportunities for a local decentralised energy network are considered to be less likely given that the range of facilities and services (and thus anchor loads for heat) would not be as great.

Summary of appraisal findings

	Economy and regeneration	Health and wellbeing	Accessibility	Housing	Natural resources: Agricultural land	Natural resources: Water Quality	Natural Resources: Air Quality	Natural resources; resource efficiency	Natural resources: Flooding	Built Heritage	Landscape	Biodiversity and Geodiversity	Climate change and resource use
Option 1	✓✓✓	✓✓✓	✓✓✓xxx	✓✓	xx	x	x	x	-	x	xx	xxx?	x / ?
Option 2	✓✓✓	✓✓✓	✓✓✓xx	✓✓	xx	x	x?	x	-	x	xx?	xx?	x / ?
Option 3	✓✓	✓✓✓	✓✓✓xx	✓✓	xx	✓x	xx	x	-	xx	xxx?	xx?	x / ?
Option 4	✓✓	✓✓	✓✓xx	✓✓	xx	✓x	x?	x	-	xx	xx?	xx?	x / ?
Option 5	✓✓	✓	✓xx	✓✓✓	x	✓?x	x	x	-	x	x	xx	x

Options 1, 2, 3 and 4 perform similarly overall, which is not surprising given that each involves large scale development to the south east of the urban area and urban extension(s) to the west or central areas (for options 2, 3 and 4). Each is predicted to have positive effects upon the economy and housing, due to the delivery of new homes which will help to provide for housing need, create jobs, and stimulate local spending. However, the positive effects are most pronounced for options 1 and 2, which are considered more likely to contribute to the New City concept and to secure strategic infrastructure improvements to support the developments and the wider area.

Each option is predicted to have similar negative effects upon agricultural land, with Grade 2 and 3 land being lost regardless of location. The effects in terms of flooding are also similar, given that none of the areas are substantially affected by flood risk, and the use of natural resources is also likely to be the same regardless of locational differences.

The alternatives differ in terms of health and wellbeing, with options 1, 2 and 3 having a more pronounced positive effect on health (compared to alternatives 4 and 5) due to the fact that the Garden City suburb would generate the critical mass to support new health facilities. There are also differences with regards to accessibility, with options 1, 2 and 3 generating a more positive effect due to the enhancements to transport infrastructure that would be required, as well as establishing accessible local centres / a neighbourhood hub.

For each option however, an increase in development could put pressure on transport networks, which is recorded as a potential negative effect for each option. The effects are predicted to be most prominent for option 1, as the greatest amount of development would be located in one location, and there would be a need for substantial infrastructure investment. Having said this, it is acknowledged that new infrastructure could be secured to support strategic growth under all of the options, and this could help to mitigate and tackle potential congestion issues, as well as improving public transport links. This is especially the case for the alternatives that involve the south-east Garden City Suburb and the South West Warrington Urban Extension (which could benefit more from the Western Link Road).

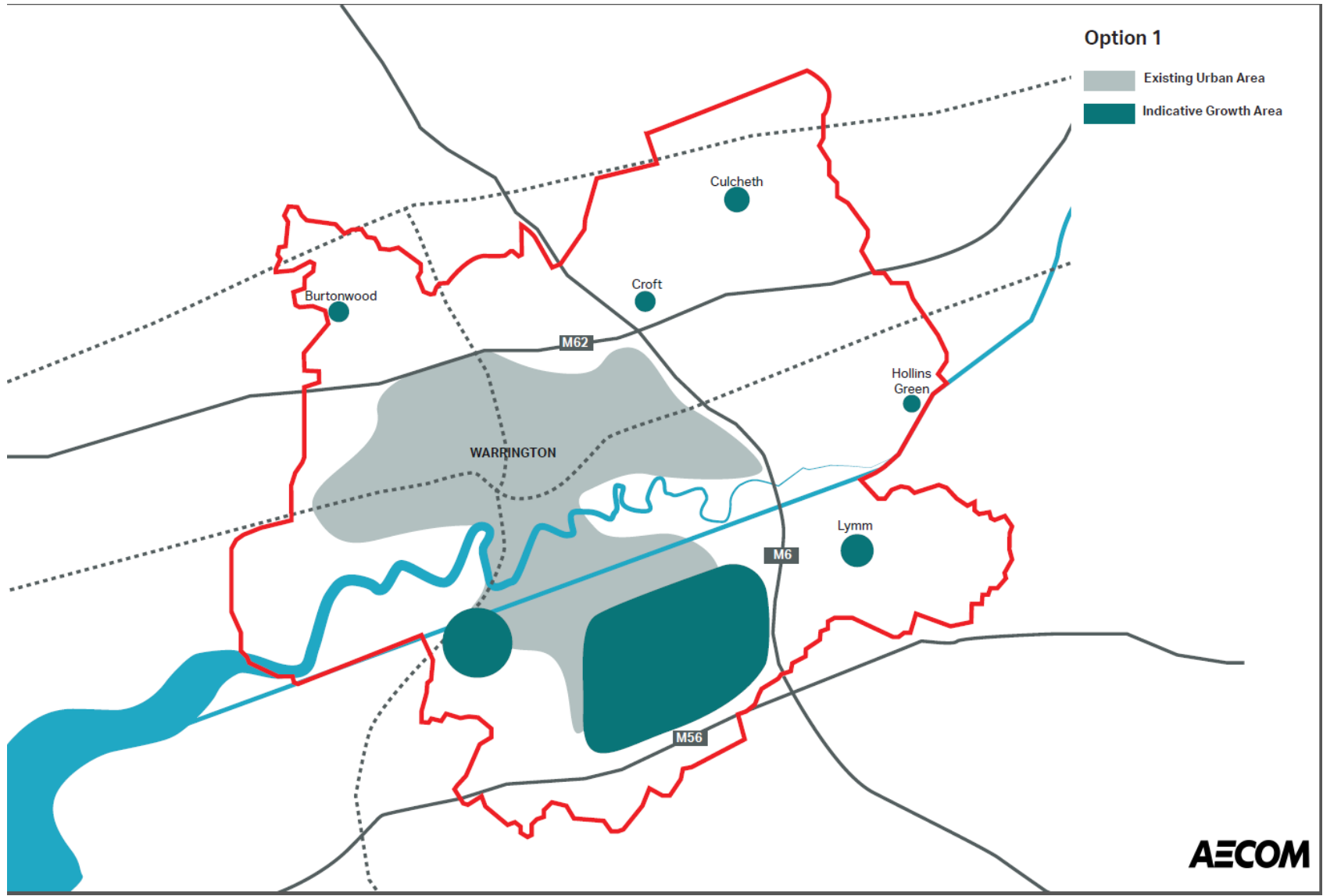
With regards to the built environment, each option could have negative effects, as there are listed heritage assets either on or adjacent to the development locations. However, growth to the west would affect land demonstrating historic field patterns too. There will also be effects upon landscape character regardless of location as the scale of growth is substantial. Option 3 however is predicted to have the potential for the greatest negative effects as it involves an extension to the west which would lead to the loss of strong Green Belt land, as well as more widespread effects on landscape to the south east (due to the scale of the Garden City suburb). For each of the options there may be potential for enhancement for landscape and biodiversity to the south eastern extension, but it is uncertain at this stage the extent to which this might occur. Furthermore, option 1 could have more pronounced negative effects on biodiversity given that it would involve further expansion into the countryside in areas which contain local wildlife sites and BAP habitats.

Option 5 performs most differently on more of the sustainability factors compared to options 1, 2, 3 and 4. With this alternative, it should be possible to avoid as much loss of agricultural land of Grade 2 classification (though it would still be Grade 3). The effects on built heritage and landscape character should also be of a lesser magnitude given that the scale of growth (in any one location) would be much less than options 1, 2, 3 and 4. However, the main difference between this alternative and the others is that it performs much more poorly with regards to accessibility and health and wellbeing.

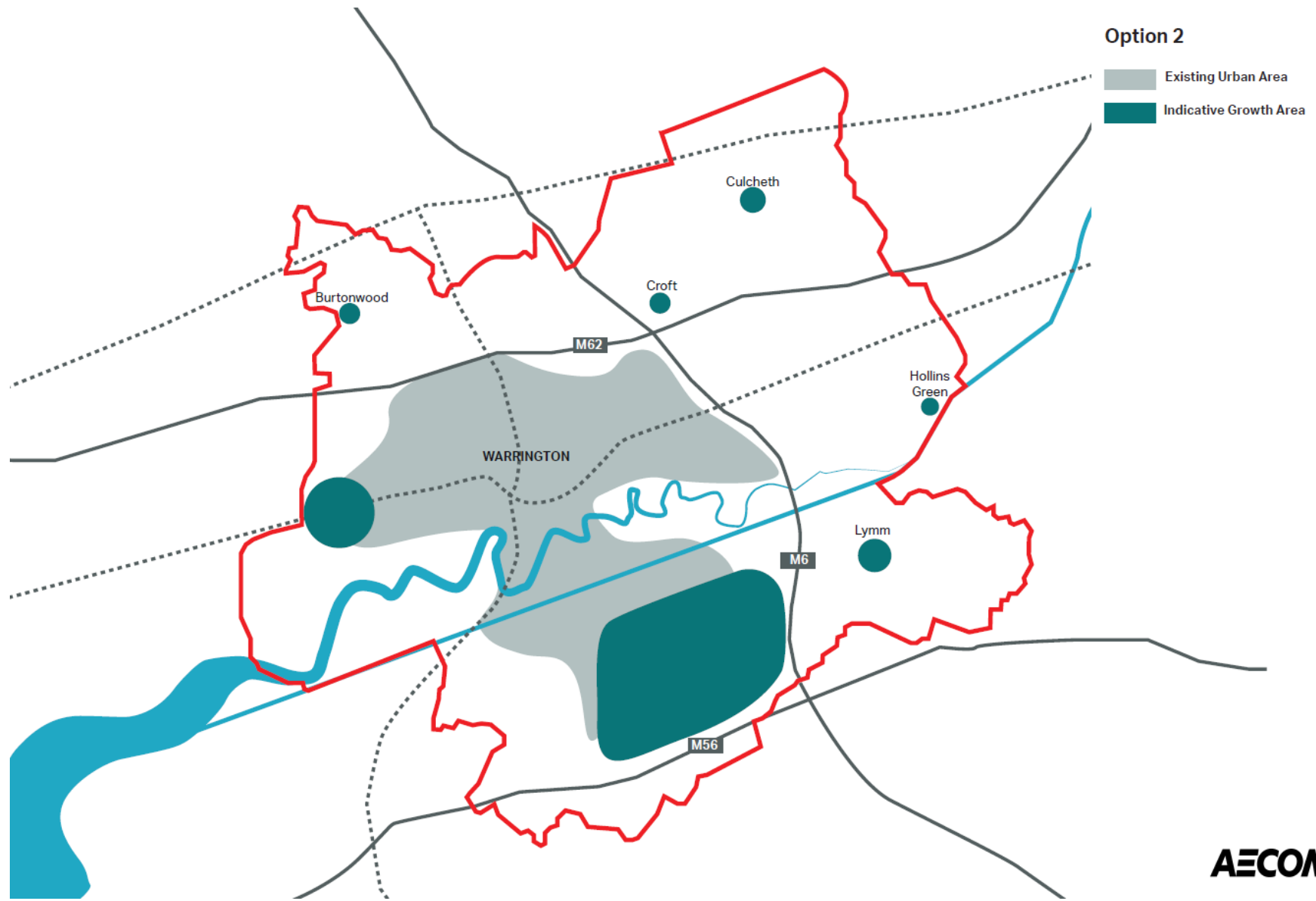
The more dispersed development is, the poorer it performs in this regard. Given the location of sites, the scale of growth and the infrastructure constraints in the main urban area, for this option to be reasonable, it is likely that there would still need to be at least one larger concentration of sites which would effectively still result in an urban extension as part of this option. The remaining development needs would be delivered in a more dispersed manner, which would be less likely to support health facilities for new communities and strategic improvements to green infrastructure. It would also be less likely to secure supporting road infrastructure upgrades in these areas.

APPENDIX E: URBAN AREA OPTIONS MAPS (PRE SUBMISSION 2019-2020)

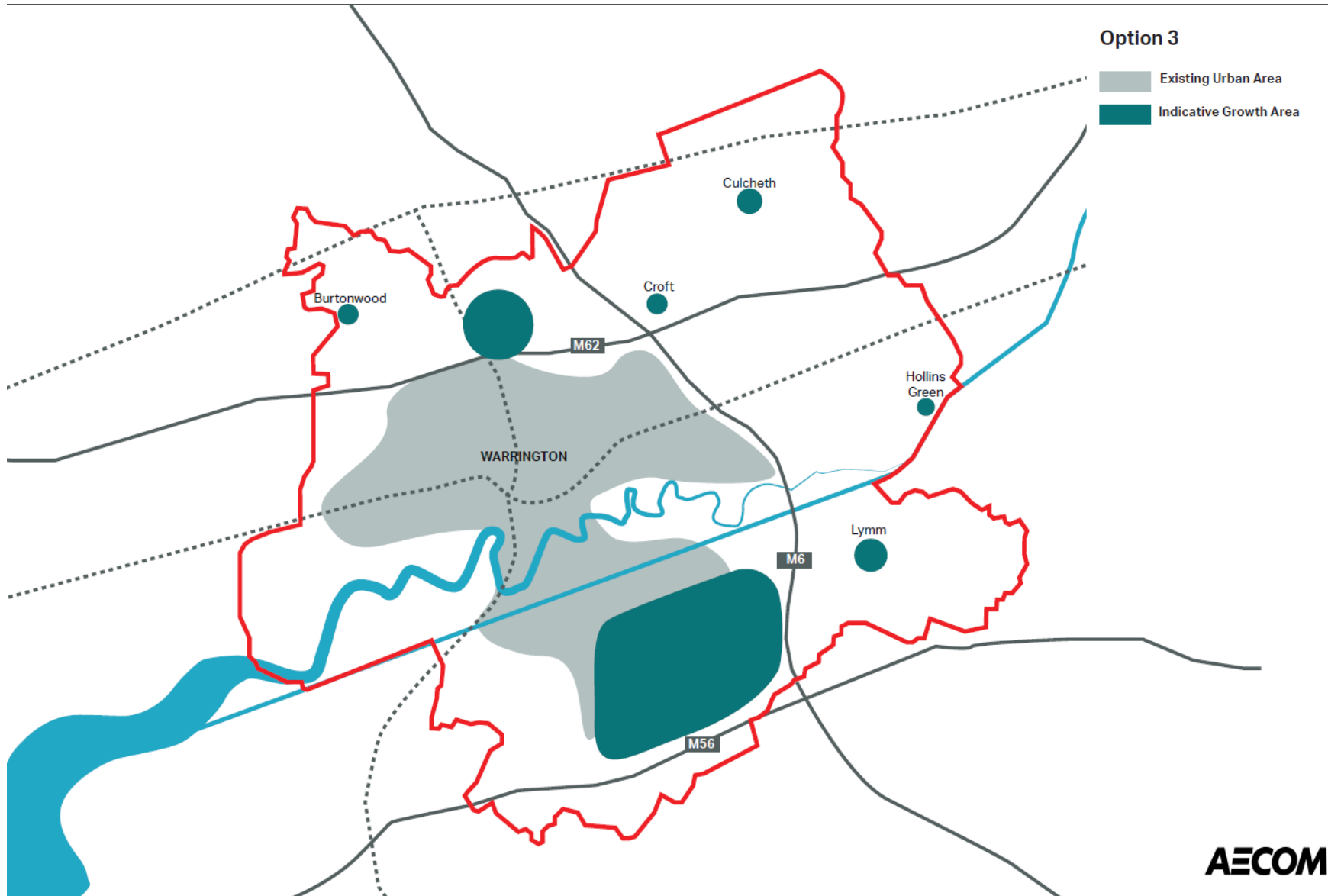
Appendix E: Urban Area Options Maps



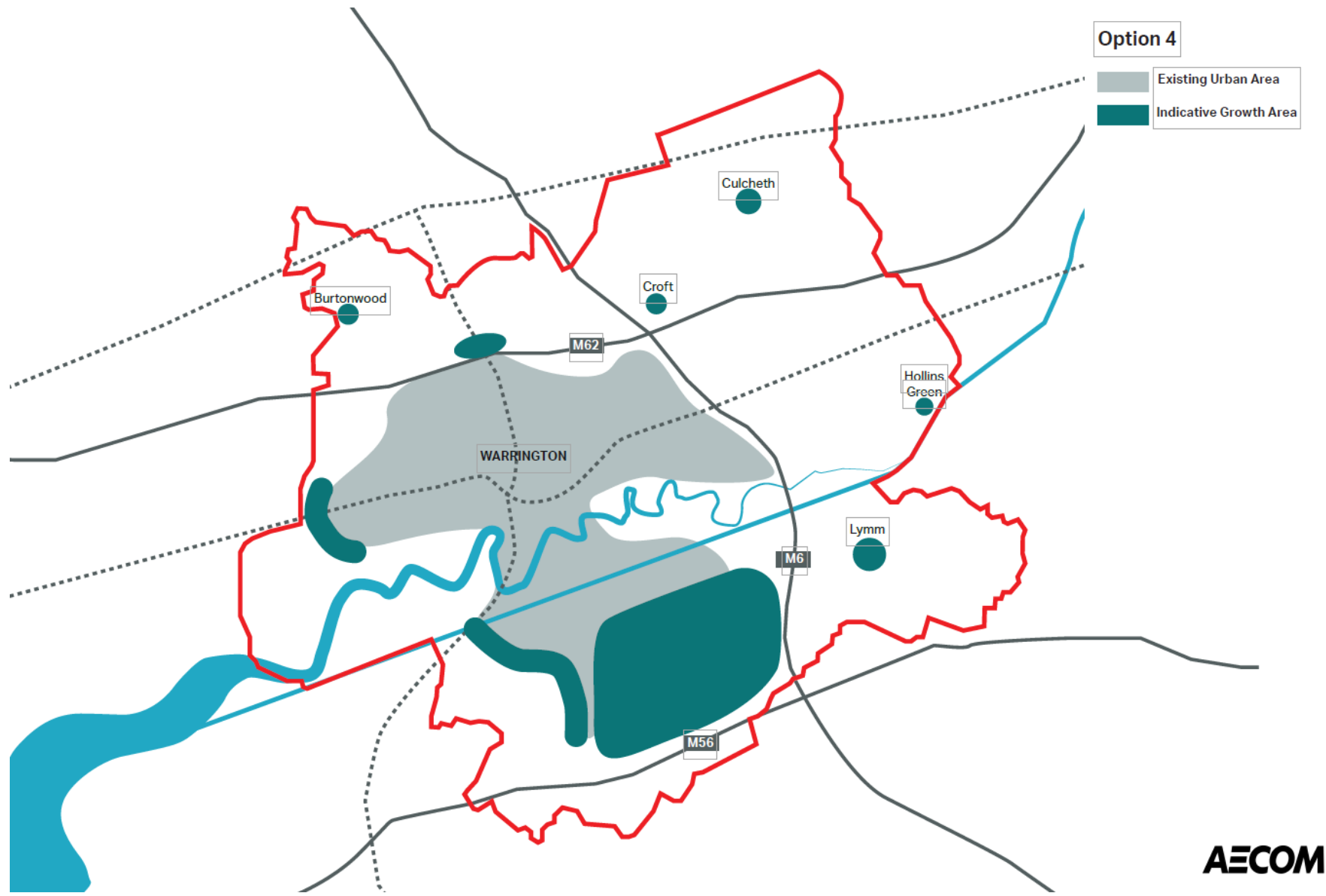
Appendix E: Urban Area Options Maps



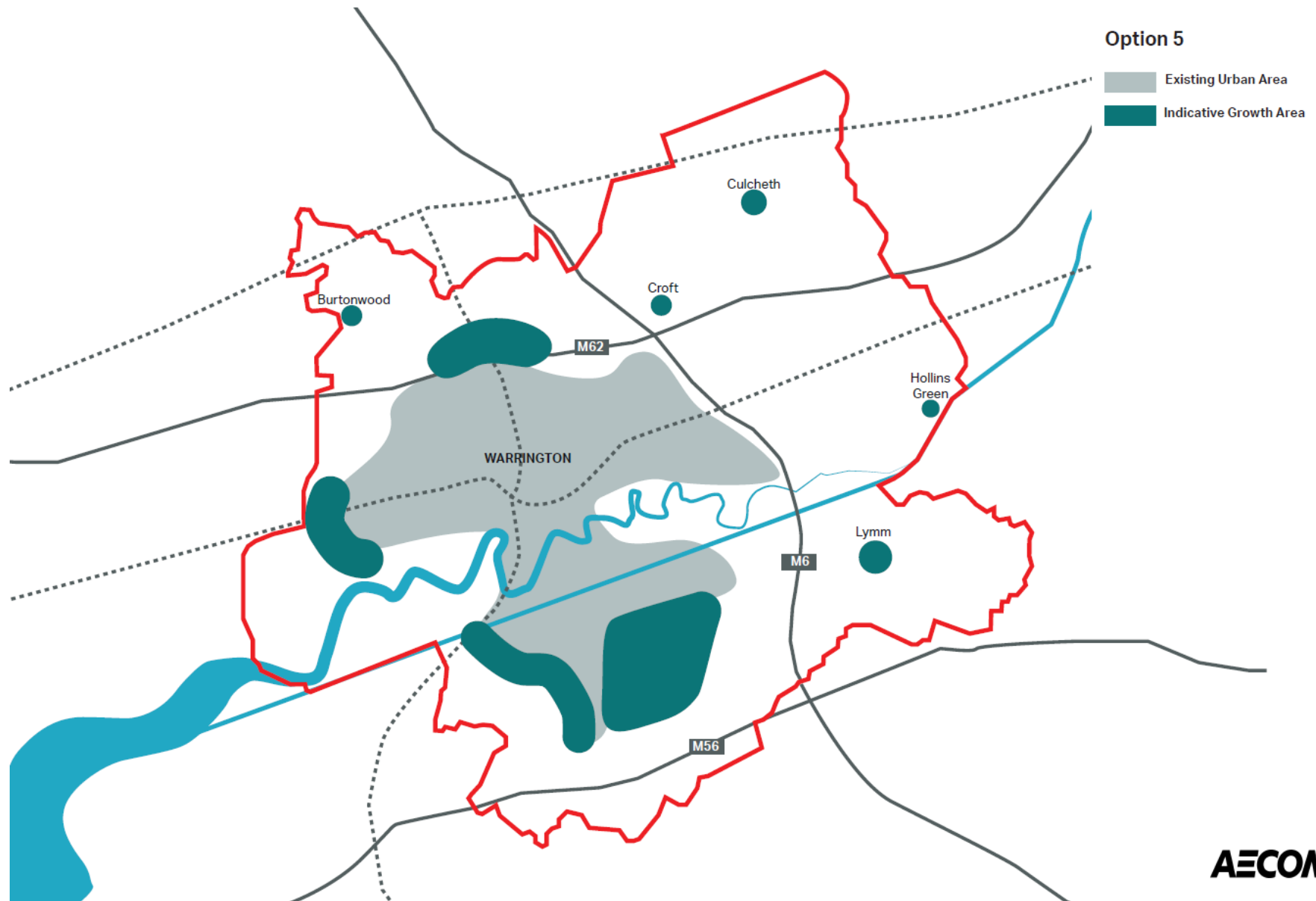
Appendix E: Urban Area Options Maps



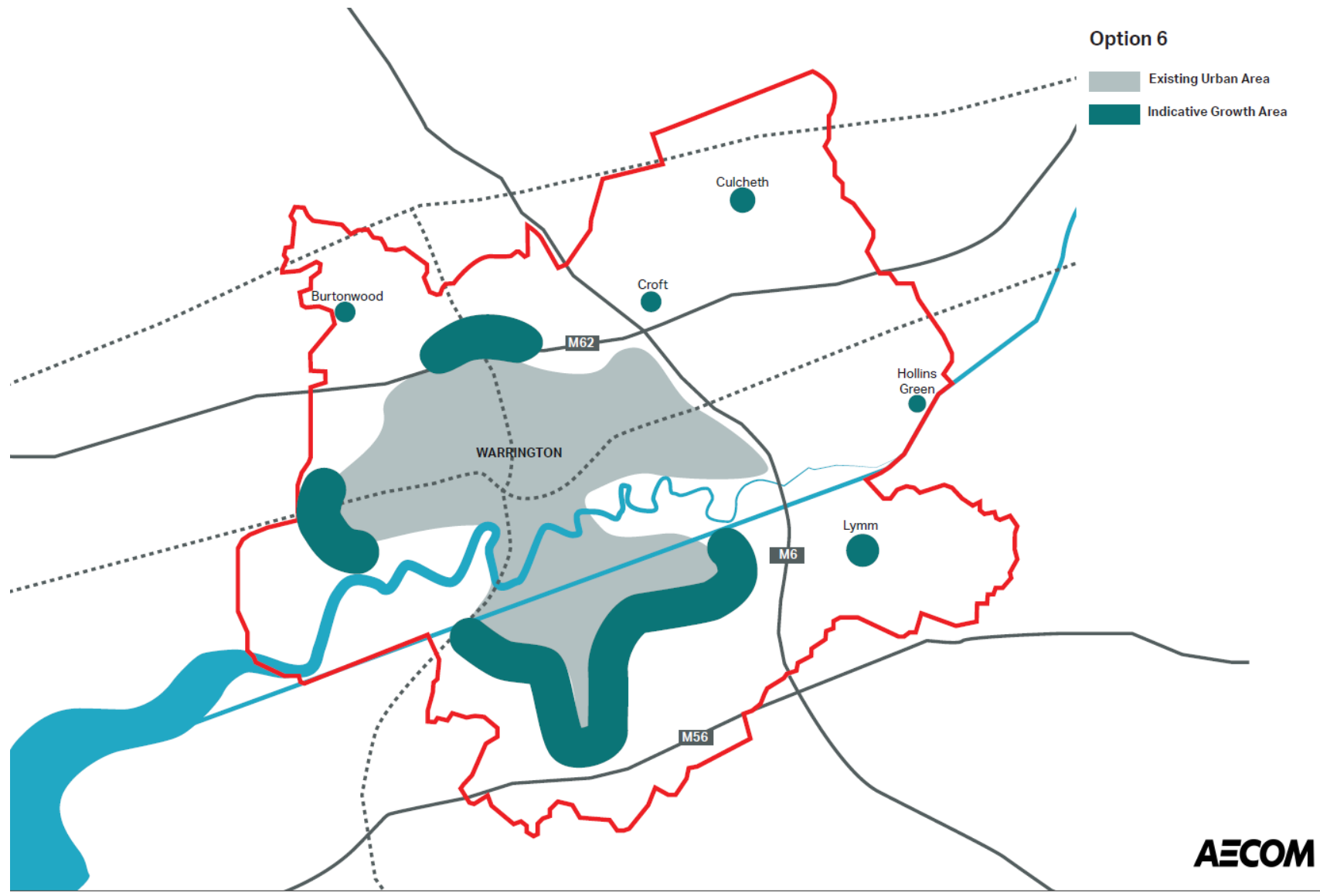
Appendix E: Urban Area Options Maps



Appendix E: Urban Area Options Maps



Appendix E: Urban Area Options Maps



APPENDIX F: APPRAISAL OF STRATEGIC ALTERNATIVES – URBAN AREA OPTIONS (PRE-SUBMISSION 2019-2020)

Each of the development options requires Warrington to accommodate approximately 7,000 homes in the Green Belt. The six development options below focus growth upon different parts of the urban area, with a balance of approximately 1100 dwellings distributed incrementally to the outer settlements.

- **Option 1** - Garden Suburb to the south east of the Warrington of around 4,200 homes & urban extension to the south west of around 1,600 homes;
- **Option 2** - Garden Suburb of around 4,200 homes & an urban extension to the west of Warrington of around 1,600 homes;
- **Option 3** - Garden Suburb of around 4,200 homes & an urban extension to the north of around 1,600 homes;
- **Option 4** – Garden Suburb of around 4,200 homes & dispersed Green Belt release adjacent to main urban area;
- **Option 5** – Garden Suburb of around 2,400 homes, urban extension to the south west of around 1,600 homes and dispersed Green Belt release adjacent to main urban area; and
- **Option 6** - A more dispersed pattern of Green Belt release adjacent to the main urban area.

Methodology

The appraisal identifies and evaluates 'likely significant effects' on the baseline / likely future baseline associated with each alternative, drawing on the sustainability topics and objectives as a methodological framework.

The task of forecasting effects is inherently challenging due to:

- The high level nature of the policy measures under consideration;
- Being limited by definition of the baseline and (in particular) the future baseline;
- The ability of developers to design out/mitigate effects during the planning application stage.

In light of this, where likely significant effects are predicted this is done with an accompanying explanation of the assumptions made.¹³

It is important to note that effects are predicted based upon the criteria presented within the SEA Regulations.¹⁴ So, for example, account is taken of the nature of effects (including magnitude, spatial coverage and duration), the sensitivity of receptors, and the likelihood of effects occurring as far as possible. The potential for 'cumulative' effects is also considered. These effect 'characteristics' are described within the appraisal as appropriate under each sustainability topic. A table is also presented under each topic summarising the predicted effects and their characteristics (i.e. namely whether they are significant or not).

¹³ As stated by Government Guidance (The Plan Making Manual, see <http://www.pas.gov.uk/pas/core/page.do?pageld=156210>): "Ultimately, the significance of an effect is a matter of judgment and should require no more than a clear and reasonable justification."

¹⁴ Schedule 1 of the Environmental Assessment of Plans and Programmes Regulations 2004

For each alternative, one of the following symbols has been allocated for each SA topic.

Significant negative effect	xxx	Minor positive effect	✓
Negative effect	xx	Positive effect	✓✓
Minor negative effect	x	Significant positive effect	✓✓✓
Neutral effect	⇔	Effects are unclear	?

Economy and Employment

Garden-Suburb focused Options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6: Complete dispersal
✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓	✓✓

Discussion of effects

Common to all six options is incremental growth at the outer settlements. This will generate positive effects by supporting the continued vitality of these settlements. Broadly speaking, access to jobs ought to be good, though it may be reliant upon car travel somewhat.

Each option also supports the vision to promote urban regeneration (to differing extents) by providing for growth within and on the fringes of the Warrington urban area. This will help to deliver housing, which will have a direct positive effect in terms of generating associated jobs in construction, as well as providing homes for a local labour force.

The options that involve a substantial urban extension to the south east (a Garden suburb) would provide enhanced opportunities for supporting mixed-use development within this area, and link well with employment land opportunities and existing employment sites (Options 1-4)

To be implemented successfully, development at this scale would also need to be supported by infrastructure upgrades, which in the longer term could have benefits for the economy by improving accessibility for residents and businesses.

For options 1-4, which involve the highest level of growth to the south east (at a Garden Suburb), it is more likely that the level of development could deliver the strategic and local infrastructure needed to support the development and contribute to the sustainable development of Warrington as a whole.

At a lower level of growth to the south east (as per option 5), achieving these positive effects would be more uncertain. In particular, this more dispersed approach would be less likely to deliver comprehensive mixed use developments, infrastructure upgrades and would not present the same opportunities to expand / build upon existing employment sites.

For Option 6, the complete dispersal of growth around the urban area would do less to support new infrastructure improvements, but would place new homes in relatively close proximity to existing employment opportunities in a range of locations.

Growth to the South West of the Warrington Urban area is perhaps most likely to support inner Warrington regeneration, which makes option 1 more attractive in this respect. The benefits provided by the south western urban extension are likely to increase if the Western Link passes through the area, providing improved access into the Waterfront Development area and the town centre. In particular,

Option 2 would place development at the west of the urban area, which would have good accessibility to jobs at Omega, as well as transport access to wider opportunities in the inner area of Warrington and towards Widnes / Liverpool via train.

For option 3, growth to the north, would link well with the employment corridor along Winwick Road connecting Warrington city centre to the motorway junction 9 near Winwick.

Overall effects

Overall **Option 1** is predicted to have a **significant positive effect** as it should deliver substantial improvements to infrastructure as part of a large Garden Suburb, as well as supporting growth to the south west of the urban area, which ought to support regeneration within inner Warrington.

Option 2 is also predicted to have a **significant positive effect**. It provides the opportunity to deliver infrastructure improvements as part of the Garden Suburb, as well as supporting growth in the west which would link well with employment opportunities at Omega / Lingley Mere.

Option 3 is also predicted to have a **significant positive effect**. It provides the opportunity to deliver infrastructure improvements as part of the Garden Suburb, as well as supporting growth which would link well with the employment corridor along Winick Road and has good access to Junction 9 of the M62.

Option 4 is also predicted to have a **moderate positive effect**. It provides the opportunity to deliver infrastructure improvements as part of the Garden Suburb. However, a dispersal of the rest of the housing would be less likely to secure infrastructure improvements in one particular area (for example new schools, roads etc.). Development may support existing nearby local centres, and could potentially help to provide affordable homes in areas of need. However, there is uncertainty.

For **Option 5** a **moderate positive effect** is predicted. The smaller scale of garden suburb would not bring with it the same potential to achieve strategic infrastructure improvements, but nevertheless, a positive effect is predicted. Greater dispersal could have benefits for a wider range of local communities (for example, in terms of supporting local centres and supporting new infrastructure).

Option 6 is predicted to have a **moderate positive effect**. Development would not involve a Garden Suburb, and so support for the wider Garden concept would be weaker. The likelihood of strategic transport routes being secured would also be lower. Dispersal of development should however help to support a range of communities, and attract business growth at established employment areas across the borough.

The smaller piecemeal nature of development could also make it less likely for strategic infrastructure improvements to be secured.

Health and Wellbeing

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6: Complete dispersal
✓✓✓ / ✗	✓✓✓ / ✗	✓✓✓ / ✗	✓✓✓ / ✗	✓✓ / ✗	✓ / ✗

Discussion of effects

Each of the options will provide housing in / on the edge of the urban area, which ought to have positive effects on health and wellbeing, particularly through specialist and affordable provision.

Each option involves incremental growth in the outer settlements, which ought to provide some limited improvements with regards to social infrastructure (play space, open space, contributions to primary places for example). In this respect, minor positive effects are predicted for each option. Access to health services would be lacking in the smaller settlements though such as Croft, Burtonwood and Hollins Green.

Options 1-4 all involve a Garden Suburb to the south-east and would put new development in locations that are fairly distant from existing health facilities. Furthermore, these facilities are mostly operating at capacity with limited onsite ability for expansion. However, at the scale of growth involved, a new health facility would be justified and necessary, which would provide accessible healthcare facilities for new communities, as well as potentially benefiting existing communities. A significant positive effect is predicted for each of these options in this respect.

This area has fairly good access to natural greenspace, but is lacking in a neighbourhood hub and community facilities. At the scale of growth involved in a Garden Suburb it would be necessary to secure new recreational facilities. This ought to ensure that pressure upon existing facilities is mitigated and that new facilities create good opportunities for recreation for new and existing communities. There ought to be greater ability to incorporate major/strategic recreational facilities into a larger Garden Suburb (for example a country park, and new sports pitches), and therefore a significant positive effect is predicted for options 1-4.

Option 5 would involve a smaller Garden Suburb and so the positive effects are considered to be lower (than for options 1-4) as the strategic green space secured would be expected to be lower too (as well as new social infrastructure. Therefore, only moderate positive effects are predicted.

An extension to the west of the Warrington urban area would be closest to the Penketh Medical Centre. This is at capacity, and though it is awaiting decision on a planning application for extension, it would likely need further capacity to support an urban extension to the west. There are other medical centres that the population in the west can use however, and some of these have capacity to expand. It should therefore be possible to accommodate growth to the west, but this might not be in locations that are accessible on foot. Consequently, growth in this location would need to be supported by a satellite health facility. In terms of access to open space, there is a deficit in natural greenspace in this area, but it ought to be possible to secure amenity space on a strategic urban extension. There are a range of community facilities within the urban area, including churches, community centres, Penketh Swimming Pool, a pharmacy, food shops and public houses. Further into the town centre there are a fuller range of leisure facilities.

Overall, an extension to the west is predicted to have minor positive effects. Existing facilities in the area ought to be able to accommodate the growth, but this would not necessarily be accessible. However, it is expected that a new satellite facility would be secured. The development would take place in an area that has poor accessibility to natural greenspace, so the potential for positive effects from recreation are somewhat restricted. However, there are some local community facilities that could help to support the wellbeing of residents and provide recreational facilities for residents. It is unlikely that an urban extension here would bring significant benefits for existing communities though.

An extension to the south west of Warrington would be located in an area that is fairly distant from health facilities and local community facilities. However, as part of any development there would be a need for new health facilities / satellite health facilities that would provide healthcare within walking distance for the new communities. A wider range of facilities would also be accessible by public transport or car further into the town centre. The site is within walking distance of local greenspace at Walton Gardens, and would also be likely to include a new park and improved links along the ship canal. This would help to provide better opportunities for communities to engage in recreation. There would be enhanced benefits for this site, should the western link road pass through the site, as this would better link it to the Waterfront Strategic Development. Without these links, the accessibility benefits would be less prominent. Overall, an extension to the south west of Warrington is predicted to have a moderate positive effect, due mainly to the requirement to deliver new satellite health facilities and the existing accessibility to natural greenspace.

An expansion to the north of the Warrington urban area would be in a location that is not served immediately by health facilities. Whilst this is a potential issue, strategic development could help to support new health facilities in this area, which would benefit existing communities that currently have to travel further afield. This is not a certainty though, as standalone health facilities may not be viable in this location (meaning that expansion to existing facilities may be required instead). With regards to open space and recreation, there is some provision of formal open space and play facilities locally, and these could be added to through new development (albeit in a fragmented manner). Overall, a minor positive effect is predicted.

A dispersed approach to development would place some housing in areas with poor access to open greenspace, and others with good access. There would be less potential to support strategic improvements in greenspace provision through this approach as the size and connectivity of sites would be less accommodating. The pressure on healthcare facilities would not be as substantial in any one part of Warrington under this approach. However, there would still be a need to accommodate additional needs, and the dispersed nature of development could make it more difficult to justify new facilities in any particular area. This could mean that communities in need of improvements suffer from increased pressure, and / or need to travel further to access healthcare. Overall, a dispersed approach (options 4, 5 and 6) would be less able to generate the critical mass required to support enhancements to healthcare, community facilities and green infrastructure. This would offset positive effects, and potentially be negative for some communities.

For all of the options, it is also important to note that there may be community resistance to the loss of Green Belt. Despite development potentially improving open space and recreational facilities, some residents will be affected in terms of amenity, and satisfaction with their local areas. These are minor negative effects for each option, regardless of distribution.

Overall effects

Options 1 - 4 are all predicted to have **significant positive effects** related to the establishment of new communities at a Garden Suburb that would have good access to health care, recreational facilities, open space and walking and cycling links to promote active travel. The additional growth at a south west, west or northern extension to the urban area would also be likely to generate positive effects, but these would be of a lesser magnitude. At the outer settlements, benefits would be limited further still. However, in combination, the effects from a borough perspective would be significantly positive by improving access to health care and promoting healthier lifestyles.

A **minor negative effect** is also predicted for each of these options, reflecting potential impacts on amenity and wellbeing for certain communities / people.

Option 5 does not generate the significant positive effects associated with the Garden Suburb as it would be smaller in scale. Consequently, only **moderate positive effects** are predicted. The dispersal of further growth would also be unlikely to generate strategic improvements, and so the overall benefits are lesser compared to options 1-4. As per options 1-4 a **minor negative effect** is also predicted.

Option 6 is predicted to have only minor positive effects as it provides fewer opportunities for strategic enhancements to services and green infrastructure.

Accessibility

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6. Complete dispersal
✓✓✓x	✓✓x	✓✓x	✓✓x?	✓x	✓xx
<p><u>Discussion of effects</u></p> <p>Options 1-4 all involve a large Garden Suburb. A major extension to the south east of the urban area (A Garden Suburb) would be located in the open countryside and would therefore have poor accessibility to existing services in part. However, an extension of such a size would inevitably be supported by new primary education, secondary education, satellite health facilities, village centres and a district centre and community facilities. Therefore, new communities ought to have good accessibility in this respect. These new facilities could also benefit existing communities where accessibility is not ideal such as Appleton Thorn, Grappenhall Heys, Dudlows Green and Pewterspear. Development at this scale would also be likely to establish new bus routes into a Garden suburb, in particular providing connections to the town centre. This could help to improve accessibility for existing communities in the south / south east of the urban area. In this respect, a moderate positive effect is predicted for options 1-4.</p> <p>Development of a Garden Suburb would be likely to have major implications for the local and strategic road networks, and so would be reliant upon the provision of network upgrades, expanded public transport routes and active travel measures. At this stage, a potential negative effect is predicted, but it is recognised that transport packages to support growth could lead to relief on key routes. Furthermore, a garden suburb would involve the expansion of industrial/business land providing provide good access to jobs for residents in the suburb by sustainable means. This offsets the potential negative effects and therefore, only minor negatives are recorded.</p> <p>In addition to the Garden Suburb, options 1-3 each involve strategic growth in a particular location at the urban fringes of Warrington town.</p> <p>For Option 1, an urban extension to south-west Warrington would necessitate the provision of a new primary school, satellite health facility, new local park and local centre. Access to such facilities in this area is currently poor, but these new facilities and services would help to create a new community that has good accessibility to essential services such as these. Existing nearby communities at Higher Walton and Lower Walton might also benefit from an increased choice of services locally. There would also be opportunities to enhance pedestrian links to Stockton Heath, along the ship canal and into the Trans Pennine Route. A positive effect is predicted in this respect.</p> <p>In terms of access to public transport, it would be beneficial to expand bus routes onto the site, as the nearest bus stops would be fairly distant from parts of the site. In terms of the local and strategic road networks, there is also the possibility that development could increase traffic and congestion, particularly along the A56. Should development encourage travel into the town centre, this could have negative effects on areas that are designated as AQMAs. However, development here would contribute towards and benefit from the completion of the Warrington Western Link road. This would achieve links to the wider Waterfront area and help to manage effects on the road network. Consequently, this provides the potential for a significant positive effect.</p> <p>Overall, a significant positive effect is predicted for Option 1. This is related to several factors, but notably the potential for major improvements to transport networks in support of new development at both strategic locations. In addition, development would also create communities with good access to a range of services and these could also benefit existing nearby communities.</p> <p>Despite these benefits, the concentration of growth in focused locations could lead to increased traffic congestion. Trips towards motorway junctions would also be more distant from a south west extension when compared to alternative locations such as the north. Though public transport connections in the</p>					

south west are greater, it is inevitable that people will still use their cars and that access to strategic routes will remain important. As a consequence, a **minor negative effect** is predicted for this option.

For **Option 2**, expansion to the west of the urban area is within reasonable walking distance of existing primary schools, GPs and a district centre. However, a higher scale of growth may require the provision of a new primary school, and this would help to support current capacity in the area. There are also plans for new health facilities nearby, which could accommodate any additional needs from this area. An extension in this location however cannot be accommodated by the existing secondary school.

There are existing bus routes nearby, which would be supported by an urban extension and could potentially be expanded. There is also access to a train station with hourly services towards Liverpool Lime Street to the west and Manchester to the east. Though access to services and facilities is relatively good in this area, the majority of travel is by car, and this would be likely to continue. However, the location is well connected to job opportunities such as at Lingley Mere.

In terms of traffic and congestion, development to the west could put pressure on some local junctions, but should be easier to accommodate without the need for major network upgrades compared to growth in the central and southern areas of the urban area.

Overall, a **moderate positive effect** is predicted. This relates primarily to the benefits that the development of a Garden Suburb would bring in terms of well-connected new communities and improved infrastructure. Though development to the west would be fairly well connected, it may lead to a greater amount of car trips when compared to growth at the south west. Furthermore, access to a secondary school could be problematic. For these reasons, the positive effects are not predicted to be significant overall.

A **minor negative effect** is also predicted relating to the likelihood of continued car usage, and increased traffic in this particular location.

For **Option 3**, expansion to the north, new development would be located in an area that is not ideally served by local facilities. In particular, there are capacity issues at secondary schools, and further growth would not necessarily bring new facilities. There would be a need for a new primary school, and health facilities, which are lacking in the area also. In this respect, potential negative effects could occur, though it is acknowledged that new facilities could be secured through development. The sites available in this area are fragmented though, which could make a comprehensive plan for the area more difficult to deliver.

Residential development in this location would have good access to motorway networks, but this could potentially encourage car trips. The route into and out of Warrington along the A49 is also congested at peak times, and additional growth without transport improvements would be likely to generate negative effects in this respect. Conversely, there is access to rail travel at Newton-le-Willows and there is good access into the town centre (albeit on a congested network).

Overall, a **moderate positive effect** is predicted, mainly related to the Garden Suburb. Additional benefits from a focus on the north would be minor, but include good access to a railway station. On the other hand, there would be **minor negative effects** due to an increase in congestion and the location of new development in an area that is not ideally served by facilities.

For **Option 4** there would be dispersal of a relatively small amount of residual housing (i.e. that not being delivered at a garden suburb). A dispersed approach would mean that developments around the urban area were of a smaller (less strategic) scale and would be less likely to support new local facilities. This would mean that access to services might not be as good compared to a focused approach that secures a wider range of services and facilities. Conversely, a dispersed approach would put less pressure on any particular location in terms of congestion and traffic.

Overall, a **moderate positive effect** is predicted, mainly related to the Garden Suburb. Additional benefits from dispersal would be unlikely, but so too would negative effects.

A completely dispersed pattern of growth (**Option 6**) would locate housing across the fringes of the urban area. Some locations are not well served by local facilities or public transport, (for example to the far south of the urban area near Stretton) and the lower scale of development proposed would be

less likely to support new facilities. Other locations are located a reasonable distance from existing services (schools, healthcare, public transport), but development would need to be accommodated at these as new facilities would be unlikely to be supported in full. Therefore, the extent of positive effects would be diluted and would not benefit existing communities.

In terms of congestion and travel, dispersed growth would be less likely to put pressure on one particular part of the urban area, but the overall increase in development could lead to increased congestion and longer trips to local facilities. This approach would be less likely to be supported by specific infrastructure improvement schemes, and so there is a potential **minor negative effect** predicted for option 3 relating to this.

Option 5 also involves dispersal, but at a lesser scale, because it would also involve development as part of a smaller 'Garden Suburb'. At a lower level of growth here, it would still be feasible to secure a local village, primary school and recreational facilities. However, a district centre would not be likely to be viable or necessary. Therefore, access to new health care, retail, and the establishment of comprehensive transport would not be as good when compared to the larger garden suburb options. Nevertheless, this option ought to have fewer negative effects compared to option 6, as it locates a fairly large amount of development at a garden village, which would have good access to local facilities. In terms of transport, it would be important to secure bus links to the area to ensure that the concentration of development did not lead to greater traffic congestion.

Housing

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6. Complete dispersal
✓✓✓?	✓✓✓?	✓✓✓?	✓✓✓	✓✓✓	✓✓✓

Discussion of effects

Each of the options is predicted to have significant positive effects in terms of housing, as they would all seek to deliver approximately 6000 homes in the Warrington Urban Area. This would help meet housing needs, including affordable needs and specialist needs. Furthermore, a degree of flexibility is factored-in to support economic growth.

There would also be approximately 1100 dwellings delivered at the outer settlements as a constant for each option. This would generate positive effects in those areas, helping to widen choice across the borough and deliver affordable homes in a wider range of locations.

With regards to distribution around the urban areas, there are differences in how each option performs.

Options 1-4 involve the majority of housing at a Garden Suburb. The reliance upon this location to provide a large proportion of the housing need could affect the delivery of housing, as it would likely to be a phased approach that is reliant upon strategic infrastructure upgrades. There is therefore uncertainty about the benefits being achieved, particularly in the short term. This is further compounded by the fact that the remaining housing growth would also be focused at an urban extension to the south west (Option 1), the west (Option 2) and the north (Option 3). Option 4 provides greater flexibility in this respect with a dispersed approach.

In contrast, Options 5 and 6 would spread the development across of number of strategic sites across the borough, which could potentially be delivered sooner, and across a greater variety of locations to suit a large proportion of the community's needs. Consequently, these two options are more likely to achieve a more certain positive effect.

Overall effects

Option 1, Option 2 and Option 3 are each predicted to have **significant positive effects**, but there is uncertainty given the reliance upon a large scale garden suburb and urban extensions to deliver the bulk of housing needs.

Options 4, 5 and 6 involve a greater degree of dispersal, and so the **significant positive effects** are predicted to be more certain.

Natural resources: Land Resources

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6. Complete dispersal
xxx	xxx	xxx ?	xxx ?	xx	xx

Discussion of effects

All six options involve the same amount of growth at the outer settlements. At this scale of growth, there is flexibility in the choice of sites that could be brought forward. It should therefore be possible to avoid the most sensitive agricultural land. However, most of the site options do fall within either Grade 2 or 3 classifications, and so there would be negative effects associated with loss at the outer areas.

Options 1-4 each involve a Garden Suburb, and this would lead to a substantial loss of Grade 2 and Grade 3 agricultural land, which is known to be present in this location. Detailed surveys have been carried out in some parts confirming that that land is indeed Grade 3a in places, and so a negative effect is predicted in this respect.

With regards to the additional growth, for Option 1 the south west urban extension involves mostly Grade 2 land, and for option 2, the western extension also involves mostly grade 2 land. Therefore, further negative effects are predicted for these two options.

For option 3, further grade 2 and 3 land would likely be lost, but it is unclear whether this would be grade 3a or 3b. There may be some greater flexibility to avoid the loss of Grade 2 land for this option as well, and so there is a degree of uncertainty about the effects being significant.

For option 4, there would be flexibility in the choice of sites to deliver the remainder of growth in a dispersed fashion. This would help to reduce the potential for significant negative effects somewhat by avoiding grade 2 land. However, it is still likely that Grade 3 land would be lost.

A more dispersed approach that relies upon multiple sites along the urban fringe (options 4 and 5) would still lead to a loss of agricultural land, but it would be possible to avoid Grade 2 land in some locations and therefore only moderate negative effect are predicted.

For any of these approaches, thought needs to be given as to how the loss of soil resources can be compensated for, as most growth strategies involving green belt land will affect best and most versatile lands.

Overall effects

Overall, Option1 and Option 2 are predicted to have **significant negative effects**. This relates to the loss of best and most versatile agricultural land at the Garden Suburb, as well as further high quality land to the west (Option 2) and the south west (Option 1).

For Option 3 and Option 4 a substantial loss of land would still occur at the Garden Suburb, but there may be greater flexibility to avoid further loss at sites to the north or in a more dispersed approach. Therefore, therefore, it is not a certainty that **significant negative effects** would occur.

Option 5 and Option 6 both involve loss of substantial amounts of land, but a dispersed approach allows for the most sensitive areas (Grade 2) to be better avoided. Consequently, only **moderate negative effects** are predicted.

Natural resources: water quality

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6: Complete dispersal
x	x / ✓	x / ✓	x / ✓?	x / ✓?	x / ✓?
<p><u>Discussion of effects</u></p> <p>Growth has the potential to affect water quality regardless of location through pollutants in surface water run-off and demands upon the waste water and drainage networks. A dispersed pattern of growth would place less pressure on any particular area, though a concentrated approach might allow for infrastructure upgrades to be secured. Overall, a minor negative effect is predicted for each alternative in this respect.</p> <p>The options which overlap with groundwater source protection zones are those which involve a larger Garden Suburb, and growth at the south west extension. This is flagged as a potential constraint for these options, but development activities should not create a particular risk of pollution.</p> <p>Where agricultural land overlaps with Nitrate Vulnerable Zones (surface water) a change in use from agricultural land to housing could potentially help to reduce nitrates run-off in such areas, particularly where appropriate SUDs are secured.</p> <p>This could help to reduce negative effects, or lead to positive effects (though the magnitude of effects is likely to be limited) for options 2 and 3, which involve locations that overlap with NVZs (west and north of the urban area).</p> <p>A dispersed approach may also involve development in such areas, but this is more uncertain.</p>					

Natural resources: Air quality

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6: Complete dispersal
✓✓?/xx	xx	xxx	xx	x	x
<p><u>Discussion of effects</u></p> <p>With regards to exposure to potentially poor air quality, the Garden Suburb is not located near to areas of poor air quality, nor would new residential development be expected to generate significant air quality issues in those areas. However, depending upon patterns of travel, this level of development to the south east of Warrington is likely to contribute to air quality issues along the M56 (commuting) and could increase the number of trips along the A49 to and from Warrington town centre. This could potentially affect the town centre AQMA.</p> <p>An extension to the south west of Warrington could increase traffic through the town centre, having a negative effect on the AQMA. The Warrington West Link Road could offset these effects though, particularly if the route passed through the south west extension site. In fact this development could help to contribute towards such a scheme, and therefore have potentially positive effects in terms of the town centre AQMA. This location is also close to job opportunities in the centre and on emerging opportunities associated with the Waterfront (thereby reducing the need to travel). Although new residential development in this area would be within close proximity to the town centre AQMA, it is</p>					

unlikely that human health would be adversely affected on site as new homes would be some distance away.

An extension to the west of Warrington would not place residents in an area of poor air quality. Development could increase trips along the A57 into Warrington town centre, but would not be anticipated to have a significant effect on the town centre AQMA. Increased movements towards J7 and J8 of the M62 would be likely, which could affect air quality at these Junctions and connecting roads. However, there would be good access to local job opportunities and a local train station with links to the wider region. This should help to offset any negative effects somewhat.

An urban extension / concentrated development to the north could lead to increased trips along the A49 into and out of Warrington, contributing to congestion and air quality issues in this location. Furthermore, new development could be in close proximity to areas suffering from poor air quality (i.e. the Motorways and junctions). Though mitigation measures could be secured and there is access to public transport, it places more growth in areas that are already suffering from poor air quality, which is a negative effect for Option 3.

A dispersed pattern of growth would be less likely to increase air quality issues along any one particular route / approach into the town centre. However, it is still likely that car trips would increase as a whole, and this could contribute to air quality changes across the borough. The potential to secure strategic infrastructure improvements would also be lower.

At the outer settlements, air quality is generally good, and so development would not be likely to put new residents into areas that could impact upon their health. Focusing some growth in these areas also takes a degree of pressure off the inner areas of Warrington, but would be more likely to lead to car trips.

With regards to cumulative effects, for the options that involve a garden suburb, additional growth in Lymm could have combined effects in terms of increased traffic at Junction 9 of the M56.

Likewise, strategic growth to the north at Winwick (Option 3) would be combined with additional growth at Peel hall and in the northern settlements such as Burtonwood, Croft and Culcheth. All of this could converge upon nearby motorway junctions and exacerbate air quality issues in these areas.

Overall effects

Option 1 is predicted to have a minor negative effect on air quality as there would be an increase in trips concentrated to the south east of the borough through the development of the Garden Suburb. This could increase emissions from transport, having a negative effect on air quality on routes into the town centre, and to/from the M56 and J20 of the M6 in particular. Though it is not likely that new or existing communities in these areas would be exposed to poorer levels of air quality, this option focuses the majority of new growth to the south east, and therefore traffic (and air quality) implications are more likely to be pronounced. However, a south west extension could equally contribute to air quality issues, but focused more towards the town centre. In combination with increased traffic from the south east extension, this could have negative effects on the town centre AQMA. However, the western link road ought to help minimise these effects, and its closer proximity to services and facilities may also reduce the amount of trips into the town centre. A minor negative effect is predicted, with potential for a moderate negative effect (should mitigating factors not be effective). Conversely, should the south west extension be an important contributor to a western link road then notable positive effects could be generated with regards to alleviating congestion through the town centre AQMA.

Option 2 also involves a Garden Suburb, at the same scale, therefore is predicted to have a negative effect on air quality as there would be an increase in trips concentrated to the south east of the borough. The extension could affect air quality associated with J7 and J8 of the M6. The additional growth to the west of the urban area is not considered likely to generate significant effects with regards to air quality, and so the overall effect is a minor negative.

Option 3 could generate negative effects at the Garden Suburb and also at the North of the urban area, where there are current issues with AQMAs and traffic. Therefore, a more pronounced negative effect is predicted overall.

Option 4 disperses the additional growth, which ought to reduce the potential for significant negative effects in any one location, or cumulatively.

Option 5 involves a south east extension (a smaller garden suburb) and is therefore predicted to have minor negative effect rather than a moderate. This would reduce the magnitude of effects upon air quality to the M56, and towards the town centre from the south on the A49. However, there would still be a need for substantial growth elsewhere around the urban area to meet housing needs. This could lead to a moderate negative effect overall, but there is a degree of uncertainty. There could perhaps be positive effects if the south west extension is involved.

Natural resources: resource use and efficiency

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6. Complete dispersal
x	x	x	x	x	x

Discussion of effects

The generation of waste and efficiency of resource use is unlikely to be significantly different for any of the options, as efficiency is more a product of design and operational practices rather than the distribution of growth. Therefore, the effects are not predicted to be more or less significant for any of the distribution approaches. The overall level of growth proposed is predicted to have a minor negative effect as it would be likely to encourage higher levels of growth compared to demographic change alone (due to economic aspirations).

Given that a key principle of the garden village movement is to support innovative forms of development that achieve more environmentally friendly forms of development, it is possible that the options that involve a substantial garden suburb could provide particularly strong opportunities to secure high quality development. However, there are other factors that development needs to contribute towards such as infrastructure enhancements and affordable housing in particular. This could therefore affect the potential for highly sustainable homes / communities. With this in mind it is not possible to determine positive effects in this respect with confidence. Such development may also be viable on other strategic developments, so without clear opportunities to secure improvements no option can be highlighted as particularly attractive in this respect.

Natural resources: flooding

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6. Complete dispersal
x	x	x	x	x	x

Discussion of effects

The location of growth at a south east garden suburb would not be expected to be in areas at risk of flooding. There should also be sufficient land capacity to accommodate sustainable urban drainage systems to ensure that flood risk elsewhere does not increase.

A western extension could involve development on sites that are intersected by Flood Zones 2 and 3, as could development to the south-west of Warrington. However, the strategic nature of these sites should allow for such areas to be avoided and/or planned for their appropriate development with less sensitive uses. It should also be possible to secure SUDs to help ensure that flood risk elsewhere does not increase.

To the north, the areas that would be involved in development fall within flood zone 1, and so neutral effects would be anticipated.

A more dispersed approach ought to allow for sensitive sites to be avoided as well. Each option is therefore predicted to have neutral effects. The avoidance of negative effects however, is dependent upon suitable mitigation measures being secured to ensure that surface water run-off rates and infiltration is not negatively affected.

With regards to the outer settlements, there would be sufficient flexibility to meet the proposed housing targets in these areas (approximately 1100) without encroaching onto areas at risk of flooding. Therefore, only minor negative effects (if any) would be anticipated.

Overall effects

Options 1-6 are each predicted to have minor negative effects.

Built heritage

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6. Complete dispersal
xx	xx	xxx	xx	xx	xx

Discussion of effects

There are a number of listed buildings and locally important buildings that could be affected by development to the south-east of Warrington (at a Garden Suburb). The loss of open space would affect the setting of such assets, where open space forms an important aspect of their character. It could also lead to the loss of buildings, should the associated farmland be part of development plans. These are moderate negative effects, as it is presumed a Garden Suburb would need to incorporate substantial green infrastructure (thereby offsetting negative effects somewhat).

Furthermore, a Garden Suburb would involve growth close to existing settlements with associated conservation areas such as Grappenhall, Grappenhall Heys and Appleton Thorn. Increase built development in proximity to these settlements could affect the character of the conservation areas, which are currently open at the fringes.

At a lower level of growth at a Garden Suburb (as proposed under **Option 5**), the effects would be easier to avoid and less widespread. Therefore, only minor negative effects would be generated in this location.

The South West Extension runs adjacent to Walton Village Conservation Area, which contains several listed buildings. However, the site is physical separated from the Conservation area by the A56, and totally screened by trees. Therefore, direct effects upon the setting or significance of heritage assets are unlikely. To the southern edge of the site, there are three listed bridges and their setting could be affected should development extend to this edge. However, it ought to be able to mitigate / avoid negative effects with appropriate design. Consequently, minor negative effects are predicted in relation to **Option 1**.

Development to the west of the urban (**Option 2**) area could have negative effects on the historic environment through the change of use in land on areas that are identified as demonstrating ancient field patterns. Therefore, a minor negative effect would be generated in this respect.

For Option 3, growth to the north would be in close proximity to a registered battlefield, and several designated heritage assets. The potential for significant negative effects therefore exists. Given the fragmented nature of the sites in this location, it may also be more difficult to secure a comprehensive package of mitigation at a strategic scale.

There is potential for increased dispersed development at the urban fringes (**Options 5 and 6**) to have adverse effects on the setting of heritage assets in some locations. These effects are considered to be largely avoidable though through site selection, sensitive design and the implementation of adequate landscape buffers. Nevertheless, minor negative effects are still likely to occur, and there is a degree of uncertainty dependent upon which sites are involved.

With regards to the outer settlements, each option performs the same. The scale of growth involved would not lead to significant changes to the scale or character of these settlements. There are also sites available that are not particularly sensitive in terms of built heritage. As a consequence, only minor negative effects would be anticipated.

Landscape

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6. Complete dispersal
xx	xxx	xx	xx	xx?	x
<p><u>Discussion of effects</u></p> <p>A major extension to the south east of the urban area is likely to affect the rural character of the countryside in this part of Warrington and would likely change the relationship between Appleton Thorn and Grappenhall Heys with their surrounding areas. Though some parcels of land in this area are only considered to make a weak contribution to the Green Belt; others are predicted to have a moderate or strong contribution and it would be difficult to avoid all these area. The cumulative loss of open land is predicted to be negative. However, the large scale nature of an extension at this location ought to provide opportunities for mitigation and enhancement to ensure that significant effects upon landscape are avoided. Overall, a moderate negative effect is predicted for options 1 - 4 to reflect the scale of growth to the south east of the urban area. An uncertain / minor negative effect is predicted for option 5, as the scale of growth would potentially allow for such effects to be better managed.</p> <p>The south west extension would lead to the loss of open Green Belt land. Although this would affect the open character of this area, this parcel of land is mostly considered to make a moderate contribution to the Green Belt and its development would unlikely alter the character of nearby settlements. Therefore, the effects upon landscape character are predicted to be minor; with the potential to mitigate and or secure enhancements.</p> <p>An extension to the north of the urban area would necessitate the loss of Green Belt that has a medium contribution to its function. This is predicted to have a permanent minor negative effect upon landscape character in this part of the borough (option 3).</p> <p>An extension to the west of the urban area would necessitate the loss of Green Belt that has a strong contribution to its function. This is predicted to have a permanent significant negative effect upon landscape character in this part of the borough (for option 2).</p> <p>A more dispersed approach (option 6) would allow for the more sensitive parts of land surrounding the urban area to be avoided. Indeed, much of the land immediately adjacent to the urban area to the south east of the urban area is considered to have a weak contribution to Green Belt. The scale of expansion into the countryside would also be lower in any particular location, which ought to ensure that effects are less widespread. Overall, a minor negative effect is predicted, as there would be a cumulative loss of land around the urban fringes. However, these effects ought to be less dramatic compared to the urban extension and Garden approaches.</p> <p>Option 5 is also a dispersed approach, but would involve some growth at a Garden Suburb, which could lead to more pronounced effects in this location. Consequently, a moderate negative effect is predicted overall.</p> <p>With regards to the outer settlements, the scale of growth is incremental and is therefore not predicted to have significant effects upon landscape character. It will be possible to release green belt land that makes a lower contribution towards its function. Therefore, only minor negative effects would be anticipated.</p>					

Biodiversity and Geodiversity

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6: Complete dispersal
xx / ✓✓?	xx / ✓✓?	xx / ✓✓?	xx / ✓✓?	x / ✓?	x
<p><u>Discussion of effects</u></p> <p>Development to the south east of Warrington has the potential to cause disturbance to several local wildlife sites (The Dingle and Fords Rough and Grapenhall Heys) and a network of BAP Woodland Orchard. This could be through increased recreational pressure from new development, and / or a loss of surrounding greenfield land. However, the scale of the development should allow for considerable inclusion of green infrastructure enhancements, and provided such measures were incorporated into layout and design then potential significant negative effects ought to be mitigated. Should the preservation and enhancement of woodland orchard habitat be adopted as a key design principle, then development could achieve enhancement. The options that include a garden village are most likely to allow for a net gain in biodiversity to be achieved should there be a comprehensive green infrastructure strategy in place that features protection and enhancement of biodiversity. This will be dependent upon the layout and form of development, but the potential for significant positive effects does exist (albeit with uncertainties).</p> <p>Growth at the south west extension would not intrude upon any sites designated or identified as potentially important for biodiversity. Development would be mostly on agricultural land that is not known to contain any important habitats or species and so effects are predicted to be neutral at this stage. The development is nearby to Moore Nature Reserve, which attracts and provides habitat to a wide range of biodiversity. However, direct effects are unlikely to occur, and there are no known wildlife links between the reserve and land to the south of Warrington. Although, detailed studies should any development be proposed will confirm this.</p> <p>An extension to the west of the urban area would not intrude upon any sites designated or identified as potentially important for biodiversity. Development would be mostly on agricultural land that is not known to contain any important habitats or species and so effects are predicted to be neutral. Should development involve land adjacent to the St Helens Canal / River Mersey, there may be some potential for effects upon water quality (and subsequently wildlife) through polluting and disturbing activities. However, the likelihood of effects is considered to be low given the need for mitigation during construction activities.</p> <p>Similarly, growth to the north is not predicted to adversely affect biodiversity. Some sites to the north of Warrington are adjacent to green infrastructure or within close proximity to BAP Woodland Orchard. An effect is unlikely as the green infrastructure is not considered to be of high biodiversity value and the protected sites are distant or are separated by road.</p> <p>A more dispersed approach to development should allow for the more sensitive sites to be avoided, and would not necessitate as expansive development to the south east. This should help to minimise the potential for negative effects on biodiversity. However, growth along the urban fringes in the south east could still cause disturbance to local wildlife sites and BAP habitats, so negative effects have been identified. The potential for strategic enhancements would be slightly lower for this option, as it would promote a more piecemeal form of development. There are still sensitive areas at the urban fringes that could be affected by a dispersed approach, and so a negative effect is predicted, but this is less likely to be significant.</p> <p>With regards to the outer settlements, the effects upon biodiversity are predicted to be minor. Areas of sensitivity are unlikely to be affected, and mitigation could be secured to ensure significant effects are avoided. In combination with development in the urban areas, none of the options are likely to lead to cumulative negative effects in any particular area or along a particular wildlife corridor. Relatively large areas of open space would remain between each outer settlement, and also with the urban area itself.</p>					

Climate change and resource use

Garden Suburb options				Dispersal Options	
Option 1: Extension to the South West	Option 2: Extension to the west	Option 3: Extension to the north	Option 4: Dispersal	Option 5: Greater dispersal	Option 6. Complete dispersal
x / ✓?	x / ✓?	x / ✓?	x / ✓?	x	xx

Discussion of effects

Irrespective of the distribution of development, growth is likely to lead to an increase in the use of energy and resources, and in the generation of waste. Each option aspires to increased levels of economic growth, and would encourage more housebuilding to support increased economic activity. Consequently, a minor negative effect is predicted for each alternative.

With regards to emissions from transport, a dispersed approach is most likely to have negative effects as it will not necessarily support growth in locations that are well related to employment, services and facilities. It could therefore lead to more car trips and associated emissions. In this respect, option 6 is predicted to have more pronounced negative effects with regards to climate change mitigation compared to each of the other options.

With regards to green infrastructure enhancement for climate change resilience, there is potential for networks to be affected (either positively or negatively) by development on the edge of the urban area including areas on the edge of outer settlements. Extensions to the north, west and south west of the urban area would not be likely to sever any established green infrastructure links, nor would it present particular opportunities to enhance links / develop resilient developments. Consequently, effects are predicted to be neutral (though it is acknowledged that good design could possibly generate positive effects).

Growth to the south east of the urban area presents the potential for effects upon Green Infrastructure networks. Depending upon the nature and scale of development, this could be positive or negative. There are bands of BAP Woodland Orchard, wildlife sites and mature trees surrounding Grappenhall Heys and extending down through the Dingle and Fords Rough. Significant development, such as that proposed under the Garden suburb, could lead to the fragmentation of these networks on one hand, but on the other may provide opportunities to strengthen links between GI in this location and extend networks further out into the countryside. If well designed, this could help to deliver more resilient developments with good access to green infrastructure. At this stage, an uncertain effect is predicted in this regard.

Summary of appraisal findings

	Economy and regeneration	Health and wellbeing	Accessibility	Housing	Natural resources: Agricultural land	Natural resources: Water Quality	Natural Resources: Air Quality	Natural resources; resource efficiency	Natural resources: Flooding	Built Heritage	Landscape	Biodiversity and Geodiversity	Climate change and resource use
Option 1: Garden Suburb and South West	✓✓✓	✓✓✓x	✓✓✓x	✓✓✓?	xxx	x	✓✓? xx	x	-	xx	xx	✓✓? xx	✓? x
Option 2: Garden Suburb and West	✓✓✓	✓✓✓x	✓✓x	✓✓✓?	xxx	✓x	xx	x	-	xx	xxx	✓✓? xx	✓? x
Option 3: Garden Suburb and North	✓✓✓	✓✓✓x	✓✓x	✓✓✓?	xxx?	✓x	xxx	x	-	xxx	xx	✓✓? xx	✓? x
Option 4: Garden Suburb and Dispersal	✓✓✓?	✓✓✓x	✓✓x?	✓✓✓	xxx?	✓? x	xx	x	-	xx	xx	✓✓? xx	✓? x
Option 5: Smaller Garden Suburb	✓✓	✓✓x	✓x	✓✓✓	xx	✓? x	✓? x	x	-	xx	xx?	✓? x	x
Option 6: Complete Dispersal	✓✓	✓x	✓xx	✓✓✓	xx	✓? x	✓? x	x	-	xx	x	x	xx

Discussion of options

The four options that involve a large Garden Suburb perform very similarly against the range of sustainability topics. This is to be expected given that each option is consistent with regards to the amount of growth being focused at the outer settlements and that focused at the Garden Suburb.

Essentially, the differences arise due to the effects associated with the residual growth in housing at the urban fringes of Warrington.

The only notable differences are as follows:

Option 1 performs better than Options 1 and 3 (and the dispersal options) with regards to accessibility. This is mainly related to the fact that an extension in the south west of the urban area would benefit from and help to contribute towards the western link road, which would have major positive effects. Linked to this the potential for positive effects on air quality are noted for option 1, but not for options 2 and 3 (which are more likely to worsen air quality).

Though none of the options are likely to generate significant effects (either positive or negative) with regards to water quality, Option 1 performs least favourably in terms of the potential to generate minor positive effects due to a reduction in diffuse pollution from agriculture.

Significant positive effects are predicted for options 1-4 with regards to economy / regeneration, but the extent of impacts are likely to be greater for Option 1 which will support jobs, affordable homes and social infrastructure in some of the more deprived parts of Warrington.

Option 3 performs less well with regards to the historic environment compared to options 1 and 2. This is due to the presence of a registered battlefield and several listed buildings to the north, upon which negative effects may be more difficult to mitigate given the fragmented nature of expansion in this location.

Option 2 performs worse than options 1 and 3 with regards to landscape character as the western area is more likely to involve development on land that is contributing strongly to the integrity of the Green Belt.

The options involving greater dispersal have more pronounced differences in the effects when compared to the options involving a garden suburb.

Broadly speaking, fewer benefits are likely to arise as a result of improvements to local facilities, infrastructure upgrades and links to key employment areas.

Accessibility would also be slightly poorer and the focus on regeneration would perhaps be lesser.

Conversely, these options would likely have a less negative effect overall in terms of landscape and the loss of sensitive agricultural land. The effects on wildlife would be less extensive, but the potential to achieve strategic improvements and a net gain in biodiversity would also be lower.

Option 5 would provide more benefits with regards to health and wellbeing and green infrastructure enhancement compared to Option 6 (as it still involves a Garden Suburb). However, the effects would be less pronounced compared to options 1-4 as the Garden Suburb would be much smaller.

Option 6 is the least negative with regards to landscape effects, but it is broadly less positive or more negative for a wider range of sustainability factors.

APPENDIX G: URBAN AREA OPTIONS APPRAISAL (PRE SUBMISSION, 2021)

This appendix sets out a detailed appraisal of the options for growth in the Warrington urban area.

A discussion is provided for the different elements of growth that make up each option. This includes:

- a) Effects associated with urban capacity related development.
- b) Effects associated with development in the outer settlements.
- c) Effects associated with residual growth.

Each option is then summarised by drawing together the effects associated with each of the different elements of growth. For example, the overall/ cumulative effects for Option 1 consist of:

- a) Urban capacity
- b) Outer settlements
- c) South East Warrington Urban Extension and South Warrington Urban extension

The effects for each option are also illustrated on a chart which reflects the location that effects are likely to arise (i.e. urban capacity / outer settlements / urban extensions), and whether these are positive, negative or neutral. Given the scale of growth in some locations, there are instances where both positive and negative effects are recorded against the SA Objectives.

For each option, the effects are discussed and the significance is described as follows.

Major negative effect		Major positive effect	
Moderate negative effect		Moderate positive effect	
Minor negative effect		Minor positive effect	
Neutral effect		Effects are unclear	

Economy and regeneration

a) Urban capacity (11, 785)

These sites are broadly more densely distributed towards inner Warrington, with a small number spread out, and mostly small sites elsewhere across the urban area, notably there is a medium sized site at Crab Lane (University of Chester Padgate Campus) which is an exception to this. Broadly speaking, these areas and sites of growth are well located in relation to existing employment land, helping to ensure that new population growth is sited in locations which are accessible to employment. Smaller sites which are less clustered would not be likely to lead to any significant footfall increase in local shops and services, nor would they be likely to lead to the delivery of new shops and services either within the site or in the surrounding areas. The cluster of small and medium sites in and around inner Warrington may see some increased footfall in existing shops and services, as well as potentially increase the viability of new businesses being set up to support the population growth, potentially increasing local Gross Value Added (GVA) and employment. Whilst there would be an increase in population in the area, it is likely that the educational needs of the prospective residents could be met through expansions of existing facilities, helping to support educational attainment in the area. For the most part, these sites are found in more deprived areas, especially around inner Warrington. This development would be expected to lead to some regeneration in this area, helping to potentially reduce the levels of deprivation in areas which benefit from the infrastructural deliveries and public realm changes which are linked to the new development. This substantial growth is likely to promote **major positive effects**.

b) Residual growth: Outer settlements (801 dwellings)

The sites included under this category of sites are relatively small, distributing growth of just over 800 dwellings across seven sites. None of these sites are adjacent to or in very close proximity to key employment locations across Warrington, however they are located adjacent and nearby to established smaller settlements across the Borough. As such, the scale of population increase would be likely to increase footfall in local shops and restaurants, helping to somewhat increase the viability of existing businesses. Whilst this would not be expected to result in new shops and services, the small increase in viability may serve to protect current employment levels (which are higher than average) across the Borough. The small scale of relatively distributed growth would be expected to be catered for by existing schools and colleges, with the potential for some small-scale expansions of existing facilities. For the most part the sites are located away from deprived areas, making it unlikely that deprivation would change in these areas. That said, the site north of Winwick is within an area identified as within the top 40% of most deprived areas across the country; whilst growth offers opportunities for regeneration, it is unlikely that a development of this scale would lead to significant effects in this regard. This mostly distributed growth is anticipated to lead to **minor positive effects**.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

The South East Warrington Urban Extension would accommodate a large and concentrated population in an area which is relatively well connected to a number of existing and potential employment areas, especially to the east of the site adjacent to the M56. The growth would be likely to support existing shops and services in the nearby area through an increase in footfall. The scale of housing delivery would also be expected to result in new shops, services and community facilities being delivered on site to support the prospective tenants.

This would be likely to benefit local GVA and employment. The large scale of housing delivery and its associated growth in population would be expected to deliver new primary and secondary educational facilities. This would be likely to increase the educational offerings of the site to current nearby residents as well as future residents, potentially improving attainment and skills. The area is not identified as being especially deprived and as such, it would not be considered likely that any significant regenerative effects would be realised. Overall, the South East Warrington Urban Extension would be expected to deliver **moderate positive effects**.

Fiddlers Ferry (1300 dwellings)

Housing delivery at the Fiddlers Ferry site would see a fairly substantial number of houses located in an area which is not immediately adjacent to or in relatively close proximity to any large employment areas within Warrington, potentially isolating new communities from concentrations of employment. With this being said, the housing element of growth would likely be accompanied by / supporting employment growth in the site as well. There are also concentrations of employment use nearby in Widnes and Runcorn.

The scale of housing delivery would be likely to lead to some limited onsite provisions of new shops and services, whilst also boosting footfall in surrounding existing businesses (however it must be noted that this site is more isolated, and is therefore less well connected to nearby service centres than other options). This scale of housing delivery may result in some additional primary school education facilities being delivered, however in terms of secondary schools and colleges, it would be more likely that existing facilities were expanded to cater for the growth. These expansions would grow the educational offerings from existing facilities, but would be unlikely to result in significant improvements to skills and educational attainment across Warrington. The site is located in an area which is not identified as being particularly deprived and as such, significant regenerative effects would be considered unlikely. The site is adjacent to some deprived areas in the neighbouring Borough of Halton, however the scale of housing delivery (and its associated improvements in terms of regeneration) and the connectivity of the site to the more deprived areas mean that significant benefits to these deprived communities would be seen as unlikely. Overall, this site would be expected to deliver **moderate positive effects**, due to its supporting role in bringing forward reuse of the Fiddlers Ferry site for employment uses.

Thelwall Heys (310 dwellings)

This site is in relatively close proximity to the North Side of Latchford Locks employment area, with Knutsford Road providing connectivity to inner Warrington and its concentration of employment, shops and services. The scale of population growth associated with the site would be likely to increase footfall in local shops and the service sector to a limited extent, helping to somewhat increase the viability of existing businesses. Whilst this would not be expected to result in new shops and services, the small increase in viability may serve to protect current employment levels (which are higher than average) in the site's surrounding area. The relatively small scale of the site would be expected to be catered for by existing schools and colleges, with the potential for some expansions of existing facilities. The site is located away from deprived areas, making it unlikely that deprivation would change in the site's surroundings. This site would be expected to deliver **minor positive effects**.

South West Urban Extension (1700 dwellings)

This site, located to the north of Higher Walton and to the south of the Manchester Ship Canal would see a large number of dwellings coming forward in a location which is broadly nearby to a number of employment areas, including Acton Grange Moore, Wilderspool Business Park and Centre Park. As such, it would provide housing in a location which is well connected to existing employment land. The large scale of the housing delivery would be expected to deliver additional shops and services in the area, both on and off site as well as supporting the viability of existing employers. These factors would be expected to increase employment and GVA for the local area. The scale of growth would be expected to result in new primary educational facilities, including the expansion of existing institutions, helping to support the development of skills and training in the area. The location of the site is not considered to be deprived or have links to such areas, and as such the area would be unlikely to see any significant shifts in its magnitude of deprivation. This site would be expected to deliver **moderate positive effects**.

Summary

Under all options, the effects relating to development options which are considered to be constant under any approach would be expected to be realised. As such, effects relating to 'Urban Capacity' growth (11,785) and 'Residual Growth: Outer Settlements' (875) are considered likely under any of the options, leading to both **major and minor positive effects**.

Option 1

This option would involve allocation growth at both the South East Warrington Urban Extension as well as the South West Urban extension, both of which are predicted to have positive effects for the prospective residents as well as existing areas, especially in terms of increased local GVA and employment as well as educational and skills improvements. The fact that the two sites are relatively close together (under 2km as the crow flies) means that some cumulative effects may benefit those areas in between both sites (Lower Walton, Stockton Heath and Dudlow's Green to name a few areas).

These areas could see heightened benefits associated with increased footfall in shops and services (including leisure industries), whilst benefitting from access to onsite supporting infrastructure for the new development. Overall, these two variable site options are expected to result in **moderate positive effects**.

Option 2

This approach would involve the allocation of the South East Warrington Urban Extension site as well as the Fiddlers Ferry site, both of which are likely to promote positive effects to varying degrees. As discussed above, the effects relating to the South East Warrington Urban Extension site are likely to be more pronounced, with wider benefits for existing and future residents in terms of GVA, employment and skills. The Fiddlers Ferry housing delivery would promote some positive effects, but to a reduced magnitude and more generally focused around local GVA and employment relating to increased footfall and demand for shops and services. Another major benefit of housing at this site though would be support for employment development on brownfield land at Fiddlers Ferry. Overall, the sites under this approach would be expected to lead to both **moderate positive effect**.

Option 3

This option would involve growth at the South East Warrington Urban Extension, Fiddlers Ferry and Thelwall Heys sites.

As this offers a very similar pattern of growth, this would be expected to lead to effects broadly aligned with Option 2. A small element of additional growth would be likely to have neutral effects in terms of employment and economy.

Option 4

This approach would include site allocations at Fiddlers Ferry, Thelwall Heys and the South West Urban Extension. Whilst the Thelwall Heys site would be likely to promote neutral effects, more substantial effects are likely to be realised as a result of the other, larger areas of housing growth. These areas would be likely to see some benefits including improved local GVA, employment and to some extent improved education and training facilities benefitting future and existing residents in the areas. **Moderately positive** effects are likely.

Option 5

This option would have the same effects as Option 4, though the minor benefits felt at Thelwall Heys would be absent.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		SWUE	

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		FF	

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		FF	TH

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE	TH	

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE		

Health and wellbeing

a) Urban capacity (11, 785)

The sites within the urban areas in and around Warrington are generally well served by health, community and leisure facilities and open space. The capacity of health facilities varies in different parts of the Warrington urban area, with some areas being able to accommodate incremental growth (north and west) and others requiring expansion or new facilities (central, south, east). Capacity also varies in other settlements, with Culcheth and Winwick likely able to absorb incremental growth and capacity being limited in Burtonwood and Lymm. With much of the planned growth (without planning permission) being concentrated in the central area of Warrington, this would require the expansion to facilities, although this is likely to be viable at this scale and concentration of growth. Site options in Culcheth and Lymm broadly already have planning permission, and growth in Winwick is unlikely to add significant pressures on local health facilities.

Most site options without existing planning consent fall in areas with higher levels of deprivation. This is particularly prevalent in the inner Warrington area where a substantial proportion of site options fall within the 20% most deprived areas. Growth in these areas is considered to be positive with regard to regeneration and investment which can deliver new affordable housing provision and improvements to local services and facilities. In the innerinner Warrington area, the expansion of health facilities could also potentially benefit surrounding deprived communities.

The concentration of growth in urban areas should encourage active and more sustainable movement from the agglomeration within urban areas of employment opportunities, services and infrastructure provision. However, growth is still likely to increase some demand for car trips and exacerbate congestion at existing hotspots (including the inner ring road, the A49, the A50 and Knutsford Road which also mostly fall in an AQMA) and thus have adverse effects on local air quality. This could bring about **minor negative effects** for a small section of the community.

Overall, substantial growth on site options in urban areas is likely to have **moderate positive effects**, as the distribution and scale of growth is likely to improve provision of health facilities in the inner Warrington area and an urban focus should support the regeneration of deprived communities whilst utilising existing good provision of services, facilities and active and public transport infrastructure.

b) Residual growth: Outer settlements (801 dwellings)

Growth in these locations would support the distribution of affordable housing provision across the borough and the viability of services and public transport provision in a number of large villages to which the site options fall adjacent or nearby. These villages benefit from some existing health, community and leisure facilities and open space which would positively contribute to health and wellbeing of new residents, whilst the scale of growth is unlikely to add significant pressures on existing provision and could result in some limited improvements.

In regard to the capacity of health services, growth in Lymm is likely to add pressure onto the existing limited capacity which could have adverse effects if not addressed. Whilst health services in Culcheth can absorb some increase from growth, the scale of growth from the site option to the east of Culcheth and at Croft (which rely on services in Culcheth) are also likely to add pressure on provision. Overall, a **moderate positive effect** is predicted.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

The South East Warrington Urban Extension area to the north and west is adjacent to the built-up area of Warrington and therefore has good access to health, community and leisure facilities and open space in neighbouring areas. The South East Warrington Urban Extension area also includes two 2 form entry primary schools (with ability to expand in future). The scale of growth involved (both within and beyond the plan period) will be able to support a significant increase in affordable housing provision and onsite provision of new community services and facilities. This should also help improve provision for existing communities in Grappenhall Heys, which are currently poorly served by community and leisure services and facilities. These are positive effects.

With regard to the capacity of health services, existing capacity to the south of Warrington is constrained and this scale of growth would require the expansion of facilities. There are plans for GP services to relocate to new facilities at Appleton Cross, which would be accessible to new communities in this location. It is presumed that further expansion could be achieved if necessary to support the growth in population in this area both within and beyond the plan period.

Development of this scale is likely to increase the demand for car trips in the south east of Warrington and to and from Warrington town centre. There is potential for this to increase congestion along the A50/A5061, A56 and A49, which form the key road routes between the town centre and South East Warrington Urban Extension and in an east to west direction for access to other areas and settlements. The A50/A5061 and A49 between the town centre and the Manchester ship canal fall within an AQMA due to high levels of nitrogen dioxide. There is potential for growth to exacerbate existing poor air quality and potential noise pollution along these key road routes which partially run along existing densely populated residential areas. However, some adverse effects can likely be mitigated through contributions towards improvements to public transport provision and other alternative traffic reduction measures, which are likely to be feasible at this scale of growth. However, some minor negative effects could arise in specific locations.

Overall, a **moderate positive effect** is predicted alongside **minor negative effects**.

Fiddlers Ferry (1300 dwellings)

Whilst adjacent to an industrial park, this site is relatively distant to health, community and leisure facilities. This scale of growth should be able to support limited onsite provision of community and potentially health services, substantial new employment uses and green infrastructure and open / recreational space.

The overall growth including residential and employment use should likely be able to support a new local centre and improved public transport access. However, the site is likely to continue to have modest access to community services with this quantum of housing growth unlikely to make new facilities onsite viable. This scale of growth is further likely to support the delivery of a substantial amount of affordable housing. Overall, a **minor positive effect** is predicted.

Thelwall Heys (310 dwellings)

This site is adjacent to the built-up area of Warrington and therefore is generally well served by health, community and leisure facilities and open space. This scale of growth should deliver important affordable housing provision in an area with higher than average house prices and low affordability. With regard to the capacity of health services, the increase in the local residential population is likely to add pressures to existing constrained capacity of health services in the south and east of Warrington and nearby Lymm. Whilst this scale of growth is unlikely to directly contribute significantly to improving or increasing the provision of local health services, cumulative contributions should help deliver some improvements, although these effects are uncertain. Overall, a **minor positive effect** is predicted.

South West Urban Extension (1700 dwellings)

This site is adjacent to the built-up area of Warrington and therefore is generally well served by health, community and leisure facilities and open space. However, with regard to the capacity of health services, existing capacity to the south of Warrington is constrained and this scale of growth would require the expansion of facilities. There are proposals to include new health facilities on site, which is positive for new and existing communities. This scale of growth should also be able to support a significant increase in affordable housing provision and limited onsite provision of community services.

With the site being poorly served by active and public transport modes but well served by the A56 and A5060, development is likely to increase demand for car trips and exacerbate congestion, particularly along the A5060 which forms the main thoroughfare from the site to Warrington town centre and is also designated as an AQMA. Further congestion along the A5060 and A56 could have adverse effects on local air quality in existing and proposed densely populous areas. Air quality and noise pollution could also adversely affect new residents from traffic along the Manchester ship canal, West Coast Mainline and the A56, although some effects could be mitigated through sensitive design and other mitigation measures.

Overall, a **moderate positive effect** is predicted alongside **minor negative effects** associated with air quality.

Summary

Option 1

This growth option concentrates growth in and around Warrington, which is positive in principle as this area is generally well served by health, community and leisure facilities and open space.

This area also has higher levels of deprivation and growth should provide new affordable housing provision in areas of need, foster regeneration and investment, and potentially improve local community services and facilities. Distributing some growth on site options in larger villages should also provide important affordable housing provision across the borough and help sustain and potentially enhance local services and facilities in these areas.

Much of the cumulative growth under this growth option is concentrated to the south west and south east of Warrington. Health facilities in this area are currently constrained and the scale of growth proposed in this area would require the expansion of existing or new health provision. Both locations would be likely to support new health facilities on site, which would have positive effects on health and wellbeing for new and existing communities. There would also be potential for substantial improvements to open space and community facilities. From a boroughwide perspective, there would be mostly positive effects, and in combination this could give rise to **significant positive effects**.

The concentration of growth to the south west and south east is also likely to add substantial pressure on key road routes into the town centre, which are also designated as an AQMA due to high levels of nitrogen dioxide. It is unlikely that cumulative growth would be able to deliver substantial improvements to these key road routes to wholly address potential adverse effects as a result increased congestion. Therefore, **minor to moderate negative effects** in terms of air quality could be expected to arise.

Option 2

The benefits associated with growth at Fiddlers Ferry would be less significant than those at the SEWUE and the SWUE, meaning that the positive effects are not as prominent overall for Option 2 compared to the options that involve both the SEWUE and the SWUE. On the other hand, the effects on air quality would be lower, and the spread of effects across the borough would be wider. Overall, **moderate positive effects** are predicted alongside **minor negative effects**.

Option 3

The effects mirror those discussed for Option 2, albeit there are some additional minor positive effects associated with development at Thelwall Heys. Overall, **moderate positive effects** are predicted alongside **minor negative effects**.

Option 4

Similar to Options 2 and 3, this option generates **moderate positive effects** and **minor negative effects** overall. However, rather than the benefits being felt at the SEWUE they would be felt at the SWUE and Thelwall Heys instead.

Option 5

This Option will have the same effects as those described for Option 4. The minor positive effects at Thelwall Heys would be absent though.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)	C) Residual Green Belt					
														SEWUE			SWUE	

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)	C) Residual Green Belt					
														SEWUE			FF	

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000			
A) Urban Capacity												B)	C) Residual Green Belt						
														SEWUE			FF		TH

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)	C) Residual Green Belt					
														FF		SWUE		TH

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
														FF		SWUE	

Accessibility

a) Urban capacity (11, 785)

The sites are mostly densely distributed towards inner Warrington, with a small number of spread out, and mostly small sites elsewhere across the urban area. Those sites in and around inner Warrington are well placed in terms of providing residential dwellings in close proximity to shops, services and public transport access nodes. The close proximity and consequential reduction in need to travel long distances is likely to result in an increased rate of walking and cycling amongst Warrington's population (or at least no major increases in traffic). Whilst the small scale of individual sites would not be expected to deliver significant improvements in terms of infrastructure and services which support sustainable travel, the cumulative funding opportunities may help to support the viability of some strategic transport provisions in inner Warrington, such as improved access to sustainable transport options. There is good access to employment in the central areas, but it is noted that expansion opportunities are more likely to be in peripheral locations such as Omega. In this respect, car usage could increase, but there are links by public transport that could be taken advantage of. Overall, the development within the urban areas is expected to lead to **moderate positive effects**, mostly relating to the good accessibility of the majority of proposed sites. The extent of positive effects is held back somewhat by the potential for increased traffic out towards job opportunities. In some locations, there might also be negative effects in terms of increased congestion, which is reflected as **moderate negative effects** given the cumulative pressures of growth involved. Exploring sustainable transport modes, improvements and mass transit systems would help in this respect and potentially lead to effects of a greater magnitude.

b) Residual growth: Outer settlements (801 dwellings)

The seven sites included under this category of sites are relatively small, distributing growth of just over 800 dwellings across a number of locations. The sites are all broadly well connected to the bus network as well as being in walking or cycling distance to a local urban centre, including community facilities, shops and services; this should maximise the opportunities for active travel for prospective tenants. Whilst these locations are broadly accessible, inner Warrington has a greater offering of shops and services and it is unlikely that the smaller service centres which are close to the proposed sites would be able to meet the majority of the needs of the residents. As such, journeys into Warrington are expected from the sites, whilst there are links to the public transport network, overwhelming behavioural norms mean that some car dependency would be expected from the sites. On balance, and considering the scale and distribution of the housing growth, **neutral effects** are predicted.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2200 dwellings)

The South East Warrington Urban Extension site is broadly well connected to the existing public bus service which pass through the location and connect the area to Inner Warrington.

Further to this, the scale of housing delivery would be likely to lead to improvements to existing public transport services, as well as the potential for new transport services made viable due to the large concentrated increase in population. This concentrated growth would also be likely to lead to junction and network improvements to cycle infrastructure, helping to increase the propensity for existing and future populations to travel by active means (a point reinforced by the fact that Warrington is within an acceptable distance to enable cycling journeys).

There would also be an anticipated relatively high delivery of onsite shops and services, including health provision, reducing the need to travel and promoting walkable neighbourhoods. Whilst the site could lead to some increases in congestion, especially at peak journey times, a large site (recognising further growth beyond the plan period) also increases the viability of infrastructure improvements intended to mitigate the effects of increases in traffic volumes. Overall, **moderate positive effects** are predicted, as development could help to improve services for existing communities, as well as creating accessible neighbourhoods for new communities. Alongside these benefits, some **minor negative effects** could be anticipated if there are localised increases in congestion. Some parts of the South East Warrington Urban Extension might also be less well served than others with regards to walkable services and public transport.

Fiddlers Ferry (1300 dwellings)

This site is located relatively well in relation to the bus network, however it is likely that developer contributions would be required to extend the existing service route to make it more accessible across the proposed site. It should be noted that only one bus route serves this area, making a regular service and capacity potential issues, with the scale of development being unlikely to increase the viability of new services being delivered (though employment growth on site could contribute towards viability alongside residential growth). The site is likely to deliver some limited onsite services such as a primary school and local shops and potential flexible health space. However, it is somewhat isolated in terms of accessibility to other shops and services, and secondary school, and as such may promote some car dependency. The scale of growth would be somewhat likely to deliver active travel infrastructural improvements, potentially making active travel more viable, however the site is over 5km from central Warrington and as such, some potential active travel potential journeys may instead be taken by private motor vehicle. Whilst the site could lead to some increases in congestion, especially at peak journey times (with the A562 and A57 most likely to be negatively affected), the size of the site increases the viability of infrastructure improvements intended to mitigate the effects of increases in traffic volumes. Overall, development in this location is predicted to lead to **minor negative effects** as accessibility would not be ideal in terms of walkability or public transport further afield.

Thelwall Heys (310 dwellings)

Growth of 310 dwellings at Thelwall Heys would be situated in close proximity to a number of bus routes as well as some community facilities in Grappenhall. Whilst this may increase the likelihood of the prospective residents to travel by sustainable means, travel to access a wider variety of shops and services, as well as employment would be likely to require access to central Warrington or further afield at key employment sites. These are over 4km away by the most efficient route and as such the distance may act as a barrier to some potential active travel users. The relatively small delivery of housing would also be unlikely to lead to significantly improved public bus services in the area; it may result in some minor active travel improvements, though these are likely to be small scale, such as junction improvements. Development of employment linked to Junction 9 of the M56 / J20 of the M6 has been identified as a potential location for growth. Given the employment land needs for the Borough it is likely that development of some scale could be involved in this area. Access from the residential development at Thelwall Heys to this site would be relatively good (in terms of supporting shorter commuting and / or use of sustainable transport).

Balancing out these minor positive and negative points, whilst considering the scale and location of the site, it is likely to lead to **neutral effects** with regards to accessibility.

South West Urban Extension (1700 dwellings)

This location has some accessibility to the existing public bus service which runs adjacent to the site, connecting the site to the wider areas across Warrington. It would be likely that the development would be of the scale to fund current bus network extensions which should mean that the route would be adjusted to run through the site, providing improved access to public transport for future residents. The immediate surroundings of the site provides a range of community facilities and supporting infrastructures in Higher and Lower Walton. Further shops and services in Warrington are within a distance which would be deemed appropriate for walking or cycling. The strategic site's size would be likely to deliver improved active travel infrastructure into Warrington, helping to increase the propensity for prospective tenants and existing communities to travel by active means. There is the possibility that development could increase traffic and congestion, particularly along the A56, likely leading to negative effects, especially at traffic pinch points and at peak journey times. That said, development here would be expected to contribute towards traffic mitigation measures, for example the Warrington Western Link road. Overall, considering the scale and location of the development alongside the surrounding land uses and likely effects, **minor positive effects** are predicted to reflect good accessibility. The potential for increased congestion offsets / limits the significance of likely positive effects.

Summary

Under all options, the effects relating to 'Urban Capacity' growth (11,745) and 'Residual Growth: Outer Settlements' (801) are the same. In the main, **moderate positive effects** are predicted for the urban areas, as development will be mostly in areas with excellent accessibility. **Moderate negative effects** are predicted to reflect the potential for increased

congestion in some areas, but these are not widespread effects. The outer settlements record **neutral effects**.

Option 1

In addition to the urban capacity growth and proportionate growth in the outer settlements, this option would involve the development of both the South East Warrington Urban Extension and South West Urban Extension. Both growth locations would be expected to deliver onsite facilities, as well as additional services and infrastructures which support sustainable modes of transport. These two locations are within relatively close proximity to one another and could therefore have some cumulative positive effects (potentially better connecting active travel infrastructure from central Warrington to the suburban areas to the south as well as improving the viability of improved public transport connectivity to these areas). To the contrary, the potential for cumulative negative effects in terms of congestion in the urban areas might be increased to the south of Warrington in particular.

Option 2

This option would include the South East Warrington Urban Extension site alongside Fiddlers Ferry. Whilst the benefits of the South East Warrington Urban Extension site would be realised, leading to improved access to shops and services in the area, as well as better connectivity into central Warrington, Fiddlers Ferry is more isolated and would not be expected to promote positive effects. The site might lead to some increased car dependency, especially travelling into central Warrington. Therefore, despite this option delivering a lower overall number of homes than Option 1, a greater proportion would be in locations that score less well in terms of accessibility.

Option 3

This option would include both housing sites discussed under Option 2, alongside the Thelwall Heys site. Considering the likely neutral effects relating to this relatively small site, the effects are expected to be aligned with those set out under Option 2. The main difference is a higher level of housing delivery being achieved

Option 4

This option would involve growth at a South West Urban Extension, Thelwall Heys and Fiddlers Ferry. The previously discussed more isolated nature of Fiddler Ferry would be expected to lead to some increased car dependency in the area, affecting routes which connect the location of housing to central Warrington. Conversely, the South West Urban Extension site would be likely to deliver some improvements to the area in terms of sustainable travel options and local shops and services. The more neutral, small scale effects associated with Thelwall Heys would not be expected to lead to significant effects. Overall, this approach (which does not include the South East Warrington Urban Extension) is likely to deliver less additional homes in areas with good accessibility when compared to all other options.

Option 5

This option will have the same effects as option 4. The overall scale of growth is slightly lower due to the omission of the Thelwall Heys site.

However, this does not affect the overall effects as only neutral effects were predicted as a result of development at Thelwall Heys.

Observations

- Broadly speaking, the options that involve Fiddlers Ferry are likely to deliver a degree of growth that is less accessible for residents in Warrington when compared to the alternative options.
- The South East Warrington Urban Extension offers good potential to deliver walkable neighbourhoods that are well connected to sustainable modes of transport.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)	C) Residual Green Belt					
														SEWUE			SWUE	

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)	C) Residual Green Belt					
														SEWUE			FF	

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000			
A) Urban Capacity												B)	C) Residual Green Belt						
														SEWUE			FF		TH

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)	C) Residual Green Belt					
														FF		SWUE		TH

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)	C) Residual Green Belt					
														FF		SWUE		

Housing

Urban capacity (11, 745)

Site options within urban areas concentrate a substantial amount of growth within existing urban areas, in particular Warrington. This should support the delivery of housing and affordable housing provision within areas with existing high demand. The cumulative scale of housing proposed should make a significant contribution towards meeting overall housing needs. However, with most site options falling within or adjacent to areas with high levels of deprivation and consisting of previously developed land, the potential to deliver planning gains could be reduced, which might manifest as lower proportions of affordable housing being permitted. Development of some sites might also be slow if there are issues with viability. Development in existing deprived areas should, however, support the regeneration of existing deprived neighbourhoods and provide important new affordable housing provision in these areas of need.

The geographic spread and different types of sites should help deliver a mix of housing types and possible tenures, suited to meet the needs of all social groups and household compositions. Some site options, particularly those in and around Warrington town centre are suited to support higher density housing such as flats and apartments, whilst more peripheral and larger site options are more suited to provide dwellings in locations with good existing access to schools and community services to support households with children.

Cumulatively, utilising the urban capacity is predicted to have a **major positive effect** on housing.

a) Residual growth: Outer settlements (801 dwellings)

Growth in these locations would support the distribution of housing growth and affordable housing provision across the borough by utilising seven site options adjacent to a number of large villages. This should help to increase the provision and choice of housing and address affordability issues locally for a number of villages in the borough. With site options broadly consisting of greenfield land, adjacent to affluent areas (with higher house prices and with no major site constraints), it is likely that housing will be attractive to market and could achieve high quality design. Overall, a **moderate positive effect** is predicted.

b) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

Growth in the South East Warrington Urban Extension could make a substantial contribution towards meeting housing needs (including affordable housing) near areas with existing high demand and values. The scale of growth proposed should further be able to support a mix of housing types, sizes and possible tenures. However, a South East Warrington Urban Extension will need to be supported by significant road infrastructure upfront, and this could create deliverability issues that will need to be resolved.

Whilst **major positive effects** could arise due to the scale of growth and attractiveness of housing growth, there is an element of uncertainty.

Fiddlers Ferry (1300 dwellings)

Housing development on this site would likely be required to support remediation of the brownfield part of the site. This would require works including the remediation of the brownfield land. It is a risk that this would reduce the viability of development, potentially affecting achievement of affordable housing targets and other planning gain. On the contrary, the allocation of this site for housing would support new employment provision on a complex brownfield site which may not otherwise be viable or feasible. This site is also likely to make a significant contribution towards meeting local housing needs and should be able to deliver a mix of housing types and sizes to meet the diverse needs of social groups. Overall, a **moderate positive effect** is predicted, but a degree of uncertainty exists.

Thelwall Heys (310 dwellings)

This site falls adjacent to the main urban area of Warrington and this scale of growth should make positive contributions towards meeting housing needs, including affordable housing need, within an area with existing high demand. This quantum of development should also be able to support a mix of house sizes and types. With the site broadly consisting of greenfield land and falling within an area with existing high house prices, the site is likely to be able to support high quality design. Overall, a **minor positive effect** is predicted.

South West Urban Extension (1700 dwellings)

This site falls adjacent to the main urban area of Warrington and this scale of growth should make substantial contributions towards meeting housing needs, including affordable housing need, within an area with existing high demand. The scale of growth proposed should further be able to support a mix of housing types, sizes and possible tenures. Furthermore, whilst the site contains some constraints in relation to flood risk, with the site being greenfield and unlikely to require substantial ground works, it is likely to be viable and feasible to support high quality design. Overall, a **major positive effect** is predicted.

Summary

All of the options concentrate high levels of growth within the Warrington urban area, where there is likely to be existing high demand for new housing provision and affordable housing due to pockets of deprivation. All of the options also involve proportionate growth across a number of villages, which should help meet localised housing and affordable housing needs. Alone, these sites would not meet housing needs for the borough in full, and so further growth is proposed in a number of ways at a combination of strategic locations / sites.

Option 1 involves additional development at the South East Warrington Urban Extension and South West Urban Extension. Both sites should be attractive to market and provide the opportunity deliver significant numbers of homes. This will contribute to a **major positive effect** overall in terms of housing across the borough.

The SEWUE will also provide a substantial amount of housing beyond the plan period, offering further positive effects in the longer term.

Option2 involves additional development at the South East Warrington Urban Extension and Fiddlers Ferry. Whilst the overall level of growth should still contribute towards major positive effects, the provision is slightly lower compared to option 1, and there is more uncertainty about viability associated with fiddlers ferry. Therefore, whilst **major positive effects** are predicted, there is a greater element of uncertainty. In the longer term, this uncertainty is likely to reduce, and is offset by the inclusion of the SEWUE, which will deliver supply beyond the plan period.

Option 3 involves the same locations for growth as option 2, but with the addition of Thelwall Heys. This increased the overall supply of land, but the overall effects are predicted to be broadly the same (i.e. **major positive effects**). The uncertainty related to Fiddlers Ferry still exists, but is offset to a degree by the inclusion of Thelwall Heys and the further benefits relating to the SEWUE beyond the Plan period.

Option 4 involves the lowest level of growth out of all the options, and also consists of growth at Fiddlers Ferry, which brings an element of uncertainty regarding delivery. Therefore, whilst a **major positive effect** is still likely overall, the degree of uncertainty is higher.

Option 5 would bring about very similar effects as Option 4 as it involves the same strategy for growth with the exception of Thelwall Heys. Not including Thelwall Heys would decrease choice and flexibility slightly, but **major positive effects** are still likely.

Observations

- Broadly speaking, the options that rely upon Fiddlers Ferry to meet housing needs in full create a greater degree of uncertainty as to whether housing needs will be delivered. Where the site is included for additional flexibility (therefore meaning a higher overall supply of housing land allocations), this is less of an issue.
- Options 1-3 provide further benefits beyond the Plan period, which could help to reduce pressure for housing towards the latter parts of the Plan period.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		SWUE	

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		FF	

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		FF	TH

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE		TH

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF		SWUE	

Natural resources: Agricultural land

a) Urban capacity (11, 745)

The site options are within urban areas in and around Warrington and nearby settlements, and broadly fall into the urban land classification. A number of site options without planning consent mainly in or nearby large villages fall within Grade 2 and Grade 3 agricultural land, although it is not clear if this is among the best and most versatile. Development on these sites will result in a small loss of agricultural land resources, but for most site options the urbanised location of the site makes them less suitable for agricultural use and are not currently being utilised for agriculture.

Concentrating growth in urban areas will help to protect agricultural land resources, which are **moderate positive effects** given the extensive pressures for growth in the Green Belt.

b) Residual growth: Outer settlements (801 dwellings)

Cumulatively, development would result in the loss of approximately 22 hectares of mainly Grade 3 (with the exception of 8.4ha of Grade 2 at Hollins Green and Lymm) agricultural land. This includes the potential loss of current allotments at Land west of Statham Primary School, Lymm. The cumulative loss of higher quality land is considered to be **a moderate negative effect**, but these effects are not widespread.

Other site options in the outer settlements are fully or partially outside of agricultural use, but are still provisionally identified as Grade 3 land.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

Development would likely comprise Grade 2 (over 100ha) and Grade 3 agricultural land (Over 150ha in total). Much of the agricultural land is in existing agricultural use. Cumulatively, development would result in the permanent loss of important agricultural land resources, which is predicted to have a **major negative effect**.

Fiddlers Ferry (1300 dwellings)

This site consists of a former power station (though this would most likely be for employment uses) and mostly falls within urban land, with the exception of land to the north of the railway land. This is categorised as urban land according to the Post 1988 agricultural land survey, but on inspection is in use for agricultural purposes. The loss of this land is a minor negative effect.

The allocation of this site partially for housing would support its redevelopment and remediation and help unlock the development potential of this otherwise complex and less viable site. This would encourage the efficient use of land by prioritising previously developed land ahead of other potential greenfield options and supports the preservation of important agricultural land resources.

A **moderate positive effect** is predicted in this respect for any option that involves this element (the major positives associated with brownfield regeneration would be offset somewhat by the loss of agricultural land).

Thelwall Heys (310 dwellings)

This site is comprised of 50% Grade 2 and 50% Grade 3 agricultural land, although it is not clear if the Grade 3 is among the best and most versatile. The development of this site would result in the loss of approximately 23 hectares of agricultural land in current agricultural use. The loss of some important agricultural land resources is a **minor negative effect** for any options involving this location.

South West Urban Extension (1700 dwellings)

This site consists of mostly Grade 2 (74.1 hectares) and some Grade 3 (36.7 hectares) agricultural land, which is predominantly in current agricultural use. The development of this site will result in the loss of approximately 110 hectares of important agricultural land resources (particularly that which is Grade 2) and therefore a **moderate negative effect** is predicted.

Summary

All growth options focus the majority of the growth on urban sites and on sites classed as agricultural land (provisionally using 1988 data) but in urbanised locations, where the site is not in existing agricultural use and is also unlikely to be suitable to be utilised for agriculture. This approach should help protect agricultural land resources and encourage the sustainable and prudent use of this natural resource., which are **major positive effects** Each of the growth options further propose growth in the outer settlements covering approximately 22 hectares of agricultural land. Whilst these sites are classified as Grade 2 and Grade 3 agricultural land, these sites are predominantly not in existing agricultural use, although development would result in the loss of soil resources, which is a **moderate negative effect**.

Option 1

In addition to the above, this growth option would involve the loss of at least 150ha in total, most of which is also in existing agricultural use and much of which is Grade 2 at the South East Warrington Urban Extension. Cumulatively, this is predicted to have a **major negative effect** on agricultural land.

Options 2

As per Option 1, this option also involve a loss of agricultural land at the South East Warrington Urban Extension, which is a **major negative effect**. However, the remaining residual growth is directed to Fiddlers Ferry site, which consists of non-agricultural and brownfield land. This is considered to help protect and support the prudent use of agricultural land resources and is a **major positive effect**. Therefore, overall (despite involving similar levels of growth to option 1) the loss of agricultural land is compared to Option 1.

Option 3

This option will have the same effects as option 2, but with additional negatives associated with the loss of grade 2 and 3 land at Thelwall Heys.

Option 4

This growth option does not involve residual growth at the South East Warrington Urban Extension. As such, the overall level and quality of agricultural land lost to residual growth is lower. There would still be a loss at the SWUE and Thelwall Heys, but this would be to a lesser extent compared to the South East Warrington Urban Extension (both in terms of quality and quantity). Therefore, only minor negative effects are predicted in relation to the residual growth. The inclusion of Fiddlers Ferry would also bring about a major positive effect. In this respect, Option 4 performs well with regards to soil resources.

Option 5

This option would involve the same effects as described for Option 4, but with lesser overall loss of soil resources due to the lower overall level of growth. As such, this option performs the best of all options with regards to soil resources.

Observations

- Broadly speaking, the options that involve Fiddlers Ferry are able to deliver residual housing needs in the most positive way with regards to soil and land. Those that include the South East Warrington Urban Extension are more likely to bring about a significant loss of higher quality soils.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)		C) Residual Green Belt			
														SEWUE		SWUE	

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)		C) Residual Green Belt			
														SEWUE		FF	

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)		C) Residual Green Belt				
														SEWUE		FF		TH

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)		C) Residual Green Belt				
														FF		SWUE		TH

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)		C) Residual Green Belt			
														FF		SWUE	

Natural resources: Water Quality

a) Urban capacity (11, 745)

These site options are mostly brownfield sites within urban areas in and around Warrington and nearby settlements. They are therefore mostly small in scale and unlikely to support substantial improvements to drainage infrastructure (such as sustainable urban drainage for surface water run-off).

There is potential for the cumulative scale of growth to add pressure to waste water capacity, although effects could potentially be mitigated through collective financial contributions toward new infrastructure to address capacity issues arising from cumulative development.

Site options without planning permission broadly fall outside Nitrate Vulnerable Zones and Groundwater Protection Zones, and so significant effects on quality are unlikely in this respect.

Development is likely to pose a risk to water quality through potential pollution or increased effluents in run-off, although such effects are unlikely to be significant due to most site options already being within highly urbanised areas and from potential to integrate adequate drainage systems (or in limited cases improvements). Overall, a **neutral effect** is predicted.

b) Residual growth: Outer settlements (801 dwellings)

This growth option involves seven sites adjacent to a number of large villages across the borough. This dispersed pattern of growth is not likely to add substantial pressures on the drainage network on any particular locality. In regard to the quality of surface water run-off, site options in Winwick and Culcheth fall in NVZs for surface water and are in current agricultural use. The change of use on these sites could help reduce pollution associated with farming activities which could have adverse effects on water quality. However, at a cumulative level, these effects are predicted to be negligible due to the small scale of land involved (approximately 16ha) and due to potential pollution as a result of development and urbanisation. Most other site options are not currently being fully utilised for arable farming, in particular those in Lymm and Croft. The site options also present some opportunities, although limited due to scale, for the integration of sustainable urban drainage which could result in improvements to the quality of water. Overall, a **minor positive effect** is predicted.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2200 dwellings)

The high scale of growth proposed under the South East Warrington Urban Extension is likely to increase pressure on existing waste water infrastructure.

However, growth at this scale should also allow for comprehensive drainage infrastructure upgrades and potential contributions towards addressing waste water capacity. Ideally, soft SUDs solutions would be prioritised, which could help to manage and improve water quality.

Development at this scale also has potential to have adverse effects on water quality, through potential pollution or increased effluents in run-off as a result of urbanisation. However, all four growth options are likely to support a relatively low density of development, which should allow for the incorporation of comprehensive sustainable urban drainage and green infrastructure. This should safeguard surface water and groundwater quality through the natural purification of run-off.

As much of the area consists of agricultural land, most of which is in current agricultural use, the change in use is likely to reduce pollution associated with farming activities. This is particularly positive where there are overlaps with NVZ for surface water. There is potential for a reduction in nitrate associated with farming activities to improve water quality for River Weaver, although any effects are likely to be negligible due to the small area of NVZ overlap. Overall, **minor positive effects** are predicted.

Fiddlers Ferry (1300 dwellings)

This high scale of growth is likely to add pressure on existing wastewater infrastructure, but growth at this scale should also allow for drainage infrastructure improvements and potential contributions towards addressing waste water capacity.

Development would likely involve a comprehensive land remediation exercise on the wider site. The potential removal of coal and fuel ash pits and the restoration of soil quality should reduce pollutants in groundwater and potential surface water discharge into the River Mersey. Furthermore, there is potential for the incorporation of sustainable urban drainage, new green infrastructure and an increase in open space to support the natural infiltration of water and enhance surface water and groundwater quality.

Overall, a **moderate positive effect** is predicted in this respect.

Thelwall Heys (310 dwellings)

This lower scale of growth is not likely to add significant pressures to waste water capacity. Whilst development and the urbanisation of the site poses a risk to water quality of watercourses through potential pollution or increased effluents in run-off, these effects can likely be mitigated through suitable infrastructure including sustainable urban drainage and green infrastructure. The low density of development proposed on the site should also support the integration of such infrastructure, with potential to have positive effects on surface water and groundwater quality. In addition, much of the site is currently in arable agricultural use and the change in use is likely to remove potential pollution associated with existing farming activities such as nitrates, which should result in an improvement in water quality, although not significant. Overall, a **minor positive effect** is predicted.

South West Urban Extension (1700 dwellings)

The high scale of growth proposed under this option is likely to increase pressure on existing waste water infrastructure. However, growth at this scale should also allow for drainage infrastructure upgrades and potential contributions towards addressing waste water capacity.

This scale of growth also has potential to have adverse effects on water quality, through potential pollution or increased effluents in run-off as a result of development and the urbanisation of the site. Given that much of the land available for development consists of farmland, it is possible that pollution resulting from existing farming activities would be reduced through a change in land use. This is likely to offset the potential negative effects on water quality. Furthermore, the low density of development proposed on the site should allow for the incorporation of comprehensive sustainable urban drainage and green infrastructure which could improve surface water and groundwater quality.

Overall, growth is likely to result in a **minor positive effect**.

Summary

Option 1

This growth option concentrates a substantial amount of growth in and around Warrington which could add pressures to waste water capacity. However, capacity issues can likely be mitigated through policy measures to cumulatively secure developer contributions towards new capacity provision.

Residual growth in the outer settlement sites and at the South East Warrington Urban Extension have potential to improve water quality through the loss of agricultural use in areas at high risk of nitrate pollution. However, whilst positive, the cumulative potential enhancement on NVZs is not considered to be significant. This growth option is also likely to result in the substantial loss of agricultural land in arable use which could enhance water quality through the reduction of farming related pollutants. To the contrary, the urbanisation of land poses a risk to water quality through potential pollution or increased effluents in run-off. However, such effects, particularly at the South East Warrington Urban Extension and SWUE, are less likely to be as significant as these sites should allow the incorporation of comprehensive sustainable urban drainage and green infrastructure, which could improve surface water and groundwater quality.

Cumulatively, this growth option is predicted to have a **minor positive effect** on water quality.

Options 2, 3, 4 and 5

These growth options are predicted to have similar cumulative effects to those under option 1. However, growth at the Fiddlers Ferry site would likely involve a comprehensive land remediation scheme, which should reduce pollutants (or potential pollution events) in groundwater and potential surface water discharge into the River Mersey.

Similarly, the sensitive urbanisation of the Thelwall Heys site with potential for comprehensive sustainable urban drainage has potential to have further positive effects on water quality. These growth scenarios are therefore predicted to have potential moderate positive effect on water quality overall.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE	SWUE		

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE	FF		

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE	FF	TH	

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE	TH	

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE		

Natural Resources: Air Quality

A) Urban capacity (11,745)

Sites included in the urban capacity are broadly situated in accessible locations, reducing the likelihood of needing to travel by vehicles (which contributes towards poor air quality). Where some sites are further out of Inner Warrington, for the most part they are small and hence would be unlikely to lead to a significant amount of traffic which would reduce air quality in these areas. Some potential negative effects may be related to the proximity of a number of sites to Air Quality Management Areas (AQMA) in Inner Warrington. Whilst the small sites with good accessibility may not lead to significant increases in congestion on their own, the cumulative effects may see congestion increase, with potential negative effects at peak journey times in these areas. On top of this, locating residential developments nearby to as well as within areas which have been designated as an AQMA is likely to worsen the effects of the poor air quality in these areas, with detrimental effects on human health and biodiversity. Overall, a **minor negative effect** is predicted in relation to growth in the urban areas. There is likely to be increased absolute levels of traffic in urban areas, and some would be placed in and adjacent to AQMAs. However, on a per capita basis, it could support a shift towards a greater proportion of people (in the Borough overall) using sustainable modes of travel (compared to an approach where accessibility of new development is poor). This offsets the negative effects somewhat. In the longer term, it is expected that negative effects would decrease as electric vehicles are gradually phased-in.

b) Residual growth: Outer settlements (801 dwellings)

The seven sites included under this category of sites are relatively small, distributing growth of just over 800 dwellings across a number of locations. The sites are all broadly well connected to local service centres, making access to local shops, services and community facilities by walking, cycling or public transport a viable option. These sites are generally small or medium and where they are not clustered together, it is considered unlikely that the increase in traffic volumes as a result of the housing growth would lead to significant effects in relation to air quality. The fact that these outer sites are likely to travel by car to access Warrington (and motorway junctions) may result in some increased congestion, though considering the total housing delivery of 875 dwellings, this is also unlikely to be significant given the dispersed nature of growth in the outer settlements. **Neutral effects** are predicted.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

development in this location would be expected to deliver onsite shops, services and facilities meaning that future residents could access these alongside those in nearby existing settlements, reducing car dependencies.

That said, the number of dwellings proposed in the area and the behavioural norms associated with car use mean that it is likely that the development would result in a significant increase in traffic volumes around the site, especially at peak journey times and at traffic pinch points. This would be expected to lead to some localised air quality issues around the site. Whilst some onsite facilities would reduce the need to travel long distances, it is still likely that the prospective residents would regularly need access to Inner Warrington for a variety of needs.

The increase in traffic volumes may lead to increased congestion along the link roads into central Warrington, potentially worsening AQMA4 which is in place on routes which connect the South East Warrington Urban Extension to the central urban area.

Furthermore, whilst development would be well located in respect of existing and new employment growth, it is also likely that peripheral communities could be drawn to commute with good links to the M56 and M6. This would lead to a continuation of air quality issues around motorway junctions. Overall, **moderate negative effects** are predicted, though these would be expected to peak in the medium term. As electric vehicles start to dominate the roads, the impacts on air quality due to traffic are likely to reduce drastically.

Fiddlers Ferry (1300 dwellings)

This site is of a reasonable size and has a small number of shops and services in the nearby existing urban areas, whilst some additional ones may be delivered on site to cater for the growth, it is likely that a significant number of trips would take place between the site and central Warrington and / or other urban centres such as Widnes and Runcorn. Behavioural norms dictate that a significant majority of these trips would be taken by cars, potentially leading to localised air quality issues, especially at peak journey times and at traffic pinch points. This might also lead to the deterioration of the quality of air at the existing AQMA4, especially around the roundabout which connects Sankey Way with Liverpool Road.

Moderately negative effects are predicted, which would be expected to reduce in the longer term.

Thelwall Heys (310 dwellings)

This site would be unlikely to deliver significant levels of onsite facilities due to its scale. Whilst there are a number of shops, services and community facilities in the site's vicinity (reducing the need to travel by car), it is likely that future residents would travel fairly regularly into larger urban areas, such as central Warrington to access a range of services, including employment. Whilst the scale of growth would be unlikely to lead to localised air quality issues, AQMA4 which runs along several access routes from the site into central Warrington may see some very minor negative effects, potentially deteriorating existing issues with air quality. Overall, this site is likely to lead to **minor negative effects**, which would be expected to reduce in the longer term.

South West Urban Extension (1700 dwellings)

The scale of this site would be expected to deliver some limited onsite shops, services and facilities, however it is still expected that travel to the surrounding area and beyond would be required from prospective residents to access certain destinations which are not provided near to the site. Whilst some measures would be likely to ensure sustainable modes of travel, behavioural norms are likely to mean that car use is the predominant mode of travel. This would be likely to lead to localised air quality issues around the site, as well as potentially deteriorating air quality at the nearby AQMA4 which spans link routes and the central ring road, including key access roads from the site into inner Warrington.

Moderately negative effects are predicted.

Summary

Under all options, effects relating to 'Urban Capacity' growth (11,745) and 'Residual Growth: Outer Settlements' (875) are constant, leading to **minor negative effects** and **neutral effects**.

Option 1

This approach would include growth at both the South West Urban Extension as well as the South East Warrington Urban Extension. Whilst the two sites would be likely to provide some supporting infrastructure which reduces the need to travel, as well as providing an increase in more sustainable travel opportunities, both sites would be expected to lead to deteriorating air quality both locally as well as further afield in existing AQMAs along the main access routes from the growth to central Warrington. The proximity of the sites to each other may also result in cumulative effects, potentially further deteriorating air quality in areas between the two sites, as well as along the established AQMA4 along the key link roads from the south of the Borough into central Warrington. This approach focuses a large amount of housing south of the Manchester Ship Canal, access to central Warrington from these locations is restricted to bridge crossings, which potentially could form traffic pinch points and worsening air quality (especially at peak journey times). This would be expected to worsen conditions at these locations which are already in part, or entirely, within an AQMA. **Major negative effects** are predicted overall.

Option 2

This option would involve growth at both Fiddlers Ferry and the South East Warrington Urban Extension. Whilst both of these sites would be expected to lead to deteriorating effects on air quality, both in areas local to the growth as well as at the established nearby AQMA4, the sites would not be expected to see magnified issues related to cumulative effects. **Moderately negative effects** are predicted overall.

Option 3

This Option would involve housing delivery at Thelwall Heys, Fiddlers Ferry and the South East Warrington Urban Extension site. Effects relating to growth at Fiddlers Ferry and South East Warrington Urban Extension would be much like that discussed under Option 2.

In addition to this the growth at Thelwall Heys would not be of a large scale and as such minor effects are likely to be associated with this site in relation to air quality. That said, where this site is nearby to the South East Warrington Urban Extension, some cumulative effects may arise, potentially worsening local air quality at peak time and at traffic pinch points in and around Grappenhall. Whilst these cumulative effects are possible, the magnitude of them considering the small amount of proposed growth at Thelwall Heys would not be expected to alter the significance of overall effects related to this option. **Moderately negative effects** are predicted.

Option 4

This Option would involve growth at Fiddlers Ferry, South West Urban Extension and Thelwall Heys. Both Fiddlers Ferry and South West Urban Extension would be expected to lead to some degree of car dependency, with a significant proportion of journeys being made into Warrington, potentially increase air pollution along sections of AQMA4, as well as some potential localised air quality issues at traffic pinch points nearby to the sites, especially at peak journey times. Thelwall Heys would be unlikely to lead to localised issues relating to air quality due to the site's small size, however there is a chance it could result in some minor increases in air pollution in AQMA4, which covers some of the key access routes from the site into central Warrington. Overall, considering that cumulative effects are unlikely under this approach, **Moderately negative effects** are predicted.

Option 5

This option will have the same effects as Option 4, but the localised and cumulative effects associated with development at Thelwall Heys would be absent. Nevertheless, the overall effects would remain moderately negative given the effects arising due to urban growth and the larger strategic sites.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
													SEWUE + SWUE				

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
													SEWUE			FF	

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000		
A) Urban Capacity												B)	C) Residual Green Belt					
													SEWUE			FF		TH

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
													FF		SWUE		TH

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
													FF		SWUE		

Natural resources: resource use and efficiency

a) Urban capacity (11, 785)

These site options are concentrated within urban areas of Warrington and nearby settlements. The efficiency of resource use is more a product of design and operational practices rather than the spatial context of growth. However, development in urban areas is likely to encourage higher densities of development and housing types such as flats, where resource efficiency and communal energy and water saving measures could be more feasible. In this regard, growth on the identified urban site options have good potential to secure resource efficient developments.

Most site options in the Warrington urban area further benefit from good access to the three household waste recycling centres in the borough, which fall within the town's built-up area. At the operational stage, this should provide new residents with access to important recycling and reuse facilities which should support the sustainable disposal of products and materials.

Most site options do not include important mineral resources, but a small proportion of sites mainly along or near the A5061 in Warrington include glaciofluvial deposits potentially of sand and gravel resources. Whilst these sites potentially include important mineral resources, their development is unlikely to result in negative sterilisation effects, as the site options are small in scale and unsuitably located (in regard to amenity, commercial viability and other adverse effects on population) for mineral extraction.

Another positive effect associated with growth on previously developed land and buildings is the reduced use of virgin raw materials for construction.

Taking the above factors into account, growth on the site options in urban areas is predicted to have **minor positive effects** on resource efficiency.

b) Residual growth: Outer settlements (801 dwellings)

This growth option includes growth at seven sites adjacent to a number of large villages. With the exception of Highfield Farm, Winwick, the site options are in areas with low levels of deprivation and higher house prices, where greater viability and potential consumer demand may support the delivery of more resource efficient homes. Improved resource efficiency could be achieved through design, material choice and construction, and during the operational phase from use of technologies such as solar PV. However, such effects are uncertain and would need to be secured through policy and other mechanisms.

The site options do not include important mineral resources with the exceptions of sites around Lymm and at Hollins Green, which include some limited areas of glaciofluvial deposits potentially of sand and gravel resources. The extraction of these resources through development is unlikely to be realistic due to the small scale of sites, limited amount of resources and their unsuitable location (in regard to amenity and other adverse effects on population).

At Hollins Green, mineral resources cover a linear area along Marsh Brook, which would be challenging to extract without having adverse effects on the water quality and potential ecological value of the watercourse. Therefore, the potential sterilisation of resources is not considered to have any significant effects.

Overall, an **neutral effects** are predicted.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

Similar to growth on site options in the outer settlements, the South East Warrington Urban Extension falls within an area mostly categorised as amongst the least deprived, with high house prices and greater viability for more resource efficient homes. Improved resource efficiency could be achieved through design, material choice and construction, and during the operational phase from use of technologies such as solar PV. However, such effects are uncertain and would need to be secured through policy and other mechanisms. Competing pressures for development contributions such as social infrastructure, roads and affordable housing could also play a very important role in how sustainable homes can be built.

The area consists of glaciofluvial deposits potentially of sand and gravel resources. Whilst development presents opportunities for the extraction of these resources, much of the resources are pre-sterilised due to road infrastructure and built development covering and intersecting the area containing the mineral resources. This is likely to undermine the overall feasibility and attractiveness for mineral extraction.

Overall, **neutral effects** are predicted taking the above factors into consideration.

Large scale development of a South East Warrington Urban Extension would require considerable raw materials and resource use during the construction phases, particularly to support infrastructure improvements. As such, temporary **minor negative effects** are also recorded.

Fiddlers Ferry (1300 dwellings)

This site includes a former power station including associated fuel ash lagoons. The site clearance and remediation work required onsite to support employment could reduce the viability for associated housing development. This could in turn, lead to less potential to achieve exemplary standards of sustainable design.

The site benefits from being in proximity to the Gatewarth waste recycling centre, which during the operational stage would provide residents with access to important recycling and reuse facilities.

In regard to minerals, the site includes a small area of glaciofluvial deposits potentially of sand and gravel resources. It is likely that development in this location could support the extraction of these resources sensitively without adversely affecting amenity and other issues.

Conversely, extraction prior to development may not be viable, and so sterilisation could occur. The effects are not considered to be significant due to the low quantity of resources available on site.

In regard to existing fuel ash resources on site, it is likely that prior to the commencement of development on site, these resources will be removed as part of their ongoing sale and therefore the allocation of the site is unlikely to result in the sterilisation of these onsite resources.

Development of a new community on partially greenfield land will require raw materials and resource use during construction, including for supporting infrastructure. However, this is offset to an extent by the involvement of brownfield land, and some basic infrastructure already being in place.

Overall, growth on this site is predicted to have **neutral effects** on resource efficiency.

Thelwall Heys (310 dwellings)

This site is not predicted to have any potential differentiating effects on the efficiency of resource use and does not include any important mineral resources. The site does, however, fall within good proximity to waste recycling centres which during the operational stage would provide residents with access to important recycling and reuse facilities. This site is predicted to have **neutral effects** on resource efficiency.

South West Urban Extension (1700 dwellings)

This site is not predicted to have any potential differentiating effects on the efficiency of resource use, although small parts of the site include areas of potentially contaminated land which could reduce the viability for the incorporation of some efficiency measures. The site does, however, fall within proximity to the Stockton Heath waste recycling centre, which during the operational stage would provide residents with good access to recycling and reuse facilities.

The northern part of the site includes an area of glaciofluvial deposits potentially of sand and gravel resources. Development could present opportunities for the extraction of these resources if it can be undertaken sensitively without adverse effects on amenity, water quality, biodiversity and other issues. Conversely, extraction prior to development may not be viable, and so sterilisation could occur. The effects are not considered to be significant due to the low quantity of resources available on site.

Development of a large new community on greenfield land will require substantial raw materials and resource use during construction, including for supporting infrastructure. These are temporary **minor negative effects**.

Summary

All of the growth options involve substantial growth in the urban areas. This is likely to support higher density development, which could be amenable to the efficient use of energy and water resources. Given the brownfield nature of many sites, the strategy makes good use of existing land / buildings and infrastructure, which helps to reduce the need for virgin raw materials and energy associated with construction. The location of sites also means they are unlikely to overlap with workable mineral resources. Overall, these are **minor positive effects** for each option. The effects for the outer settlements are also consistent across the options, with **neutral effects** recorded.

Option 1

In addition to the effects above, growth at the South East Warrington Urban Extension and SWUE could bring about minor negative effects due to an increased need for raw materials in construction, and some limited overlap with mineral resources. These are **minor negative effects**.

Option 2

Option 2 also involves the South East Warrington Urban Extension, and as such, **minor negative effects** are predicted alongside the effects identified for the urban areas and outer settlements. The remaining growth consists of the Fiddlers Ferry location. Here, the effects are mixed. In one respect, there are benefits due to supporting reuse of brownfield land (for the employment elements). On the other, the complexity of site remediation and the effects this might have on viability could make higher standards of resource efficiency more difficult to strive for. **Neutral effects** are predicted in this respect.

Option 3

Growth option 3 will have identical effects to Option 2, with the addition of growth at the Thelwall Heys site. The additional effects are not likely to be significant either individually or cumulatively given the scale and nature of the site.

Option 4

The inclusion of the SWUE is likely to bring about minor negative effects in addition to those discussed for the urban areas and outer settlements. However, the other elements of growth at Fiddlers Ferry and Thelwall Heys would be less likely to lead to negative effects with regards to resources and minerals. As a result, the residual growth is neutral. This option involves the lowest amount of growth overall, and is also configured in such a way that negative effects on minerals ought to be easier to avoid.

Option 5

Though the overall level of growth is slightly lower (due to the omission of the Thelwall Heys site), this option will have virtually the same effects as option 4 (given that additional growth at Thelwall Heys has broadly neutral effects with regards to minerals and waste).

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE + SWUE			

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		FF	

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		FF	TH

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE	TH	

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE		

Natural resources: Flooding

a) Urban capacity (11, 785)

A large proportion of involved sites fall within Flood Zone 1, but there are several sites in the central and to the south of Warrington town centre nearby the River Mersey, which fall mainly within Flood Zone 2 areas. Much of this area is also at risk of surface water flooding. Though additional sites fall within Flood Zone 3, these are benefiting from flood defences.

Several of the sites that are at risk of flooding in FZ2 have been used for employment uses, which are less sensitive than housing as a use in such areas. Their change in use to housing will place more homes in areas that are at risk of flooding.

Increased development in this area could also affect surface water run-off rates which could exacerbate the risk of flooding. However, the broadly brownfield nature of sites should allow for green infrastructure and sustainable drainage systems to be incorporated to manage or improve the current situation. This should help manage any increases in surface water run-off at a local level. Adverse effects could also potentially be managed through sensitive design and other infrastructure improvements.

Development on the brownfield sites also provides some opportunities to improve the rate of run-off through the use of SuDS. However, the effectiveness of SuDS is predicted to be limited as these sites are not of a scale to be able to deliver significant natural drainage systems. Growth is therefore envisaged to have **moderate negative effects**.

b) Residual growth: Outer settlements (801 dwellings)

Other than two sites to the north west of Lymm, the seven sites proposed under this category fall entirely within Flood Zone 1. In this respect, **neutral effects** are predicted in terms of flood risk.

The two sites north of Lymm are adjacent to areas of flood risk, and there are small areas of overlap. However, these sites are mostly greenfield, which should allow for incorporation of sustainable drainage, green infrastructure and other flood alleviation measures. The small overlap with areas at risk of flooding means that the avoidance of areas at risk of flooding will be very likely. As a result, potential minor negative effects are predicted.

The sites at Hollins Green and south of Rushgreen Road are not close to any significant areas of Flood Zone 2 and Flood Zone 3. Furthermore, the sites do not fall within areas at risk of surface water flooding and adequate mitigation through the potential use of SuDS, sensitive design and other infrastructure improvements should avoid the potential exacerbation of flood risk through their development.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2200 dwellings)

The South East Warrington Urban Extension area consists mostly of Flood Zone 1. The South East Warrington Urban Extension is intersected by a small area at high risk of fluvial flooding along the western site boundaries. However, the scale of development proposed should be able to avoid these areas and comprehensively deliver any required flood alleviation measures. The South East Warrington Urban Extension area also does not include any large areas at risk of surface water flooding or contain apparent surface water flooding issues which cannot be addressed through adequate drainage.

With the South East Warrington Urban Extension area containing a number of ecologically rich habitats and features, their protection would require the preservation of existing and potential integration of new green infrastructure, which should support natural drainage and reduce run-off rates. In addition, the scale of development proposed is likely to deliver a relatively low density of development, with substantial opportunities for the integration of natural drainage solutions. Therefore, the urbanisation of the area is unlikely to significantly increase surface water run-off or exacerbate the risk of flooding onsite and in the local area.

Overall, a **neutral effect** is predicted. With a focus on natural 'soft' solutions to drainage, there could potentially be minor improvements in terms of managing flood risk in the wider catchment.

Fiddlers Ferry (1300 dwellings)

This location mainly consists of Flood Zone 1, with the exception of a linear area of Flood Zone 2 and Flood Zone 3 along the southern boundary which follows the course of the River Mersey and a small area of the railways which intersects the site. The site is mainly brownfield with large areas of greenfield and green infrastructure in-between previously developed parcels. The site does not include any large areas at risk of surface water flooding or contain apparent surface water flooding issues which cannot be addressed through adequate drainage.

There is potential for unmanaged surface-water runoff, low ground infiltration and unsustainable drainage, where water is discharged into the River Mersey, to exacerbate the risk of flooding locally and further downstream. However, such effects can likely be mitigated through the effective use of sustainable drainage, the introduction of new green spaces and green infrastructure and other flood alleviation measures. The quantum of development is also likely to be able to avoid areas at higher risk of fluvial flooding.

Overall, a **neutral effect** is predicted. With a focus on natural 'soft' solutions to drainage, there could potentially be minor improvements in terms of managing flood risk in the wider catchment.

Thelwall Heys (310 dwellings)

This site broadly falls within Flood Zone 1 but includes an area of Flood Zone 2 and Flood Zone 3 which intersects the site to the west along Morris Brook and more centrally along an unnamed watercourse before extending into a wider area of Flood Zone 2 to the south of the site. With the site mainly consisting of greenfield land, there is potential for development to affect surface water run-off and infiltration rates which could exacerbate the risk of flooding. However, it is considered that such effects can likely be mitigated through the effective use of sustainable drainage and other flood alleviation measures. The low density of development proposed on the site should further help avoid development in areas at higher risk of fluvial flooding and enable the comprehensive delivery of flood mitigation including green infrastructure. The site further does not include any apparent surface water flooding issues which cannot be addressed through adequate drainage. Overall, a **neutral effect** is predicted.

South West Urban Extension (1700 dwellings)

This site broadly falls within Flood Zone 1 but includes an area of Flood Zone 2 and Flood Zone 3 which intersects the site along an unnamed watercourse. In addition, there is a large area of Flood Zone 2 and Flood Zone 3 to the north of the site. Considering the broadly greenfield nature of the site, there is potential for development to affect surface water run-off and infiltration rates which could exacerbate the risk of flooding. However, it is considered that such effects can likely be mitigated through the use of sustainable drainage and other flood alleviation measures, which could likely be delivered comprehensively due to the relatively low density proposed on the site. The low density should also be able to avoid areas of the site most at risk of flooding. The site further does not include any apparent surface water flooding issues which cannot be addressed through adequate drainage. Overall, a **neutral effect** is predicted.

Summary

All growth options propose the majority of growth within urban areas and use a number of site options adjacent to large villages. The majority of sites are within flood zone 1 and given that they are previously developed, there are unlikely to be significant changes with regards to flood risk and drainage.

Growth on a handful of urban capacity site options to the south of Warrington town centre nearby the River Mersey would involve development within Flood Zone 2 areas. This is likely to have **moderate negative effects** in terms of placing new homes in areas of flood risk. However, the presence of flood defences along the River Mersey, means that several other sites in these locations will benefit from protection.

Residual growth site options (South East Warrington Urban Extension, Fiddlers Ferry, Thelwall Heys and SWUE) mostly consist of Flood Zone 1, with each site option containing small areas of Flood Zone 2 and Flood Zone 3. However, the scale of development proposed on these site options should be able to avoid areas at high flood risk and allow a comprehensive flood alleviation scheme.

In addition, these site options consist mainly of greenfield land which should allow the easy integration of sustainable urban drainage, green infrastructure and other flood alleviation measures. These site options also do not include any substantial areas at risk of surface water flooding and propose a low density of development which support natural drainage and water infiltration opportunities. In respect of additional growth, each option is therefore predicted to have largely **neutral effects** regardless of overall growth or distribution of this residual growth. With a natural approach to drainage which mimics the catchment features and seeks to 'slow the flow', it may be possible that positive cumulative effects arise in relation to flood risk.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE	SWUE		

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE	FF		

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE	FF	TH	

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE	TH	

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE		

Built Heritage

a) Urban capacity (11, 785)

These sites are broadly more densely distributed towards inner Warrington, with a small number of spread out, and mostly small sites elsewhere across the urban area, notably there is a medium sized site at Crab Lane (University of Chester Padgate Campus) which is an exception to this. Those sites which are outside of the inner Warrington area are broadly unconstrained by the historic environment. Some of these sites are in close proximity to Grade II listed buildings, however considering the listing grade and wider area constraints, sensitive design and appropriate screening would be likely to mitigate any significant effects.

Central Warrington is 'constrained' by a number of conservation areas as well as Grade I, II* and II listed buildings. Considering these assets together as a package, the central area in general has a strong sense of historic character, with many buildings retaining features of historic significance and collectively contributing to the area's sense of place. It should also be noted that this more sensitive area also has some degree of mixed character, partly owed to pockets of modern buildings as well as some in a state of disrepair. The majority of the sites in the central area are small or medium sized, making it unlikely that they would significantly alter the character of the area overall. In addition to this, sensitive design, consideration of local character and appropriate screening should minimise any potential negative impacts on the settings of existing heritage assets in the area. Further to this, the redevelopment of several brownfield sites would be likely to improve the general settings of some listed assets and conservation areas, helping to improve the general character where buildings in a poor state of repair would have otherwise detracted from it. It should be noted that where sites are in particularly sensitive locations, for example the Garven Place Clinic, development proposals would be expected to pay very close attention to measures in the design stages which would mitigate any potential issues related to the historic environment. On balance, the majority of development in the urban areas are likely to have either neutral effects or some cumulative minor positive effects by improving townscape.

However, there are several sites in the Warrington urban area that consist wholly or partly of listed buildings. For example:

SHLAA 3570 - Most of the site consists of the former Warrington Police Station, which is a Grade 2 listed building. Finding a productive use for this building, whilst retaining its character would be a positive effect. However, any loss or change of important features could lead to negative effects.

SHLAA 2673b - Includes listed buildings on part of the site. However, the remaining elements consist of modern buildings and car parks. Their sensitive redevelopment could possibly lead to enhancements to townscape.

SHLAA 1755 - Surrounded by multiple listed buildings and within a Conservation Area. However, this site does not itself contribute positively to the setting of these assets, and its sensitive redevelopment could potentially lead to enhancement.

SHLAA 2472 - Derelict site surrounded by listed buildings. Though the site is somewhat run down, redevelopment has the potential for negative effects should appropriate scale, layout and mass not be strongly respected.

SHLAA 1401 - contains two isolated listed buildings which are surrounded by areas of poor quality environment, as well as some modern large buildings being developed recently.

SHLAA 3357 - Adjacent to multiple listed buildings. Though the current building does not contribute significantly to the setting of the heritage assets in this area, it will be important to retain boundary walls and to ensure that buildings are sympathetic.

Broadly speaking, there ought to be potential to achieve positive effects at these sites. However, this is entirely dependent and highly reliant on retention of important features and high quality design. Without details about the site developments or mitigation measures, potential **minor negative effects** are recorded at this stage.

b) Residual growth: Outer settlements (801 dwellings)

The seven sites included under this category of sites are relatively small, distributing growth of just over 800 dwellings across a number of locations. Aside from the presence of a nearby Grade II listed building for two of the sites nearby to Lymm, none of these sites are identified as highly sensitive in terms of the historic environment.

Where there are identified listed buildings in close proximity to a site, these are Grade II and sensitive design alongside screening should mitigate any potential effects relating to impacts upon the setting of a heritage asset. **Neutral effects** are predicted for the majority of development, with some **minor negative effects** identified at this stage to reflect the presence of listed buildings in some locations. In addition, the site at Winwick is adjacent to a historic battlefield, and could potentially have effects on its setting. It is recommended that site specific policies are established to provide clarity on what will be acceptable in these locations.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

Focusing on this site as a whole, considering each individual parcel of land which could be allocated, it is evident that in general, the site is largely unconstrained by the historic environment. Exceptions to this include a small number of Grade II listed buildings either within the site or adjacent to it. Measures taken during the design and masterplanning stage would be likely to enable appropriate mitigation to ensure the significance or the setting of these buildings are not significantly affected (consideration should be weighted to the significance/importance of the historic assets). The Grappenhall Village Conservation Area is in close proximity to the north/north east of the South East Warrington Urban Extension area. Whilst screening and sensitive design would be expected to mitigate effects of the development on its setting, the increase in traffic associated with the site could lead to some potential minor negative effects related to congestion in the conservation area

(including noise and air pollution). These effects would be anticipated regardless of which parcel of land is allocated.

To the south west of the entire parcel of land at the South East Warrington Urban Extension is an ancient monument consisting of a Roman Road. It would be expected that any parcel of land allocated nearby to this asset (Option 1 or 2) would take account of this historic feature through design measures, such as road layouts.

Overall, the South East Warrington Urban Extension site is anticipated to have **minor negative effects**.

Fiddlers Ferry (1300 dwellings)

The Fiddlers Ferry site is not identified as being sensitive in terms of the historic environment. Further to this, part of the site is a brownfield development with historic industrial uses, as such it would provide some potential to promote a historic character which is symbolic of Warrington and its industrial past. Whilst this is a possibility, it is not likely to lead to significant effects. **Neutral effects** are predicted with regards to heritage.

Thelwall Heys (310 dwellings)

This site has two Grade II listed buildings in close proximity to it, one in its centre (though not included in the site's boundary) and one to the east. The listed building at Cliff Lane (Thelwall Heys) is a residential property, and so unlikely to be lost to new development. However, it currently enjoys an open, countryside setting, which would be affected by new development. Considering the significance of these assets, alongside the potential for design to be sensitive to the local historic character and provide screening, then **moderate negative effects** are predicted. Whilst there are two conservation areas nearby (Thelwall Village and Grappenhall Village), current land uses provide screening and the size of the proposed site would not be likely to lead to additional traffic volumes of a magnitude with the potential to be detrimental to the historically sensitive areas.

South West Urban Extension (1700 dwellings)

The South West Extension runs adjacent to Walton Village Conservation Area, which contains several listed buildings. However, the site is physically separated from the Conservation area by the A56, and totally screened by trees. Therefore, direct effects upon the setting or significance of heritage assets are unlikely. To the southern edge of the site, there are three listed bridges and their setting could be affected should development extend to this edge. However, it ought to be possible to mitigate / avoid negative effects with appropriate design. Consequently, **minor negative effects** are predicted.

Summary

Under all options, the effects relating to development options which are considered to be constant under any approach would be expected to be realised. As such, effects relating to 'Urban Capacity' growth (11,745) and 'Residual Growth: Outer Settlements' (875) are considered likely under any of the options, leading to a mix of **minor positive effects**, **neutral effects** and **minor negative effects**.

Option 1

This option would involve growth at the South West Urban Extension alongside the South East Warrington Urban Extension. This has the potential to have some effects on nearby conservation areas as well as some Grade II listed bridges, although effects on these are unlikely to be significant due to the potential for mitigation measures to reduce potential effects. **Minor negative effects** are predicted.

Option 2

This approach would involve growth at Fiddlers Ferry and the South East Warrington Urban Extension. Whilst the effects relating to potential effects on the nearby conservation area, Grade II listed buildings and ancient monument to the South East Warrington Urban Extension site are likely to occur, Fiddlers Ferry is unlikely to lead to any negative effects. As such, a mix of **minor negative** and **neutral effects** are predicted.

Option 3

This Option would involve the same growth options as outlined under option 2, however with the Thelwall Heys site in addition. Whilst this site could act in combination with the South East Warrington Urban Extension site, its small scale is unlikely to alter the overall significance of effects predicted at either site. There would be a mix of **minor** and **moderate negative effects** as well as **neutral effects**.

Option 4

This option would involve growth at the South West Urban Extension, Fiddlers Ferry and Thelwall Heys. Where Fiddlers Ferry is likely to lead to neutral effects, consideration of more negative effects is linked to the South West Urban Extension and Thelwall Heys. As such, mixed **neutral**, **minor negative effects** and **moderate negative effects** are likely.

Option 5

The effects for this option are the same as Option 4, though the moderate negative effects associated with Thelwall Heys would be absent. As a result, the overall effects are also predicted to be less negative.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
										?			SEWUE + SWUE				

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
										?			SEWUE		FF		

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
										?			SEWUE		FF	TH	

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
										?			FF		SWUE	TH	

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
A) Urban Capacity												B)	C) Residual Green Belt				
										?			FF		SWUE		

Landscape

a) Urban capacity (11, 745)

These sites are broadly more densely distributed towards inner Warrington, with a small number of spread out, and mostly small sites elsewhere across the urban area, notably there is a medium sized site at Crab Lane (University of Chester Padgate Campus) which is an exception to this. The significant majority of these sites are within the existing urban area, or immediately adjacent to it in areas which are unlikely to disrupt the landscape. As such, these sites are anticipated to lead to **neutral effects**.

b) Residual growth: Outer settlements (801 dwellings)

The seven sites included under this category of sites are relatively small, distributing growth of just over 800 dwellings across a number of locations. These sites are adjacent to existing built-up areas with the majority on greenfield land. Development would be unlikely to lead to coalescence between urban areas, and would not affective highly sensitive landscapes. However, being adjacent to settlements, there would be encroachment into open countryside to some extent, which will have some localised negative effects upon landscape character. The relatively small scale nature of sites, and the potential to incorporate screening through Green Infrastructure measures should help to minimise likely effects. Therefore, overall **minor negative effects** are predicted.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

This location is within the Green Belt and Appleton Park and Grappenhall (Red Sandstone Escarpment). Development would reduce the openness of a significant amount of land to the south of inner Warrington, in effect agglomerating areas in between Stockton Heath, Dudlow's Green, Appleton Thorn and Grappenhall. Whilst complete coalescence between settlements would be possible to avoid, there would be noticeable reductions in open space, and a perception of urban sprawl is likely. There would be a mix of Green Belt parcels involved of varying sensitivity. The majority of parcels would either have a weak or moderate contribution, with a smaller number of parcels having a strong contribution. With layout and design, and avoidance of inappropriate development in the stronger performing parcels, the effects could be managed somewhat. However, the cumulative effects of such large scale development would be difficult to eradicate. Therefore, **moderate negative effects** are predicted overall.

Fiddlers Ferry (1300 dwellings)

Whilst this site is within the Green Belt, it is partly brownfield within an industrial area and as such it does not currently contribute positively towards the local landscape character or openness of the Green Belt. The southern parcel of the site is mostly within the River Mersey/Bollin (river flood plain) landscape character type, whilst some of the northern parcel sits within the Penketh (undulating enclosed farmland) character type.

Considering the current site use and adjacent areas (a disused power station and associated land uses), the development of this site with design and landscaping which is sensitive to the surrounding landscape types could promote **minor positive effects** upon the landscape.

Thelwall Heys (310 dwellings)

This site is within the Green Belt and Appleton Park and Grappenhall (Red Sandstone Escarpment). The development of the site would reduce the openness of the land which is currently predominantly open fields. Whilst these points suggest loss of landscape and negative effects, the scale of the site and its position adjacent to areas of existing built-up land mean that effects would to some extent be minimised, and this is reflected by a weak categorisation in the Green Belt assessment. Further to this, the scheme design would be expected to take account of the impacts proposals would have on the landscape. **Minor negative effects** are predicted.

South West Urban Extension (1700 dwellings)

This site is within the Green Belt, Appleton Park and Grappenhall (Red Sandstone Escarpment). The south west extension would lead to the loss of open Green Belt land. Although this would affect the open character of this area, this parcel of land is mostly considered to make a moderate contribution to the Green Belt. Whilst it would pull out the urban area beyond its current extent, the land (currently open fields) does not currently have any stand-out landscape features which contribute towards the character of the area, nor would it lead to coalescence between settlements. With strong green infrastructure features and principles within layout and design, only **minor negative effects** are predicted.

Summary

Under all options, the effects in the urban areas are considered likely to be neutral. The effects in the outer settlements are constant across the options, and are minor negative effects.

Option 1

In addition to the effects identified above which apply to all options, Option 1 involves growth at a South West urban Extension as well as the South East Warrington Urban Extension. The key effects here would be significant losses of open Green Belt land, leading to some fundamental changes to the landscape in these areas. In particular, the Garden Village could give rise to moderate negative effects. In combination, the additional growth delivered on Green Belt land under this approach would have negative effects on landscape.

Option 2

This approach would include the Fiddlers Ferry site as well as the South East Warrington Urban Extension. Whilst the effects relating to the South East Warrington Urban Extension have been discussed as being more negative, the development of Fiddlers Ferry would offer an opportunity to improve the site's contribution to the landscape character of the area. As such, the overall effects upon landscape associated with the residual growth are less negative compared to Option 1.

Option 3

This option would include the Thelwall Heys, Fiddlers Ferry and South East Warrington Urban Extension sites. This would be expected to replicate those effects discussed under Option 2, though with the added effects relating to the Thelwall Heys site. Adding this site increases the overall provision of homes, and would have localised minor negative effects. There would be no in-combination effects beyond the locally identified effects.

Option 4

This option would involve the lowest level of growth, and excludes the South East Warrington Urban Extension. Development would be focused at the urban extension site, Thelwall Heys and Fiddlers Ferry. The urban extension site and Thelwall Heys are both likely to have localised minor negative effects, and would not have in combination effects. The inclusion of the Fiddlers Ferry site also means that some minor positive effects could arise. Therefore, overall, this option broadly performs the best from a landscape perspective.

Option 5

The effects for this option are identical to Option 4, but the omission of Thelwall Heys means that overall, the minor negative effects are slightly lower.

Observations

- Broadly speaking, the options that involve Fiddlers Ferry are able to deliver residual housing needs in the most positive way with regards to landscape. Those that include the South East Warrington Urban Extension are more likely to bring about a moderate negative effect.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		SWUE	

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		FF	

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		FF	TH

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE	TH	

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													FF	SWUE		

Biodiversity and Geodiversity

a) Urban capacity (11, 745)

The majority of sites are predominantly in or adjacent to urban areas, particularly around Warrington town centre. Therefore, most of the growth utilises brownfield sites or greenfield sites of more limited ecological value. In this respect, neutral effects are predicted. The effects upon designated sites are also less likely to be significant.

The quantum of growth proposed particularly within the central and area to the south of Warrington town centre could have some temporary negative effects on habitats and potential ecological connectivity across the urban environment. For example, there could be disturbance to watercourses, urban ecology and species that have colonised brownfield land. Urban growth might also provide an opportunity to improve biodiversity networks in the urban areas by incorporating net gain on or near to sites.

The corridor along the River Mersey estuary forms an important wildlife area, particularly within the eastern part of Warrington which contains several SSSIs forming a much larger area of BAP priority habitats. There is potential for growth in proximity to the River Mersey estuary including near the SSSIs to increase recreational pressure, noise and land disturbance and pollution such as in surface water run-off on these important habitats. Effects are more likely to be adverse for the larger sites proposed for growth near Bank Quay and sites to the west of Lymm.

Mixed effects are predicted. On some sites, neutral effects would be expected. Overall, minor positive effects could also arise as a result of net gain being secured throughout the urban areas. To the contrary, the proximity of some development to the River Mersey could have moderate negative effects upon biodiversity, at least in the short term.

b) Residual growth: Outer settlements (801 dwellings)

Growth on outer settlement sites adjacent to Winwick and Culcheth is likely to avoid adverse effects on designated sites and protected habitats, although these sites do include some habitats with potential to be of ecological importance in supporting protected species and ecological connectivity. Effects are likely to be neutral or positive should net gain be achieved on site.

Other outer settlement sites have greater potential to have adverse effects on biodiversity as a number of sites contain (sites in Lymm) or fall in close proximity (Croft) to BAP priority habitats. Sites to the west of Lymm further fall within close proximity to a number of SSSIs to the north west and effectively form part of a much larger area of habitats that potentially support protected species and are of ecological value. Similarly, the site at Hollins Green falls within the impact zone for the Rixton Clay Pits SSSI and is adjacent to a natural corridor along Marsh Brook which is likely to supporting protected species and ecological connectivity.

The deciduous woodland habitat to the south of the site at Croft also forms a Local Wildlife Site and the site could be providing important ecological connectivity through the area and has potential to also be providing stepping stone habitats between other important habitats in the vicinity.

Development on a number of sites have potential to cause harm and the loss to important ecologically rich habitats and undermine ecological connectivity. Therefore, cumulatively a **moderate negative effect** is predicted at this stage.

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

The South East Warrington Urban Extension area falls outside SSSI impact zones for residential use and is distant to SPAs and SACs. However, the cumulative scale of growth proposed could indirectly cause some minor adverse effects through disturbances from recreational use.

There are local wildlife sites and BAP Priority Habitats which enclose existing development at Grappenhall Heys and create a linear separation between the broad location for growth and the built-up area to the west. Development in the vicinity of these habitats could cause harm through increased recreational pressure, noise and land disturbance and pollution such as in surface water run-off. Where not supported with substantial green infrastructure, development is also likely to undermine ecological connectivity between existing important habitats within and in the vicinity of the site. The low density of development and non-developable areas should ensure development is able to avoid important habitats and integrate green infrastructure. There is also potential for development to create new ecologically rich habitats, particularly in the form of stepping stone habitats to support ecological movement between existing habitats. These site options are predicted to have potential **minor negative effects**, but there is potential for the significance of adverse effects to be reduced through sensitive design and through the introduction of new green infrastructure and habitats. In the longer term, this approach should create opportunities for net gain in biodiversity.

Fiddlers Ferry (1300 dwellings)

The northern part of the site is broadly brownfield but also contains mature trees and hedgerows with potential to be supporting protected species and several small areas of BAP priority habitats. This would be part of employment development though. Whilst development can likely avoid the loss of BAP habitats, it is likely to result in some loss to unprotected areas of trees, hedgerows and grasses which likely provide important undisturbed ecological connectivity between the BAP habitats on site, LWS to the south and the potential LWS to the east.

The housing element of the site falls within the Impact Zone for the Mersey Estuary SSSI with potential for development to have adverse effects from recreational pressures and pollution. Should ecological surveys reveal that the current areas for housing growth are low value, then the potential for biodiversity net gain exists.

At this stage, a precautionary approach is taken and minor negative effects are predicted in relation to the nearby Mersey Estuary. In addition, the developable area itself falls within a local wildlife site and direct impacts on the function and connectivity of this habitat could occur. It is likely that much of the area would not involve built development, but would involve publicly accessible open space. This could bring some disturbance to habitats, but by the same token, presents an opportunity to enhance the biodiversity value of the area.

Cumulatively, a **moderate negative effect** is predicted overall.

Thelwall Heys (310 dwellings)

The site falls within the Impact Zones for the Woolston Eyes SSSI, which suggests that development of more than 100 residential dwellings could have potential to cause adverse effects. Such effects are reduced somewhat as the site falls reasonably south of the Manchester ship canal, but nevertheless, impacts will need to be managed. The site also includes numerous trees, hedgerows and waterbodies with potential to support protected species, some of which form linear ecological corridors across the site (particular along the unnamed waterbody and path to the north of the site). These habitats include an area of BAP Woodland Orchard to the east and TPO covering the eastern part of the northern parcel. Whilst development is likely to result in some minor loss and cause disturbance from recreational pressures and pollution on habitats likely to be of ecological importance. Effects can likely be mitigated through buffering and the introduction of new green infrastructure and habitats, which should be possible due to the fairly low density of development proposed on the site. There is also potential for comprehensive biodiversity net gain. Therefore, a **neutral effect** is predicted overall at this stage.

South West Urban Extension (1700 dwellings)

This site contains some habitats including trees and hedgerows with potential to be of ecological importance in supporting protected species and ecological connectivity. Areas of TPOs to the south of the site and along the eastern boundary near the Warrington Sports Club are of particular interest, with the latter adjoining a BAP Woodland Orchard habitat. The proposed low density development / non-developable areas of the site present opportunities to secure comprehensive biodiversity net gain through the integration of new green infrastructure and habitats. There is also potential for development to enhance ecological connectivity across the site and between habitats in the vicinity such as the Mersey corridor. Therefore, a **minor positive effect** is predicted.

Summary

All growth options involve the urban capacity and outer settlement sites. The concentration of growth within or adjacent to urban areas protects important habitats and avoids disruption to strategic ecological connectivity in rural areas. However, the cumulative scale of growth, particularly on site options in close proximity to the SSSIs to the east of Warrington, could increase recreational pressure, noise and land disturbance and pollution on the environmental designations nearby. Growth on certain sites would also result in some loss or harm to BAP priority habitats (particularly on sites to the west of Lymm).

These sites may offer more limited opportunities for the introduction of new habitats and ecological connections, although the redevelopment of some urban brownfield sites could result in enhancements locally.

Option 1

In addition to the above effects, growth at the South East Warrington Urban Extension would add limited additional recreational pressure on the SSSIs to the east of Warrington. Pressure on the Mersey corridor may also be reduced somewhat. The large concentrated growth at a South East Warrington Urban Extension could undermine ecological connectivity across this location. However, the relatively low density of development proposed for both the South East Warrington Urban Extension and SWUE should enable the introduction of new green infrastructure and habitats with potential to result in a comprehensive net biodiversity gain. At this stage a precautionary approach is taken in this respect for the South East Warrington Urban Extension.

Options 2 and 3

Under these growth options the effects are predicted to be similar to option 1 but the severity of adverse effects are increased due to the likely loss and harm to ecologically important habitats and connectivity at the Fiddlers Ferry site.

Option 4

In addition to the growth proposed on urban capacity and outer settlement sites, this option involves growth on the Fiddlers Ferry site which is predicted to result in the partial loss or at least disturbance of LWS, cause disturbances to BAP priority habitats and possibly constrain ecological movement across the local area. This is predicted to increase the cumulative severity of adverse effects, although not significantly. In the contrary, growth at the SWUE and Thelwall Heys has potential to have minor positive effects through potential new green infrastructure and increased provision of ecologically rich habitats, but cumulatively these effects are also not considered to be significant. There is also potential for minor negative effects at both Thelwall Heys and the SWUE, but these ought to be possible to mitigate.

Option 5

This option is predicted to have the same effects as those outlined under Option 4, but overall the effects associated with Thelwall Heys development would be absent (whether these be positive, negative or neutral overall).

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
													SEWUE		SWUE	

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
												SEWUE		FF		

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
												SEWUE		FF	TH	

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
												FF	SWUE		TH	

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
A) Urban Capacity												B)	C) Residual Green Belt			
												FF	SWUE			

Climate change

a) Urban capacity (11, 745)

Broadly, in terms of reducing carbon emissions through reducing the need to travel, these sites are located sustainably due to their close proximity to shops, services, employment and sustainable transport options. The denser nature of development is also likely to result in lower carbon emissions per capita compared to low density larger development. These are **minor positive effects**.

The small scale nature of sites would be unlikely to contribute towards significantly increased levels of green infrastructure in the urban areas. To add to this, their location within the urban area may subject future residents to more pronounced effects of heating, potentially leaving vulnerable populations at a heightened risk. These are potential **minor negative effects**.

The sites would be unlikely to promote opportunities for heat networks, partly due to the complexities associated with connecting a number of small sites distributed around an urban area. The sites would also be very unlikely to be developing on areas suitable for wind energy generation.

In terms of household waste, it is assumed that the residential waste produced from these homes could be managed by existing waste collection services in an efficient way.

b) Residual growth: Outer settlements (801 dwellings)

The seven sites included under this category of sites are relatively small, distributing growth of just over 800 dwellings across a number of locations. Whilst these sites are generally in close proximity to service centres and small urban areas across Warrington, making a limited range of facilities accessible in close proximity, the sites would be likely to lead to some need to travel into larger urban areas, such as central Warrington. Whilst there may be links to these areas by sustainable transport, it is expected that a significant proportion of journeys would be made by private car, leading to increased CO₂ emissions. The sites may provide some onsite greenspace, however their scales mean that a significant increase would be unlikely. The sites are generally adjacent to small-scale existing settlements with open countryside on some sides, as such urban heating effects would be unlikely to be felt. The small scale of these sites would also be likely to mean that heating networks are unlikely to be established as part of the developments. Where the sites are adjacent to existing settlements, it is very unlikely that they would be developing on areas suitable for wind energy generation, though there could be some overlap with viable areas. The dispersion of the sites as well as their relative small scales mean that it is assumed that the residential waste produced from these homes could be managed by existing waste collection services.

Overall, **minor negative effects** are predicted due to the propensity for some increased car use. Less dense, larger developments in peripheral locations are also generally more likely to lead to higher per capita emissions (depending upon the design standard).

c) Residual growth: Main urban area

South East Warrington Urban Extension (2400 dwellings)

Development in this location would be expected to deliver a range of onsite shops, services and facilities as well as providing access to similar amenities in nearby settlements. This should help to reduce the need to travel. It would also be likely to result in some improved sustainable transport provisions, likely providing a viable option for sustainable travel into central Warrington.

On the flip side, it is likely that some degree of car dependence would lead to an increased level of car use, driving up emissions / energy usage to some extent. The site would also, due to its size, be expected to deliver a significant amount of green infrastructure, helping with cooling. There would also be the chance for tree planting, helping to sequester CO₂. Where green infrastructure could be designed to be throughout the scheme in strategically placed networks, this should help with cooling effects and partly mitigate any potential increases in heating related to a large-scale change of land use from open countryside to residential development. The site's large scale would also be expected to support heat networks, helping with the site's energy efficiency. The site is on low-lying land with an escarpment to the west, making it unlikely to be developing on areas suitable for wind energy generation. This large area of growth would be likely to necessitate a new household waste collection service in the area, but efficient routes could be designed given the focused nature of development. Overall, minor negative effects are predicted reflecting the potential for increased emissions relating to transport and the built environment. The loss of greenfield land could be negative in terms of carbon release from soil, and would also affect the contribution made towards cooling in Warrington. However, with a focus on enhancements to GI, it could actually create potential to sequester carbon and assist with urban cooling (given that much of the land is currently agricultural in nature). Mixed **minor negative** and **moderately positive effects** are likely.

Fiddlers Ferry (1300 dwellings)

This site would be expected to deliver on site shops, services and facilities as well as providing access to similar amenities in the south west of Penketh; though, it should be noted that the on site facilities would be likely to be limited and those elsewhere in Penketh are not immediately adjacent to the site. This would be likely to lead to some increase need to travel to access shops, services or facilities where there is inadequate provision nearby. The site would also be likely to result in some limited improved sustainable transport provisions into central Warrington, however these may be fairly limited, meaning that it is likely that some degree of car dependence would lead to an increased level of car use, driving up emissions / energy usage to some extent. The site would also, due to its size, be expected to deliver some onsite green infrastructure, helping with cooling. There would also be the chance for some onsite tree planting, helping to sequester CO₂. Where green infrastructure could be designed to be throughout the scheme in strategically placed networks, this should help with cooling effects. Where this site is largely previously developed, additional heating effects from residential development are unlikely to be significant.

The site's relatively large scale would also be expected to support heat networks, helping with the site's energy efficiency. The site is on low-lying land, making it unlikely to be developing on areas particularly suitable for wind energy generation. This area of growth would be likely to necessitate a new household waste collection service in the area. Overall, **minor negative effects** are likely in relation to increased emissions from transport and homes, whilst these are offset to an extent by the potential for GI enhancement helping with adaptation (**minor positive effects**).

Thelwall Heys (310 dwellings)

This comparatively small scale site would be accessible into both Thelwall and Grappenhall, making access to the services, shops and facilities in these areas possible by sustainable means. However, it would be unlikely to deliver a substantial offering of these facilities on site, and these small surrounding urban areas would be unlikely to offer equal amenities as an areas such as central Warrington. As such, despite the potential for sustainable travel options, dominant behavioural normal dictate that car use to larger urban areas would be likely from the site, driving up CO2 emissions / energy usage to some extent. Whilst some limited onsite delivery of green infrastructure would be expected, this would not be likely to be a substantial delivery.

A plus side of the smaller scale of the development would be the fact that significant heating effects would be unlikely, reinforced by the fact that the southern and eastern extents of the site are abut to open countryside. The small scale of the site would also be likely to mean that a heating network would be unlikely to be established as part of the developments. Where the site is adjacent to existing settlements, it is very unlikely that they would be developing on areas suitable for wind energy generation. The small scale of the site is likely to mean that it is assumed that the residential waste produced from these homes could be managed by extensions to existing waste collection services. Overall, mixed **neutral effects** are predicted.

South West Urban Extension (1700 dwellings)

This site would be expected to deliver some onsite shops, services and facilities as well as providing access to similar amenities in Lower Walton. This should help to reduce the need to travel to some extent. It would also be likely to result in some improved sustainable transport provisions, likely providing a viable option for sustainable travel into central Warrington. On the flip side, it is likely that some degree of car dependence would lead to an increased level of car use, driving up emissions / energy usage to some extent. The site would also, due to its size, be expected to deliver some onsite green infrastructure, helping with cooling. There would also be the chance for some onsite tree planting, helping to sequester CO2 at least partially. Where green infrastructure could be designed to be throughout the scheme in strategically placed networks, this should help with cooling effects and partly mitigate any potential increases in heating related to a large-scale change of land use from open countryside to residential development. The site's relatively large scale would also be expected to support heat networks, helping with the site's energy efficiency. The site is on low-lying land, making it unlikely to be developing on areas suitable for wind energy generation.

This large area of growth would be likely to necessitate a new household waste collection service in the area. Overall, mixed **minor negative** and **moderately positive effects** are likely.

Summary

Under all options, the effects relating to 'Urban Capacity' growth (11,745) and 'Residual Growth: Outer Settlements' (875) are constant. The dense nature of development in the urban area should have positive effects with regards to high density, accessible developments, which are **minor positive effects** in terms of emissions. However, there could be a greater number of new homes in areas that suffer from heating effects in the urban areas (**minor negative effects**).

Option 1

In addition to the growth discussed above, this option would involve growth at the South East Warrington Urban Extension as well as the South West Urban Extension. Both sites would be expected to promote broadly similar effects. The more negative effects are expected to relate to some increased car use, driving up emissions/energy use, some potential small scale heating on site as well as necessitating additional waste collection services to cater for the population growth. More positively, the large scale of the site would increase the viability of delivering improved sustainable transport options, efficiency schemes and tree planting to help sequester carbon and improve resilience. Overall, mixed **minor negative** and **moderately positive effects** are likely.

Option 2

This approach would involve allocations at the South East Warrington Urban Extension alongside the Fiddlers Ferry site.

Effects relating to the South East Warrington Urban Extension would broadly replicate those set out above, with a magnitude related to the scale of planned growth within the area. Additional effects would be expected to relate to the growth at Fiddlers Ferry; these are likely to see some increased car dependency in the area as well as some reduced likelihood of heating effects. Overall, balancing out the likely effects from growth at both locations and considering the scale of proposed development at each site, mixed **minor negative** and **moderately positive effects** are likely.

Option 3

This option would involve growth at the South East Warrington Urban Extension, Fiddlers Ferry and Thelwall Heys. In this sense, the effects would be likely to be broadly aligned with the growth and effects outlined under Option 2, with some additional effects relating to the small-scale growth at Thelwall Heys. As outlined under the likely effects from this site, it is likely to promote effects of a reduced magnitude. There is the potential for some combined effects relating to the relative close proximity of growth at the South East Warrington Urban Extension site and Thelwall Heys; this would be likely to lead to beneficial effects at Thelwall Heys, where the residents could make the most of improved sustainable transport options

(associated with the large-scale growth at the South East Warrington Urban Extension). Overall, mixed **minor negative** and **moderately positive effects** are likely.

Option 4

This approach would involve housing growth at Fiddlers Ferry, the South West Urban Extension and Thelwall Heys. This would be expected to deliver some opportunities for improved sustainable travel to the south and south west of inner Warrington. Further to this, effects would be expected to be broadly similar from the two larger sites, relating to some delivery of green infrastructure (including trees), district heating opportunities alongside some potential increases in car related emissions and the likely need for new waste collection services in the areas of growth. The growth in Thelwall Heys would be expected to mimic that set out under Option 3, however without the anticipated combined effects. Overall, mixed **minor negative** and **moderately positive effects** are likely.

Option 5

The effects for this option mirror those for Option 4. Though the scale of growth is slightly lower (due to the omission of Thelwall Heys), the overall effects remain the same.

Observations

- Broadly speaking, the options perform similarly with regards to climate change. This is not unexpected given that the options involve similar strategies, with the main difference being the choice of residual development locations. Each location could bring about negative or positive effects, but the extent of these will be determined by scheme details. Of critical importance is to ensure that Green Infrastructure is integral to developments and helps to improve resilience as well as sequester carbon. This will offset changes to land use that could otherwise lead to increased urban heating and carbon storage capabilities in soil. In terms of the built environment, emissions will be dependent upon the efficiency standards achieved. Sites with other major costs and constraints to deal with may be less likely to be able to deliver an advanced sustainability performance in this respect.
- In terms of emissions / energy usage related to transport, the Fiddlers Ferry site performs less well compared to SWUE and the South East Warrington Urban Extension. However, the overall implications in terms of emissions are not likely to be significantly different between the options.

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1 (16,750)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000			
A) Urban Capacity												B)	C) Residual Green Belt						
														<i>SEWUE</i>			<i>SWUE</i>		

Option 2 (16,350)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000			
A) Urban Capacity												B)	C) Residual Green Belt						
														<i>SEWUE</i>			<i>FF</i>		

Option 3 (16,660)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000					
A) Urban Capacity												B)	C) Residual Green Belt								
														<i>SEWUE</i>			<i>FF</i>				<i>TH</i>

Option 4 (15,960)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000					
A) Urban Capacity												B)	C) Residual Green Belt								
														<i>FF</i>			<i>SWUE</i>				<i>TH</i>

Option 5 (15,650)

1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000					
A) Urban Capacity												B)	C) Residual Green Belt								
														<i>FF</i>			<i>SWUE</i>				

Appendix G: Appraisal of Urban Extension Options (Pre Submission 2021)

Option 1: Visual summary of effects

	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
	A) Urban Capacity												B) OS		C) Residual Green Belt			
Economy	[Green]													SEWUE		SWUE		
Health	[Green]														[Green]		[Yellow]	[Green]
Accessibility	[Green]														[Green]	[Yellow]	[Green]	
Housing	[Green]														[Green]		[Green]	
Soil	[Green]														[Red]	[Red]	[Red]	[Green]
Water quality	[Grey]														[Green]	[Green]	[Green]	
Air quality	[Yellow]														[Red]	[Red]	[Red]	[Red]
Resource use	[Green]														[Yellow]	[Yellow]	[Yellow]	[Yellow]
Flooding	[Grey]														[Orange]	[Orange]	[Grey]	[Grey]
Heritage	[Grey]														[Yellow]	[Yellow]	[Yellow]	[Yellow]
Landscape	[Grey]														[Orange]	[Orange]	[Orange]	[Orange]
Biodiversity	[Grey]														[Orange]	[Orange]	[Orange]	[Orange]
Climate change	[Green]														[Yellow]	[Yellow]	[Yellow]	[Yellow]

Option 2: Visual summary of effects

	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
	A) Urban Capacity												B) OS		C) Residual Green Belt			
Economy	[Green]													SEWUE		FF		
Health	[Green]														[Green]		[Yellow]	[Green]
Accessibility	[Green]														[Green]	[Yellow]	[Green]	[Yellow]
Housing	[Green]														[Green]		[Green]	
Soil	[Green]														[Red]	[Red]	[Red]	[Green]
Water quality	[Grey]														[Green]	[Green]	[Green]	
Air quality	[Yellow]														[Orange]	[Orange]	[Orange]	[Orange]
Resource use	[Green]														[Yellow]	[Yellow]	[Yellow]	[Yellow]
Flooding	[Grey]														[Orange]	[Orange]	[Grey]	[Grey]
Heritage	[Grey]														[Yellow]	[Yellow]	[Yellow]	[Yellow]
Landscape	[Grey]														[Orange]	[Orange]	[Orange]	[Orange]
Biodiversity	[Grey]														[Orange]	[Orange]	[Orange]	[Orange]
Climate change	[Green]														[Yellow]	[Yellow]	[Yellow]	[Yellow]

Option 3: Visual summary of effects

	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000	
	A) Urban Capacity												B) OS		C) Residual Green Belt			
Economy	[Green]													SEWUE		FF TH		
Health	[Green]														[Green]		[Yellow]	[Green]
Accessibility	[Green]														[Green]	[Yellow]	[Green]	[Yellow]
Housing	[Green]														[Green]		[Green]	
Soil	[Green]														[Red]	[Red]	[Red]	[Green]
Water quality	[Grey]														[Green]	[Green]	[Green]	
Air quality	[Yellow]														[Orange]	[Orange]	[Orange]	[Orange]
Resource use	[Green]														[Yellow]	[Yellow]	[Yellow]	[Yellow]
Flooding	[Grey]														[Orange]	[Orange]	[Grey]	[Grey]
Heritage	[Grey]														[Yellow]	[Yellow]	[Yellow]	[Yellow]
Landscape	[Grey]														[Orange]	[Orange]	[Orange]	[Orange]
Biodiversity	[Grey]														[Orange]	[Orange]	[Orange]	[Orange]
Climate change	[Green]														[Yellow]	[Yellow]	[Yellow]	[Yellow]

Option 4: Visual summary of effects

	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
	A) Urban Capacity												B) OS		C) Residual Green Belt		
Economy	[Green]													FF	SWUE	TH	
Health	[Green]																
Accessibility	[Green]																
Housing	[Green]																
Soil	[Green]																
Water quality	[Grey]																
Air quality	[Yellow]																
Resource use	[Green]																
Flooding	[Grey]																
Heritage	[Grey]													?			
Landscape	[Grey]																
Biodiversity	[Green]														FF	SWUE	TH
Climate Change	[Green]														FF	SWUE	TH

Option 5: Visual summary of effects

	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17,000
	A) Urban Capacity												B) OS		C) Residual Green Belt		
Economy	[Green]													FF	SWUE		
Health	[Green]																
Accessibility	[Green]																
Housing	[Green]																
Soil	[Green]																
Water quality	[Grey]																
Air Quality	[Yellow]																
Resource use	[Green]																
Flooding	[Grey]																
Heritage	[Grey]													?			
Landscape	[Grey]																
Biodiversity	[Green]																
Climate change	[Green]																

Discussion

Each option scores the same with regards to the urban area and outer settlements, which is to be expected given the sites involved are constant.

Option 1 is most likely to bring about cumulative effects given that all residual growth is directed to the south of Warrington. In particular, this could affect air quality. Combining the SEWUE and the SWUE is the only approach that gives rise to such negative cumulative effects.

Options that involve Fiddlers Ferry perform much more favourably with regards to soil, water and landscape when compared to the other locations. However, biodiversity impacts are more likely to be of greater significance.

Options involving the SEWUE are most likely to generate negative effects in terms of soil and landscape. However, in the longer term, there would be greater protection afforded to Green Belt given that this area involves considerable development beyond the Plan period.

Option 5 involves the lowest amount of growth, and an element of the residual growth is not as strong with regards to housing delivery. As such, this option is the least favourable from a housing perspective.

The addition of Thelwall Heys doesn't make much difference to any of the overall scores, with the exception of built heritage, but mitigation ought to be possible. Therefore, this site can be added to any of the larger site combinations to achieve additional flexibility without major negative effects arising.

APPENDIX H: APPRAISAL OF BROAD EMPLOYMENT AREAS

This appendix presents an appraisal of three broad employment areas identified as strategic options for the delivery of employment land requirements.

These options are not mutually exclusive, as the level of employment development required could not be delivered at one of these locations alone. However, undertaking an appraisal of these broad areas helps to understand the likely effects associated with development in these broad locations; which in turn can help to inform the employment strategy in the draft Plan. The appraisal of these broad areas makes assumptions about the quantum of growth that could be delivered and the likely site/sites that could be developed in each of these areas (as outlined in the table below).

<p>Option 1: Land at M56 Junction 9 (Total provided is based on consolidation of a number of individual sites into a strategic employment location.). Approximately 130ha, with a further 70ha at a northern extension</p>
<p>Option 2: Land at Warrington Waterfront</p> <ul style="list-style-type: none"> • Port Warrington site • 'Wider land' within waterfront
<p>Option 3: Land adjacent to Omega</p> <ul style="list-style-type: none"> • Call for sites – several site options • Westward extension (within St Helens) • Further extension in Green Belt 42ha
<p>Option 4: Fiddlers Ferry – 90ha non greenbelt, but requires enabling housing development in the Green Belt</p>
<p>Option 5: Birchwood – Total of 91ha of employment land in the Green Belt</p>

Methodology

The appraisal identifies and evaluates 'likely significant effects' on the baseline / likely future baseline associated with each alternative, drawing on the sustainability topics and objectives as a methodological framework.

The task of forecasting effects is inherently challenging due to:

- The high level nature of the policy measures under consideration;
- Being limited by definition of the baseline and (in particular) the future baseline;
- The ability of developers to design out/mitigate effects during the planning application stage.

In light of this, where likely significant effects are predicted this is done with an accompanying explanation of the assumptions made.¹⁵

It is important to note that effects are predicted based upon the criteria presented within the SEA Regulations.¹⁶ So, for example, account is taken of the nature of effects (including magnitude, spatial coverage and duration), the sensitivity of receptors, and the likelihood of effects occurring as far as possible. The potential for ‘cumulative’ effects is also considered. These effect ‘characteristics’ are described within the appraisal as appropriate under each sustainability topic. A table is also presented under each topic summarising the predicted effects and their characteristics (i.e. namely whether they are significant or not).

For each alternative, one of the following symbols has been allocated for each SA topic.

Significant negative effect	xxx	Minor positive effect	✓
Negative effect	xx	Positive effect	✓✓
Minor negative effect	x	Significant positive effect	✓✓✓
Neutral effect	↔	Effects are unclear	?

Economy and Employment

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
<p>Each of the options is likely to have a positive effect on the economy by providing land for employment opportunities in attractive locations.</p> <p>Employment development at Port Warrington and the wider Waterfront area contributes particularly well to the regeneration of the urban area, and ought to provide employment opportunities in proximity to areas of deprivation. A significant positive effect is predicted.</p> <p>Whilst Omega and the M56 (J9) employment areas are less likely to provide jobs that are more easily accessible to deprived communities (compared to the Port Warrington / Wider Waterfront), they are more attractive for strategic distribution and warehousing. Whilst providing local job opportunities, these locations should therefore also attract workers from a wider travel to work area. A significant positive effect is therefore predicted for Options 1 and 3. Further expansion opportunities exist in these locations, which would magnify the significance of effects.</p> <p>Option 4 is strategically less well placed with regards to distribution and warehousing opportunities. However, it is close to west Warrington, Widnes, Runcorn and could provide opportunities as part of the Atlantic Gateway growth corridor.</p> <p>Option 5 has excellent accessibility, with close proximity to the M6 and other strategic road networks. It is also relatively close to a train station and existing employment uses.</p>				

¹⁵ As stated by Government Guidance (The Plan Making Manual, see <http://www.pas.gov.uk/pas/core/page.do?pagelid=156210>): "Ultimately, the significance of an effect is a matter of judgment and should require no more than a clear and reasonable justification."

¹⁶ Schedule 1 of the Environmental Assessment of Plans and Programmes Regulations 2004

Health and Wellbeing

M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
✓	✓ / ?	✓ / ?	✓	✓
<p>Development at any of the broad employment areas would not have effects upon formal open space or green infrastructure networks. The effects on wellbeing are therefore neutral in this respect.</p> <p>With regards to community safety, the development of land for employment opportunities ought to help tackle unemployment and elements of deprivation in the long term, both of which are contributors to crime. There could therefore be some minor positive effects in the long term as a result of development in any of these broad employment areas.</p> <p>With regards to health, the development of land for employment opportunities ought to help tackle unemployment and elements of deprivation in the long term, both of which are contributors to health and wellbeing more generally. There could therefore be some minor positive effects in the long term as a result of development in any of these broad employment areas.</p> <p>Access to the sites by active modes of travel (i.e. walking and cycling) is likely to vary and only benefit those communities that are in fairly close proximity. For Omega and Port Warrington, there are existing communities in the Warrington urban area that could potentially access the sites via active modes of travel. Fiddlers Ferry would be accessible by cycling to communities at the west of Warrington and also at Widnes, but walking is considered less likely. A similar situation exists for the Birchwood broad location. For the M56/J9 site, the development would be less accessible by these modes of travel to communities in the existing urban area. However, they should be accessible to communities if an urban extension is proposed in south east Warrington.</p> <p>Effects upon amenity are not anticipated to be significant at the broad employment area at Port Warrington / Waterfront and at the M56/J9. However, there will be a need to ensure that impacts on Promenade Park do not occur from development at Port Warrington. Therefore, a potential minor negative effect is noted.</p> <p>At Omega, the effects ought to be neutral dependent upon the location and magnitude of growth. For example, development to the north west could potentially have implications for residents at Kingswood. Therefore, an uncertain effect is recorded for option 3.</p> <p>At Fiddlers Ferry, effects on amenity are considered unlikely give that the site is already in industrial use. Therefore, neutral effects are predicted in this regard.</p> <p>At the Birchwood broad location, the adjacent land uses are not residential, and therefore neutral effects are likely with regards to amenity and wellbeing.</p>				

Accessibility

Option 1	Option 2	Option 3	Option 4	Option 5
?	?	?	?	?
<p>The M56/J9 broad employment area does not have strong existing public transport links. Therefore, increased development in this area would be likely to encourage car use. It's good connection to the motorway network could also encourage car usage, particularly from longer distance commuters. However, if an urban extension is proposed in south east Warrington development here could support new public transport services into this area, which would help to increase levels of usage from within Warrington. Improvements to the strategic road network would also be anticipated, to accommodate new development and relieve congestion.</p> <p>Development at Port Warrington and the wider Waterfront is not currently accessible by public transport, but enhanced links to the site would be essential as part of development. Nevertheless, development would be expected to increase car usage, which could put pressure on local road networks. This could potentially affect levels of congestion, but supporting infrastructure would need to be developed prior to employment being brought forward.</p> <p>Development at Omega would be supported by some existing public transport links, though access to the site itself would still involve considerable walking from bus stops. Therefore, increased development would still be expected to lead to increases in car usage. Commuters from farther distances would also be expected to use car travel, especially given its strong links to the M62. There are concerns regarding the cumulative impact of additional development at Omega on the M62 J8.</p> <p>With regards to improved connectivity for pedestrians and cyclists; Port Warrington / Waterfront presents opportunities to enhance canal routes and strengthen links to the town centre. The opportunities for walking and cycling at the M56/J9 employment area are considered to be lesser, as there are no nearby residential areas or (current) local centres to link to.</p> <p>Access to the Fiddlers Ferry location there are bus stops along the A562 with fairly regular services towards Warrington and Widnes. This should support those wishing to use public transport to access employment. Walking and cycling links are not as strong, and car usage is also expected.</p> <p>The Birchwood location is broadly well located with regards to public transport with a train station nearby and established bus routes. A degree of car usage would still be anticipated though given the fringe location of development. Some communities could potentially cycle to employment opportunities, but not many would be capable of walking given its peripheral location.</p> <p>Overall, uncertain effects are predicted for each option with regards to accessibility. Whilst each option is expected to increase car trips and HGV traffic, each could potentially include improvements to transport infrastructure and public transport services. Each location is broadly supported by exiting public transport, though the more peripheral sites such as the M56 and Fiddlers Ferry are less well serviced and may require upgrades.</p>				

Housing

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
-	-	-	✓	-
<p>Options 1, 2, 3 and 5 are is predicted to have a neutral effect on housing, as they will not contribute to new housing.</p> <p>Development within the broad locations for employment is considered more suitable for employment rather than housing given that they are adjacent existing employment uses (for options 1, 3 and 5 in particular).</p> <p>There is sufficient land available to deliver housing needs on more appropriate sites, and therefore development at these broad locations for employment would not affect housing delivery.</p> <p>Option 4 is slightly different, in that it would involve supporting housing development. As such, minor positive effects are predicted.</p>				

Natural resources: Land Resources

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
xx / xxx	-	-	✓✓	xxx
<p>Land at M56 J9 is classified as a mix of Grade 2 and Grade 3 agricultural land. Development would be likely to result in the loss of over 60ha of agricultural land, and therefore a significant negative effect is predicted. With a northern expansion a further 70ha of grade 2 / 3 land would be affected, which increases the magnitude of negative effects.</p> <p>Port Warrington and the majority of land in the Waterfront area is classified as non-agricultural, and therefore development at this broad location would have neutral effects.</p> <p>Land at Omega / Lingley Mere is mainly classified as non-agricultural, and therefore development would have a neutral effect.</p> <p>Fiddlers Ferry consists of brownfield land for the employment area, and as such promotes the efficient use of land. This is a moderate positive effect.</p> <p>Development at Birchwood would overlap predominately with Grade 2 agricultural land, and with a larger quantum of growth, this could extend into areas of Grade 1 agricultural land. The effects therefore range from minor to moderate negative.</p> <p>With regards to mineral resources, there is potential overlap with peat resources at Birchwood, which would be a significant negative effect given the importance of this resource. The broad location is also covered extensively by a Mineral Safeguarded Area for sand and gravel. The other broad locations are less sensitive with regards to minerals, and therefore neutral effects are predicted in that regard.</p>				

Natural resources: Water quality

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
-	-	-	-	-
None of the broad employment areas fall within Groundwater Protection Zones. The effects are therefore predicted to be neutral for each option.				

Natural resources: Air quality

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
x	x	x	x	x
<p>Each of the options will increase the amount of vehicular trips to and from the employment locations. This will include commuting and business trips; which would also involve an increase in HGV trips, particularly to the M56(J9) site, the Omega site and the Birchwood site (given their attractiveness to warehousing and distribution uses). The potential effects on air quality are likely to be negative and there may also be infrastructure improvements that could minimise these effects.</p> <p>In terms of the effect of air quality on human health, it is more likely that an increase in trips along routes through residential and town centre areas would have negative effects (through greater exposure). In this respect, option 1, would be the least likely to have negative effects, as the routes along which air quality could be most affected (i.e. the M56, M6 and B536) are not in close proximity to residential receptors along the majority of routes. In contrast, trips towards Port Warrington / Waterfront (option 2) could worsen air quality along routes that pass through residential areas into the inner parts of Warrington. Without investment in road infrastructure (i.e. Warrington Western Link road) this could have negative effects. Compared to options 1, 3 and 5, the employment development likely to take place at the Waterfront would have greater potential to make use of non-road modes of travel such as the canal and rail connections. Therefore, HGV movement (which has greater implications for air quality) would not be expected to be as prominent.</p> <p>Omega would also attract increased trips, and whilst the majority would be likely to increase air quality issues along the M62 (i.e. away from human receptors), there are some communities that could be affected by changes to air quality. For example those adjacent to the routes into Omega such as Burtonwood Road and Lingley Green Avenue. Development in this location is also likely to have cross boundary effects, with roads through St Helens being affected by increased traffic. With a higher scale of growth, the magnitude of effects would be increased.</p> <p>Fiddlers Ferry could attract increased traffic along the A562, but there are no prevalent air quality issues in this location. The potential for cross boundary impacts in Widnes are likely to be high, but the significance of effects would likely be minor.</p> <p>The Birchwood location sits alongside the M6 and therefore adjacent to air quality management areas. Junction 21 in particular could be affected by increased traffic and deterioration in air quality. Employment uses would not be built adjacent to any residential areas, but there could be some increased traffic through exiting communities such as along the A57.</p> <p>Overall, each option is predicted to have a minor negative effect on air quality.</p> <p>In terms of cumulative effects, inclusion of the M56 J9 location and the Birchwood location would be most likely to contribute to a continuation of air quality issues along the motorway network. This is even more so when considering proposed and committed employment at junctions 22, 23 and 25 of the M6.</p>				

Natural resources: Flooding

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
-	xx	-	-	-
<p>Land at M56 J9 falls entirely within flood zone 1 and therefore effects on flood risk are predicted to be neutral. To the north where further expansion could take place, there are several brooks, but the majority of the area is also within Flood Zone 1.</p> <p>Large amounts of Port Warrington and parts of the wider Waterfront area fall within flood zone 2/3. Consequently, a potential moderate negative effect is predicted.</p> <p>Land at Omega falls entirely within flood zone one, and therefore effects on flood risk are predicted to be neutral. Additional land for further expansion would also largely fall within Flood Zone 1, and effects would broadly be the same.</p> <p>At Fiddlers Ferry the site falls entirely within Flood Zone 1. Though the site is adjacent to the River Mersey floodplain, it ought to be possible to manage any issues on or off site. As such, neutral effects are predicted.</p> <p>At Birchwood, though the site is intersected by Fishington Brook, and is close to the Manchester Ship Canal, the developable area falls within Flood Zone 1. As such, neutral effects are predicted.</p> <p>It is assumed that changes to surface water run-off could be managed appropriately through plan policies that require sustainable drainage systems.</p>				

Built heritage

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
xx	-	-	-	-
<p>Development in the broad employment area at M56 J9 (Option 1) could potentially have effects upon several listed farm buildings, whether that is through a direct loss of such assets, or effects upon their settings. The setting of Bradley Hall Moated Site (Ancient Monument) could also be affected by development in this location. There is potential to mitigate effects through the use of landscape buffers and avoiding the more sensitive locations. However, a residual negative effect will remain given that the nature of the area will change significantly and permanently.</p> <p>Development at Port Warrington and the wider Waterfront area is unlikely to significantly affect the character of urban built up areas, or countryside settlements. However, there are grade 2 listed assets (Moore Lane Bridge), which forms part of an entrance to the site along Moore Lane. Development is not considered likely to have a significant effect on the setting of the bridge. Increased traffic into the Port Warrington site could possibly affect its condition should Moor Lane experience increased throughput. However, access to the site would be from a new link road. Therefore, significant effects are unlikely. There is also a Grade 2 listed Transporter Bridge, but the effects ought to be possible to mitigate given it is 1km from the site.</p> <p>Development at Omega is unlikely to have significant effects upon the historic environment. There are no designated or locally important assets located on the potential sites. There is only one designated asset within fairly close proximity, which is a moated site at Barrow Old Hall. However, development at Omega would be unlikely to affect this asset as it would not affect its setting.</p> <p>There are limited historical assets and features in the vicinity of the Fiddlers Ferry location; including both the employment and housing elements. As such, neutral effects are predicted.</p> <p>There are limited historical assets or features within the vicinity of the Birchwood broad opportunity area. As such, neutral effects are predicted.</p>				

Landscape

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
xx	x	? / x	✓	xx
<p>Development at the M56 J9 employment area falls largely within the Red Sandstone Escarpment local character area (3a Appleton and Grappenhall). The character area covers a rather large amount of land, and so it has different features and sensitivities. Broadly, this area is reasonably well-wooded with a diversity of features in the landscape, including small ponds, ridges, knolls and incised stream valleys. The agricultural landscape including hedgerows appears generally well-maintained and the area presents an attractive rural quality. This area is however particularly sensitive to further building development. Development here would extend considerably into the countryside, though it would be bounded by the M6 to the east and the M56 to the south. A potential negative effect is predicted.</p> <p>Development at Port Warrington and the wider Waterfront area falls within the Mersey Flood Plain, which is characterised by industrial activity. However, parts of this landscape type have become important for wildlife, and present important landscapes against the generally lower quality of the surrounding areas. Port Warrington falls within a local wildlife site and therefore could be sensitive to development. Other parts of the wider Waterfront are less sensitive to development. Overall, there is potential for minor negative effects on landscape character, though it ought to be possible to introduce enhancement measures.</p> <p>Development at Omega would fall into the broad character area Type 4: Level Areas of Farmland and Former Airfields (4b Former Burton Airfield). This is characterised by open views from the M62, which has a visual and audible dominance. This area has previously been considered to have low landscape sensitivity, but the peripheral parts of the former airfield site have benefited from natural regeneration. It is likely that these features could be retained as part of development, but an uncertain negative effect is recorded as a precautionary measure to reflect the potential damage to these features. A western extension into St Helens would have effects outside of Warrington, but these are not anticipated to be significant given that there is a large tract of countryside between Omega and the nearest settlement in St Helens. With a further extension, the potential for negative effects is somewhat increased and so minor negative effects are predicted.</p> <p>The brownfield element of the Fiddlers Ferry site is currently industrial in nature and the power station is visible from a wide geographical area. It does not currently contribute positively towards the local landscape character or openness of the Green Belt. Redevelopment is therefore expected to have a positive effect in this regard. Housing development will need to come forward to support the employment element, which would take place on an area of Green Belt. Considering the current site use and adjacent areas (a disused power station and associated land uses), the development of this site with design and landscaping which is sensitive to the surrounding landscape types could promote minor positive effects upon the landscape.</p> <p>At Birchwood, the broad location falls mainly within Green Belt parcels that are classed as 'strong'. The landscape is also considered to be sensitive to change. The potential effects on landscape could therefore be significantly negative.</p>				

Biodiversity and Geodiversity

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
-	xx	-	xx	xx
<p>There are no designated wildlife sites within close proximity to the broad employment area at M56 J9. There are some pockets of woodland orchard within the area, but it is probable that these could be protected and/or enhanced through landscaping. Consequently, it is considered unlikely that there would be significant effects on important wildlife habitats.</p> <p>Port Warrington and the wider Waterfront area are in close proximity to a number of local wildlife sites. In particular, Port Warrington contains parts of a local wildlife site, which could be disturbed during construction and operation of employment development. This presents the opportunity for negative effects on wildlife in the short, medium and long term.</p> <p>Development on land at Omega would not be likely to affect designated habitats, being relatively distant from the nearest wildlife sites. Though parts of the area contain biodiversity action plan habitat (woodland orchard), it should be possible to avoid such habitats, or to secure mitigation / enhancement measures.</p> <p>The location of employment land at Fiddlers Ferry is broadly brownfield but also contains mature trees and hedgerows with potential to be supporting protected species and several small areas of BAP priority habitats. Whilst development can likely avoid the loss of BAP habitats, it is likely to result in some loss to unprotected areas of trees, hedgerows and grasses which likely provide important undisturbed ecological connectivity between the BAP habitats onsite, LWS to the south and the potential LWS to the east. This site needs to be supported by housing growth to the south, which falls within the Impact Zone for the Mersey Estuary SSSI with potential for development to have adverse effects from recreational pressures and pollution. Should ecological surveys reveal that the current areas for housing growth are low value, then the potential for net biodiversity gain exists. At this stage, a precautionary approach is taken and minor negative effects are predicted in relation to the nearby Mersey Estuary. In addition, the developable area itself falls within a local wildlife site and direct impacts on the function and connectivity of this habitat is likely. Cumulatively, a significant negative effect is predicted overall.</p> <p>Birchwood is in a relatively sensitive location with regards to biodiversity, being adjacent to / overlapping with Rixton Moss Local Wildlife Site, being adjacent (in part) to Woolston Eyes SSSI and being in the vicinity of Manchester Mosses SAC. Employment development has the potential to have permanent negative effects through disturbance and a loss of greenfield land.</p> <p>In line with the mitigation hierarchy it is preferable to avoid impacts before seeking mitigation and as a last resort compensation. Therefore, whilst biodiversity net gain could be sought at any of these broad locations, those that are less constrained are more favourable. In this respect, options 2, 4 and 5 perform worse than options 1 and 3.</p>				

Climate change and resource use

1. M56 J9	2. Waterfront	3. Omega	4. Fiddlers Ferry	5. Birchwood
x	x	x	x / ✓	xx

Discussion of effects

Development at Omega is considered unlikely to present opportunities to establish a decentralised energy network. The type of employment established would not involve sufficient heat demand, nor would there be housing or other forms of development to support a network. At Port Warrington / Waterfront, there are other uses that could support a decentralised energy network, though there may be physical barriers such as the Manchester Ship Canal. Therefore, at both of these broad areas, a neutral effect is predicted.

At the M65/J9, employment on its own would be unlikely to support a new energy network, but as part of a wider urban extension, there may be potential. At this stage, the effects are predicted to be neutral as there is no solid evidence to support a network.

At Fiddlers Ferry the potential for decentralised energy development is unclear, but no particular opportunities have been identified. Therefore neutral effects are predicted in this respect.

At Birchwood the potential for decentralised energy development is unclear, but the types of employment uses involved and a lack of nearby residential uses and heat sources make it unlikely to be particularly attractive. Therefore, neutral effects are predicted.

None of the sites are considered likely to offer significant opportunities to secure strategic enhancements to the green infrastructure network, and therefore effects upon climate change resilience are predicted to be neutral.

Development of employment land at each of the broad locations will lead to the generation of waste during construction and the operation of development. This would be the case regardless of location though, and therefore each option is predicted to have similar effects (assuming the scale and type of development is comparable). The potential to minimise waste generation during construction and operation could be supported through plan policies, though it is important to acknowledge that the efficiency of building design is mostly guided by national standards. A minor negative effect is recorded to reflect the potential for increased levels of waste overall.

In terms of resource use and efficiency, the development of employment land will require the use of resources during the building and construction phase. In this respect, each option will have negative effects. Fiddlers Ferry, could potentially involve a lower overall embodied resource use if existing materials are reused following demolition, and / or through making use of existing infrastructure. In this respect a minor positive is recorded. On the other hand, Birchwood location could involve the loss of peat resources, which are valuable for a range of reasons, not least their contribution to carbon sequestration. There would also be overlap with a sand and gravel MSA.. As a result, the negative effects for this option are greater than the others overall.

Summary of appraisal findings

	Economy and regeneration	Health and wellbeing	Accessibility	Housing	Natural resources: Land resources	Natural resources: Water Quality	Natural Resources: Air Quality	Natural resources; resource efficiency	Natural resources: Flooding	Built Heritage	Landscape	Biodiversity and Geodiversity	Climate change and resource use
Option 1: M56 (J9)	✓✓✓	✓	?	-	xx	-	x	x	-	xx	xx	-	x
Option 2: Waterfront	✓✓✓	✓ / ?	?	-	-	-	x	x	xx	-	x	xx	x
Option 3: Omega	✓✓✓	✓ / ?	?	-	-	-	x	x	-	-	? / x	-	x
Option 4: Fiddlers Ferry	✓✓✓	✓	?	✓	✓	-	x	x	-	-	✓	xx	x / ✓
Option 5: Birchwood	✓✓✓	✓	?	-	xxx	-	x	x	-	-	xx	xx	xx

Each of the broad employment areas is likely to have a significant positive effect upon the economy by supporting employment growth in areas that are attractive to business and / or could benefit communities of need. This ought to have knock-on benefits for health and wellbeing.

A neutral effect is predicted for all of the options with regards to water quality.

Options 1, 2 and 5 are likely to lead to a loss of best and most versatile agricultural land, but this is the most prominent for options 1 and 5.

Each option is predicted to have a minor negative effect on air quality, as employment growth is likely to contribute to increased car and HGV trips in close proximity to AQMAs and / or along busy routes.

A minor negative effect is predicted for resource use and efficiency, as employment growth will lead to an increase in the generation of waste. The exception is Option 4, which has some minor benefits with regards to the reuse of materials. Option 5 is also scored more negatively than all other options because it could have implications for peat resources.

Appendix H: Appraisal of Employment Locations

The effects on built heritage are significant for option 1, as the location involves several listed farmhouses and a scheduled monument. The effects for all other options are predicted to be less prominent.

The effects on landscape are also most prominent for option 1 and 5, which would involve greater intrusion into the countryside.

There are negative effects on biodiversity for options 2, 4 and 5. Whilst mitigation is a possibility, this could be more difficult for Option 2, which would heavily affect an existing local wildlife site. As such, significant effects are predicted. The potential for net gain exists for all of the options, but it is preferable to avoid impacts on existing sites, as such options 1 and 3 perform the best in this respect.

APPENDIX I: APPRAISAL OF EMPLOYMENT GROWTH OPTIONS

Option 1a – The proposed approach

Option 2a – Meet local needs only through the Waterfront (220.93 ha)

- Existing supply - 83.91 ha+ 31.46 ha
- St Helens Omega Extension - 31.2ha
- Port Warrington - 74.36ha

Option 2b – Meet local needs only at a Garden Village (223.57 ha)

- Existing supply - 83.91 ha + 31.46 ha
- St Helens Omega Extension - 31.2ha
- Smaller scale Garden Village – 77 ha

Option 2c - Meet local needs only through dispersal (223.61 ha)

- Existing supply - 83.91 ha + 31.46 ha
- St Helens Omega Extension - 31.2ha
- Dispersal to Waterfront Business Hub (25.47ha), Burtonwood (11.5ha), Winwick (8.77ha) Rixton (9.3ha) and Barleycastle (22ha)

Methodology

The appraisal identifies and evaluates 'likely significant effects' on the baseline / likely future baseline associated with each alternative, drawing on the sustainability topics and objectives as a methodological framework.

The task of forecasting effects is inherently challenging due to:

- The high level nature of the policy measures under consideration;
- Being limited by definition of the baseline and (in particular) the future baseline;
- The ability of developers to design out/mitigate effects during the planning application stage.

In light of this, where likely significant effects are predicted this is done with an accompanying explanation of the assumptions made.¹⁷

It is important to note that effects are predicted based upon the criteria presented within the SEA Regulations.¹⁸ So, for example, account is taken of the nature of effects (including magnitude, spatial coverage and duration), the sensitivity of receptors, and the likelihood of effects occurring as far as possible. The potential for 'cumulative' effects is also considered. These effect 'characteristics' are described within the appraisal as appropriate under each sustainability topic. A table is also presented under each topic summarising the predicted effects and their characteristics (i.e. namely whether they are significant or not).

For each alternative, one of the following symbols has been allocated for each SA topic.

Significant negative effect	xxx	Minor positive effect	✓
Negative effect	xx	Positive effect	✓✓
Minor negative effect	x	Significant positive effect	✓✓✓
Neutral effect	⇔	Effects are unclear	?

¹⁷ As stated by Government Guidance (The Plan Making Manual, see <http://www.pas.gov.uk/pas/core/page.do?pagelid=156210>): "Ultimately, the significance of an effect is a matter of judgment and should require no more than a clear and reasonable justification."

¹⁸ Schedule 1 of the Environmental Assessment of Plans and Programmes Regulations 2004

Economy and employment

Option 1a	✓✓✓	Option 2a	✓✓?	Option 2b	✓	Option 2c	✓
<p>With regards to the overall level of growth involved, Option 1a is predicted to have significant positive effects as it will contribute more proactively towards the economic aspirations of the borough. Options 2a, 2b and 2c are predicted to have less prominent positive effects as they would not seek to take advantage of strategic opportunities, would provide fewer job opportunities for residents and would be less positive with regards to regeneration and tackling deprivation.</p> <p>With regards to the distribution of sites, those involved for Option 1a have been identified as the best performing in terms of suitability and deliverability for B2 / B8 uses (ENDA Update 2018). The broad locations involved (Waterfront, Garden Suburb) both possess large sites that are suitable for strategic uses such as industrial warehousing and logistics. The Waterfront location in particular ought to help tackle deprivation in the inner areas of Warrington providing good transport links are made.</p> <p>For the lower levels of growth, there are three different options. These involve a variety of different locations for development.</p> <p>Option 2a involves development at the Waterfront, which is currently inaccessible. However, the Western Link Road would pass through this site opening it up to businesses and residents alike. The site is also identified as performing well in terms of suitability and deliverability for B2 / B8 uses (ENDA Update 2019). This site also has the unique characteristic of being able to support water-based freight, which could be particularly positive with regards to the opportunities offered by the Liverpool Superport. Consequently, the effects of this option could potentially be more pronounced compared to alternatives 2b and 2c.</p> <p>Option 2b involves development to support a Garden Suburb (i.e. an expansion to Barleycastle). This is a suitable location to provide high quality employment and it would link well to the spatial options that involve a garden suburb. However, it is not likely to be the best performing option in terms of supporting regeneration and transformational change in the inner parts of Warrington. Therefore, the overall benefits are predicted to be minor.</p> <p>Option 2c would disperse growth to several sites. Several of these have been identified as suitable for supporting local and / or employment needs (i.e. Burtonwood, Winwick) and the potential for smaller scale development at the Waterfront, Rixton and Barleycastle could also form part of such an approach. This option would bring positive effects across a larger spatial area within the Borough (which could be more beneficial to a wider range of communities in terms of accessible employment). However, the benefits of achieving significant effects in the inner parts of Warrington would be lower, and the distribution of development would be less well matched to the preferred approach to housing growth (though would still be broadly acceptable in terms of access to jobs, but could encourage more of a reliance upon cars). Overall, a minor positive effect is predicted.</p>							

Health and Wellbeing

Option 1a	✓✓	Option 2a	✓?	Option 2b	✓?	Option 2c	✓?
<p>Development at all the broad employment areas would not have effects upon formal open space (though Port Warrington would affect a local wildlife site). The effects on wellbeing are therefore neutral in this respect.</p> <p>With regards to community safety, the development of land for employment opportunities ought to help tackle unemployment and elements of deprivation in the long term, both of which are contributors to crime. There could therefore be some minor positive effects in the long term as a result of development in any of these broad employment areas.</p> <p>With regards to overall levels of growth, option 1a is most positive, as it would provide a larger number of jobs for residents.</p> <p>With regards to health, the development of land for employment opportunities ought to help tackle unemployment and elements of deprivation in the long term, both of which are contributors to health and wellbeing more generally. There could therefore be some minor positive effects in the long term as a result of development in any of these broad employment areas.</p> <p>Access to the sites by active modes of travel (i.e. walking and cycling) is likely to vary and only benefit those communities that are in fairly close proximity. For Port Warrington, there are existing communities in the Warrington urban area that could potentially access the sites via active modes of travel. For the Barleycastle site, the development would be less accessible by these modes of travel to communities in the existing urban area. However, they should be accessible to communities as part of a Garden Suburb.</p> <p>At Burtonwood, Winwick and Rixton, there would also be communities within walking/cycling distances, and again these would benefit local areas the most.</p> <p>Effects upon amenity are not anticipated to be significant at the broad employment areas at Waterfront, Burtonwood, Barleycastle (though some properties along roads could suffer from an increase in traffic).</p> <p>Effects on amenity could potentially be more notable at Winwick as the employment sites are within close proximity to existing residential communities. Likewise, there are potential amenity impacts on residents at Promenade Park to be affected by development at Port Warrington, which would need to be addressed.</p> <p>Overall, option 1a is predicted to have a positive effect, as it provides the most jobs, helps in terms of regeneration of inner Warrington, and could promote active travel. However, the loss of an area of green infrastructure (Moore Nature Reserve) would be negative unless compensatory open space was secured. There is also the need to address potential amenity concerns at Port Warrington. The overall effects are therefore predicted to be moderate positive effects.</p> <p>The positive effects in terms of job creation are lower for options 2a, 2b and 2c. In terms of amenity, option 2c could have a slightly more negative approach given the proximity to exiting communities at Winwick. Uncertain positive effects are predicted in relation to active travel though for 2b (as the Barleycastle site is less well related to existing communities).</p>							

Accessibility

Option 1a	✓✗	Option 2a	✓	Option 2b	✓	Option 2c	✓✗
<p>Development at Port Warrington and the wider Waterfront is not currently accessible by public transport, but enhanced links to the site would be essential as part of development. Nevertheless, development would be expected to increase car usage, which could put pressure on local road networks. This could potentially affect levels of congestion, but supporting infrastructure would need to be developed prior to employment being brought forward. This location also offers the potential for rail and water based freight movements, which could release some pressure on roads locally.</p> <p>The M56/J9 broad employment area does not have strong existing public transport links. Therefore, increased development in this area would be likely to encourage car use. Its good connection to the motorway network could also encourage car usage, particularly from longer distance commuters. However, as part of a wider Garden Suburb, development here could support new public transport services into this area, which would help to increase levels of usage from within Warrington. Improvements to the strategic road network would also be anticipated, to accommodate new development and relieve congestion.</p> <p>Development at the Burtonwood site would be supported by some existing public transport links to the Omega site), though access to the site itself would still involve considerable walking from bus stops. Therefore, increased development would still be expected to lead to increases in car usage. Commuters from farther distances would also be expected to use car travel, especially given its strong links to the M62.</p> <p>With regards to improved connectivity for pedestrians and cyclists; Port Warrington / Waterfront presents opportunities to enhance canal routes and strengthen links to the town centre. The opportunities for walking and cycling at the M56/J9 employment area are considered to be lesser, as there are no nearby residential areas or local centres to link to (currently).</p> <p>At Rixton, development would also be accessible to some communities via public transport, but as there is no existing employment area, new services would need to be established. The site is also well related to a motorway junction, but this would encourage car trips.</p> <p>At Winwick, employment land would be accessible to communities using existing roads and public transport infrastructure. There would also be good access to the M6 and M62 motorways. However, increased traffic and congestion in this area could be problematic.</p> <p>Overall, option 1a is predicted to have the most pronounced effects in terms of the amount of car trips and HGV traffic generated. In terms of the location of employment opportunities, access ought to be relatively good for communities in inner Warrington in respect of Port Warrington. At Barleycastle, access would be less attractive for existing communities, but would be well matched to new communities within a Garden Suburb. Both minor positive and minor negative effects are predicted.</p> <p>For lower levels of growth, the amount of trips would be less pronounced, but there could still be negative effects in certain locations given the pressure on highway networks. For example, increased dispersal to the north of the borough at Winwick and Burtonwood. This is a minor negative effect for option 2c. Broadly speaking, the locations for growth would be accessible to existing communities by public transport and active travel (for immediate communities), so minor positive effects are predicted for each option.</p>							

Housing

Option 1a	✓✓	Option 2a	✓✓	Option 2b	✓✓	Option 2c	✓
<p>With the exception of sites around Winwick, none of the sites that would be involved for employment development are particularly suitable for housing as a potential alternative use. In this respect, the effects are broadly neutral.</p> <p>At Barleycastle, there is an existing employment area, which makes residential development inappropriate. Likewise, the sites involved within the Waterfront are at risk of flooding, which makes them less suitable for housing. At Rixton and Burtonwood the sites would be relatively isolated from local services, and so are considered less suitable for housing. At Winwick, sites are close to existing housing developments, and they could potentially be suitable for such uses.</p> <p>In this respect, the dispersed option performs slightly worse as it could involve land that would otherwise be suited for housing. The implications would be negligible though.</p> <p>In terms of linking new employment opportunities to new and existing housing, options that involve the Waterfront are positive, as it is within the main urban area (where most growth is likely to occur). Likewise, substantial housing growth at a Garden Suburb would be well supported by options that involve employment land at Barleycastle. In this respect, Option 2c performs less well.</p> <p>In terms of overall levels of growth, option 1a could create a greater demand for housing locally (as there would be more local jobs available which could increase in-migration). This is positive in one respect as it will help to drive housing developments that are needed. However, it also necessitates greater Green Belt release, and drives up demand for housing, which offsets the positives somewhat. Therefore, the effects for 1a are predicted to be moderately positive.</p> <p>For the lower growth options, it ought to be easier to meet the housing needs of the population as there would likely be fewer jobs available. The demand would not be likely to be substantially different, but it could help to ensure that 'competition' for housing is lower (though it should be noted that fewer jobs might only obscure demand for housing if there are fewer people in employment that wish to form a household). As a consequence moderate positive effects are also predicted. The exception is for option 2c, which performs less well in terms of the distribution of employment land (thus a minor positive effect).</p>							

Natural Resources: *Agricultural land*

Option 1a	xx	Option 2a	-	Option 2b	x	Option 2c	x
<p>There are a range of broad locations where employment could occur. Each is discussed below with regards to agricultural land.</p> <p>Waterfront / Port Warrington – This is non-agricultural land, and so there would be no effects.</p> <p>Barleycastle / garden village – There are substantial amounts of agricultural land classified as mostly Grade 3, with a smaller pocket of Grade 2. It is known that parts of this location are classified as Grade 3a.</p> <p>Burtonwood - Agricultural land Classified as Grade 2 would be lost.</p> <p>Winwick – The sites involved are a mix of Grade 2 and Grade 3a land. There would therefore be a small loss of best and most versatile land.</p> <p>Rixton – There is a large area of Grade 1 land that should be avoided, but the remaining areas are Grade 2. There would therefore be a loss of best and most versatile land in this location.</p> <p>For Option 1a, land at the Waterfront is not best and most versatile agricultural land. However, there would be a loss of Grade 3a land and smaller parts of Grade 2 land at the Garden Suburb (up to 115ha). This is a moderate negative effect.</p> <p>For the lower growth options, the amount of land lost would be lower for all three options, For Option 2a agricultural land would be totally avoidable, and so neutral effects are predicted.</p> <p>For 2b, a loss would still occur at the Garden Suburb, but of a lesser scale, potentially allowing for Grade 2 land to be avoided also. Therefore, only minor negative effects are predicted.</p> <p>For 2c, a dispersed approach would involve the loss of agricultural land in several places and much of this would likely be Grade 2. Should smaller scale development be involved at the Waterfront this element would not be agricultural though, and smaller growth at Barley Castle would give greater flexibility to avoid Grade 2 and 3a lands. Therefore only minor negative effects are predicted.</p>							

Natural Resources: *Water quality*

Option 1a	x	Option 2a	x	Option 2b	-	Option 2c	-
<p>Effects upon water quality would be expected to be managed through the application of environmental management / licensing arrangements. In this respect, different options shouldn't lead to significantly different effects.</p> <p>The type of land use is important in terms of the potential for effects upon water quality. For example, agricultural practices can generate diffuse pollution of nitrates and other chemicals, whilst certain industrial practices may also present a greater risk of impacts due to discharges of effluent. The employment growth most likely to be developed at strategic sites in Warrington are those within the warehousing and logistics sectors. These do not generate a particular risk in terms of effluents, but there could be polluting activities relating to fuel, and transportation. In this regard, the effects would not be considered to be significant. Conversely, a change in use from agricultural practices that involve fertilisation could lead to an improvement in water quality (particularly in areas that overlap with nitrate vulnerable zones). Sites at Burtonwood and Winwick fall within such locations.</p> <p>Those locations that are prone to flood risk could perhaps create a greater potential for negative effects upon water quality, as flood water could be exposed to certain pollutants. In this respect, development at the Waterfront could have negative effects. In addition, development close to waterways could lead to disturbance. The promotion of water based freight as part of the Port Warrington site may also be more likely to cause negative effects on water quality.</p> <p>With regards to groundwater protection zones, only certain sites at Rixton overlap with protection zone 3. The activities involved at employment sites would not be expected to be a particular risk to groundwater, and therefore neutral effects would be expected.</p> <p>Overall, none of the options are likely to have significant effects upon water quality. The potential for negative effects is perhaps greater at the Waterfront location, which means options 1a and 2a perform slightly worse (minor negatives) than option 2b and 2c (broadly neutral). Option 2c could also be more beneficial in relation to a reduction in nitrates, but there is uncertainty.</p> <p>Though Option 1a involves a high scale of growth, the effects are not expected to be significantly different to the lower growth options.</p>							

Natural resources: *Air quality*

Option 1a	x	Option 2a	-	Option 2b	x	Option 2c	x
<p>Each of the options will increase the amount of vehicular trips to and from the employment locations. This will include commuting and business trips; which would also involve an increase in HGV trips. The potential effects on air quality are likely to be negative, but the extent of this is uncertain and there may also be infrastructure improvements that could minimise these effects.</p> <p>In terms of the effect of air quality on human health, it is more likely that an increase in trips along routes through residential and town centre areas would have negative effects (through greater exposure). Employment land at Winwick could potentially contribute to poorer air quality in this respect, and is already fairly close to an AQMA.</p> <p>Port Warrington is not in an area currently affected by air quality, and with the Western Distributor Road in place would not be likely to have significant effects upon air quality in the town centre.</p> <p>For the Garden Suburb, access to the site could lead to new communities in the Garden Suburb experiencing air quality issues. However, the issues would be minor.</p> <p>At Rixton, development would be in close proximity to the M6 AQMA, and could encourage trips through the Warrington urban area.</p> <p>Overall, Option 1a is predicted to have a minor negative effect. This is related mostly to substantial growth at Barleycastle / Garden Suburb. Whilst this is accessible to motorway junctions, it could lead to increased trips along through the new Garden Suburb affecting quality in this currently countryside area. The growth at Port Warrington is less likely to generate a significant effect as it promotes sustainable freight and would benefit greatly from the Western Distributor Road, which would help to ensure that air quality in the inner areas of Warrington do not worsen. Option 2a only involves Port Warrington, and so for these reasons, a neutral effect is predicted.</p> <p>Option 2b is predicted to have a minor negative effect given that it involves large scale growth at a garden suburb and could increase car uses and trips in an area with low ambient levels of air quality currently.</p> <p>Option 2c is unlikely to lead to substantial effects in any one area. However, some of the dispersal locations fall within close proximity to AQMAs and / or could lead to greater car trips in areas already suffering with poor air quality (e.g. Winwick).</p>							

Natural Resources: *resource use and efficiency*

Option 1a	x	Option 2a	-	Option 2b	-	Option 2c	-
<p>The resource efficiency of employment development is unlikely to be significantly different due to distribution. The design and layout of schemes can promote resource efficiency and a range of other sustainability credentials. However, this is more often a function of viability and policy requirements rather than a locational constraint as such. In this respect, options 2a, 2b and 2c perform the same.</p> <p>At this lower level of growth, neutral effects are predicted, as this largely reflects what may be expected to occur in the absence of a more aspirational strategy for growth.</p> <p>However, a higher scale of growth as proposed under Option 1a will use more resources in the short term through increased construction and accelerated levels of economic growth (and the resources required to support business operations).</p>							

Natural resources: *Flooding*

Option 1a	x	Option 2a	x?	Option 2b	-	Option 2c	x?
<p>With regards to the level of growth, option 1a will lead to a greater amount of hardstanding compared to options 2a, 2b and 2c. This is potentially more negative should it lead to changes in surface water run-off and drainage patterns that affect flood risk. It would be expected that SUDs would need to be secured to ensure that this was not the case though. Nevertheless, this is a minor negative effect.</p> <p>In terms of the distribution of development, there is a mixed risk of flooding.</p> <p>At Port Warrington parts of the site fall within flood zone 2 and 3, but the risk of surface water flooding is relatively low.</p> <p>At the Garden Village / Barleycastle, the majority of the site is within flood zone 1 and only small parts present a risk of surface water flooding.</p> <p>The sites at Winwick have mixed risks of flooding. None fall within flood zones 2 or 3, but small parts of certain sites are at a low risk of surface water flooding.</p> <p>At Burtonwood, the site falls within flood zone 1, and parts of the site fall within medium to high risk of surface water flooding.</p> <p>At Rixton, several sites fall within flood zones 2 and 3, but there is relatively low levels of risk from surface water flooding.</p> <p>For Option 1a, a large amount of development is involved at Port Warrington, of which part falls into flood zone 2 and 3. The land uses involved though ought to be broadly compatible, and so effects would not be significant. The remaining growth is at Barley castle, but there is relatively low flood risk at this location. It ought to be possible to manage any risks of flooding in these locations. Overall, a minor negative effect is predicted reflecting the higher scale of growth under option 1a, and the risk of flooding at Port Warrington.</p> <p>For option 2a, Port Warrington is also involved, but there would be no growth elsewhere. This is therefore an uncertain minor negative effect.</p> <p>For option 2b, neutral effects are predicted as growth would be lower, and at Barley Castle only (where flood risk is not significant).</p> <p>For option 2c, minor negative effects are predicted also, but these are uncertain. There is growth in some locations that could be at risk of flooding whether this be surface water (Burtonwood) or fluvial (Rixton).</p>							

Built heritage

Option 1a	xxx?	Option 2a	-	Option 2b	xx	Option 2c	x?
<p>The scale and location of development has the potential to have effects upon the historic environment either directly or by altering the character of locations.</p> <p>At Burtonwood, there are no designated or locally important heritage assets in close proximity, and the site is adjacent to an existing employment area. Therefore, neutral effects are likely to occur.</p> <p>At Winwick, sites are fragmented and there are no heritage assets within or adjacent to the sites. However, there are listed buildings within 400m and there is also a Registered Battlefield. Depending upon the layout and design of development there is therefore the potential for negative (but minor) effects.</p> <p>There is a scheduled monument in the broad location for development at Barleycastle. There are also additional listed buildings nearby. The scale of development for option 1a could lead to significant negative effects upon the scheduled monument and listed building, as it would introduce large scale units in an area that would otherwise be open countryside. The amount of land required could make it more difficult to mitigate effects and so the effects could potentially be significant and permanent. For option 2b, the magnitude of growth is lower, and so it ought to be easier to achieve mitigation in the form of a larger landscape bugger. Consequently, only moderate negative effect are predicted.</p> <p>At Rixton, the broad locations for development are mostly distant from heritage assets, but growth here would affect the open countryside which contributes to the setting of several buildings. Consequently, minor negative effects are predicted.</p> <p>At the Port Warrington site, there are no designated heritage assets, nor are there any locally important features. There is a Grade 2 listed transporter bridge in the wider Waterfront area, but the effects ought to be possible to mitigate and so are predicted to be neutral.</p> <p>Overall, option 1a is predicted to have potential significant negative effects, which is attributable solely to the change in character of the countryside near to a Scheduled Ancient Monument. For Option 2b, this same feature presents the possibility for moderate negative effects (lesser due to the smaller magnitude of land involved).</p> <p>Option 2a is unlikely to have any effects, and option 2c is predicted to have minor negative effects as several locations are relatively close to assets of historic importance.</p>							

Landscape

Option 1a	xx	Option 2a	x	Option 2b	x?	Option 2c	x?
<p>The location and scale of development determines the potential effects upon landscape character.</p> <p>At Port Warrington, the site partly falls within a local nature reserve, and the quality of the site is higher than the surrounding areas that are industrial in nature. In green belt terms it makes a moderate contribution. As a consequence, a moderate negative effect is predicted.</p> <p>At the Garden Village / Barleycastle there are areas of that are identified as making a strong contribution to Green Belt. The land is currently open countryside, though is bounded to the west by existing employment land, to the south by the M56 and to the east by the M6. Whilst development would lead to an expansion of built development into the countryside, it would not lead to coalescence. Therefore, the overall effects are predicted to be a minor negative.</p> <p>At Winwick the sites are found to make a weak or moderate contribution to Green Belt function, or are not within Green Belt land. The sensitivity of landscape character is not high, but minor negative effects would be predicted.</p> <p>At Burtonwood, employment land would be an extension of Omega, and would therefore be logical. Areas of open countryside would be affected, but the effects would be minor.</p> <p>At Rixton, the landscape has mixed sensitivities. Some land parcels ought to have capacity to support development, whilst others are sensitive and characterised by mossland and river flood plains. The effects of modest growth are therefore likely to be minor negative effects.</p> <p>Option 1a involves the greatest amount of development, and also involves a loss of sensitive land at Port Warrington. Combined with substantial land loss at Barleycastle, the effects are likely to be greater than for any of the options at a lower scale of growth (i.e. 2a, 2b or 2c). Consequently, moderate negative effects are predicted.</p> <p>At the lower scale of growth, option 2a involves sensitive land at Port Warrington also, and so minor negative effects are predicted.</p> <p>For option 2b, a smaller amount of land would be lost at Barley castle, and so it is possible that negative effects would be lower.</p> <p>Option 2c would lead to smaller scale development in several locations, and so the magnitude of effects are likely to be lower in each area. There remains some potential negative effects with regards to development in Rixton and the Waterfront, but the smaller scale of growth provides flexibility, and so only uncertain negative effects are predicted (with these not likely to be more than minor negative effects).</p>							

Biodiversity and geodiversity

Option 1a	xxx?	Option 2a	xxx?	Option 2b	-	Option 2c	xx
<p>The effects upon biodiversity are discussed for each broad location below:</p> <p>Port Warrington and the wider Waterfront area are in close proximity to a number of local wildlife sites. In particular, Port Warrington contains parts of a local wildlife site, which would be disturbed during construction and operation of employment development. A range of important habitats and species have been recorded in this location including Lapwing, Farmland birds , yellow wagtail, tree sparrow , snipe , redshank, grey partridge , corn bunting, BAP grassland and BAP woodland, This presents the opportunity for significant negative effects on wildlife in the short, medium and long term.</p> <p>There are no designated wildlife sites within close proximity to the Barleycastle broad location. There are some pockets of woodland orchard within the area, but it is probable that these could be protected and/or enhanced through landscaping. Consequently, it is considered unlikely that there would be significant effects on important wildlife habitats.</p> <p>At Burtonwood, a range of farmland birds have been recorded nearby including; Lapwing , corn bunting , grey partridge, and redshank. The site is also adjacent to BAP woodland, but this should be possible to avoid. Broadly speaking, any effects ought to be possible to mitigate, and so would be minor.</p> <p>At Winwick there are protected trees and biodiversity features such as the Sankey Brook corridor, hedgerows and grassland. However, no designated sites are in close proximity, so the effects in this respect would be neutral. A range of farmland birds have been identified in this location.</p> <p>The broad location of Rixton is in close proximity to or involves sensitive local wildlife sites. In particular this includes the Woolston Eyes SSSI. There is a range of habitats such as grassland, wetland, woodland orchard and mossland. A range of farmland birds have also been recorded in this vicinity. Depending upon the scale and precise location of development in this area, significant negative effects could potentially occur.</p> <p>Option 1 is predicted to have potential significant negative effects, relating to the loss of a local wildlife site in part. Though mitigation may be possible, this is recorded as a negative effect at this stage. The additional growth at Barleycastle would not add additional negative effects of particular note.</p> <p>The same site would also be involved for Option 2a, and so a potential significant negative effect is also predicted for this option.</p> <p>Option 2b only involves development at Barleycastle, and the effects are unlikely to be notable. Therefore, a neutral effect is predicted.</p> <p>For most locations, Option 2c ought to avoid significant negative effects. However, at Rixton, there could be more prominent negative effects due to the sensitive land in this location. Consequently, a moderate minor negative effect is predicted.</p>							

Climate change and resource use

Option 1a	-	Option 2a	-	Option 2b	-	Option 2c	-
<p>With regards to the type of employment likely to be established, the majority of locations would not present strong opportunities to implement a district heat network. In most cases, development would not be close to existing demands for heat, and would not involve leisure, or other forms of development that would support a network. The demand for heat would therefore be insufficient.</p> <p>An exception is at Port Warrington / Waterfront, as there are other uses that could support a decentralised energy network. However, there may be physical barriers such as the Manchester Ship Canal. Therefore, a neutral effect is predicted.</p> <p>At the M65/J9, employment on its own would be unlikely to support a new energy network, but as part of a wider Garden Suburb, there may be potential. At this stage, the effects are predicted to be neutral as there is no solid evidence to support a network.</p> <p>Consequently, neutral effects are predicted with regards to energy / climate change mitigation for each option. Though option 1a would involve higher growth, which could lead to increased emissions, this is not significant in the context of emissions at the borough-wide and regional context.</p> <p>None of the sites are considered likely to offer significant opportunities to secure strategic enhancements to the green infrastructure network; if anything they would result in a loss of natural capital. Therefore, the effects in terms of climate change resilience are predicted to be neutral.</p>							

SUMMARY OF EFFECTS

	Economy and regeneration	Health and wellbeing	Accessibility	Housing	Natural resources: Agricultural land	Natural resources: Water Quality	Natural Resources: Air Quality	Natural resources; resource efficiency	Natural resources: Flooding	Built Heritage	Landscape	Biodiversity and Geodiversity	Climate change and resource use
Option 1a	✓✓✓	✓✓	✓✗	✓✓	✗✗	✗	✗	✗	✗	✗✗✗?	✗✗	✗✗✗?	-
Option 2a	✓✓?	✓?	✓	✓✓	-	✗	-	-	✗?	-	✗	✗✗✗?	-
Option 2b	✓	✓?	✓	✓✓	✗	-	✗	-	-	✗✗	✗?	-	-
Option 2c	✓	✓?	✓✗	✓	✗	-	✗	-	✗?	✗?	✗?	✗✗	-

At a lower level of growth, the positive effects upon the economy are not significant. Likewise, the benefits for health and wellbeing are also only minor.

The different approaches under options 2a, 2b and 2c create some minor differences in terms of the effects on environmental factors. Option 2a for example performs more poorly than 2b and 2c with regards to biodiversity, as it would involve the partial loss of a local wildlife site. However, this approach would have the least negative effect with regards to agricultural land, air quality, and built heritage.

Each of the options at a lower level of growth perform comparably overall against the whole range of sustainability factors.

At the higher scale of growth, the benefits for the economy and health are more pronounced. For several topics, the effects are either comparable or only slightly more negative when compared to the lower scale of growth. This includes climate change, accessibility, air quality and flooding. However, in other aspects, this option performs the worst. The loss of agricultural land would be more pronounced (but not significant), and there would be greater Likelihood of significant negative effects on heritage assets and landscape.

Overall, a higher level of growth creates a trade-off between more economic and social benefits and more negative environmental effects. In the main, the negative effects are not significant, and where they are, there should still be potential for mitigation to address these issues.

APPENDIX J: HIGH LEVEL APPRAISAL OF GARDEN SUBURB OPTIONS

SA Topics	Discussion of effects
<p>Economy and regeneration:</p>	<p>Each option involves employment land in broadly the same location (which has been identified as a suitable and deliverable location for growth). The amount of land is slightly higher for Option C, which could generate more positive effects. Overall though, all three concepts ought to generate significant positive effects in terms of economic growth.</p> <p>In terms of local centres, each option would involve village centres and a district/neighbourhood centre, which ought to generate positive effects in terms of local retail.</p> <p>The links between the district centre, employment areas and housing areas are fairly similar, but the location of the district centre is perhaps most beneficial in a central location which links well with the country park and the bulk of residential development that would occur towards the western side of the suburb. In this respect, option B performs marginally better.</p>
<p>Health and Wellbeing</p>	<p>All three options involve substantial amounts of green infrastructure and a new country park. This would generate positive effects regardless of configuration, but certain communities could benefit more or less as a result of the different approaches.</p> <p>Each approach will deliver housing and new local facilities which would also be of benefit to local communities.</p> <p>With regards to amenity, Option C appears to be denser, and so could potentially perform marginally worse when compared to Options A and B.</p> <p>Option B on the other hand, brings a greater amount of new housing into closer proximity to industrial areas. Whilst impacts ought to be possible to mitigate, the effects on amenity could potentially be worse for this option.</p>

Accessibility	<p>All three options are likely to perform similarly with regards to access to public transport (which would need to be secured along new routes). Likewise, walking and cycling opportunities would be similar. Access to employment, and the district centre would differ depending on their location, but broadly speaking, some communities would have good accessibility by active travel, and others less so. Due to the scale of the Garden Suburb, this is always likely to be the case.</p> <p>With regards to permeability, each option appears to involve the same broad routes through the Garden Suburb to achieve links with the Warrington urban area, Stretton and Thelwall. The effects are therefore difficult to differentiate between these three options at this stage.</p>
Housing	<p>The distribution of housing for each concept option is broadly the same. There is a considerable amount of growth proposed for each option also, and so the effects are considered to be positive for each approach. Option C may be marginally more positive as it appears to involve less areas of green infrastructure throughout.</p>
Natural Resources	<p>Green corridors are a feature of all three options (perhaps less so for Option C though). This will improve the environmental quality of the masterplan area, in particular helping to manage flood risk. The options perform similarly in this respect.</p> <p>Each option will result in a widespread loss of agricultural land regardless of configuration. This is a negative effect, as there are identified areas of Grade 2 and 3a land.</p> <p>Overall, each option is predicted to have negative effects, mostly related to the loss of soil resources. With regards to flooding and water quality, the effects ought to be possible to manage.</p>
Built and natural heritage	<p>There are a range of listed buildings in the masterplan area as well as conservation areas associated with existing settlements.</p> <p>With regards to Appleton Thorn, Option C presents the densest form of development and could lead to the settlement being surrounded by built development. This is more negative than options A and B in this respect. There are several listed buildings in this area whose setting would therefore be more likely to be negatively affected under option C.</p> <p>Conversely, Option C would maintain a more natural open space between Grappenhall and Grappenhall Heys, which is more positive compared to Options A and B in this respect.</p>

	<p>Perhaps most significantly though, each option would have negative effects upon the Scheduled Monument.</p> <p>Options A and B provide a greater amount of landscape buffering though, and so ought to generate a less prominent effect compared to Option C. Overall, Options A and B are predicted to have negative effects, whilst Option C performs slightly worse and could perhaps give rise to significant negative effects.</p>
<p>Biodiversity and Geodiversity</p>	<p>Each option seeks to retain areas of importance to wildlife, such as the Dingle. There are pockets of green infrastructure throughout each concept that should also help to retain important wildlife features such as ponds, trees and hedgerows.</p> <p>There are also BAP grasslands and wetlands to the east of the masterplan area. Option C is most likely to have negative effects in this respect as it involves more housing development in this area with fewer areas of green infrastructure.</p> <p>The effects are broadly similar for each option (i.e. minor negatives), but Option C is flagged as potentially generating more notable negative effects.</p> <p>It is also noted that the delivery of a country park and green infrastructure links could potentially help to secure net gains in biodiversity, but there is some uncertainty at this stage.</p>
<p>Climate Change and resource use</p>	<p>All three options would involve green infrastructure corridors which could help to contribute towards climate change resilience.</p> <p>With regards to climate change mitigation, each approach would encourage walking and cycling, but could also lead to increased car trips. Minor negative effects are recorded, but these are not substantially different for any of the concept options.</p>

Discussion

The appraisal demonstrates that each concept option has its merits and areas where they perform marginally worse than the alternatives.

These are not necessarily mutually exclusive options though, rather they are concepts to help guide consultation and establish an approach which incorporates the best elements of each approach.

The key issues appear to be as follows:

- The extent to which the employment area provides a buffer for the scheduled monument
- The district centre may be better located closer to the west of the Masterplan area, as this would be better linked to areas where the majority of residential development would occur.
- The Country Park is well located in a central location south of Grappenhall.
- The density / coverage of housing development from Stretton through to Appleton Thorn ought to ensure that the character of the existing settlements are respected and protected by securing areas of green space to form a 'gap'.

APPENDIX K: SOUTH EAST WARRINGTON URBAN EXTENSION OPTIONS

Economy and regeneration

Regardless of the option pursued, the effects associated with housing growth at the South East Warrington Urban Extension would be expected to be broadly aligned.

Each option can accommodate a large and concentrated population in an area which is relatively well connected to a number of existing and planned employment areas, in particular the nearby South East Warrington Employment Area, subject to confirmation of this as an allocation in the Plan, and the town centre subject to ensuring appropriate transport improvements.

The growth would be likely to support existing shops and services in the area as well as surrounding the site through an increase in footfall.

The scale of housing delivery would also be expected to result in new shops and services being delivered on site to support the prospective tenants. This would be likely to benefit local GVA and employment.

The large scale of housing delivery and its associated growth in population would be expected to deliver some new educational facilities alongside expansions of existing facilities in the area. This would be likely to increase the educational offerings of the site to current nearby residents as well as future residents, potentially improving attainment and skills.

The area is not identified as being especially deprived and as such, it would not be considered likely that any significant regenerative effects would be realised for any of the options.

Overall, all four options would be expected to deliver **moderate positive effects**

Option 4 involves land that has been identified as potentially suitable for employment expansion. The development for housing would negate this opportunity in the short and long term. This is a **minor negative effect** for option 4.

Option 1	Option 2	Option 3	Option 4	

Health and wellbeing

Options 1 and 2 have good access to existing local natural greenspace throughout the proposed development locations. Where option 3 overlaps with option 1 and 2, access to existing accessible natural greenspace is also good. However, the remaining areas are currently agricultural. Access here is currently poor, but it is presumed that green infrastructure enhancements could be secured. Option 4 has the poorest accessibility to existing natural greenspace, but enhancements ought to be possible.

Options 1, 2 and 3 contain areas that are adjacent to the built-up area of Warrington and therefore there is reasonable access to existing primary schools and community facilities. Whilst this is beneficial and provides choice, the current facilities are at capacity, and so on-site provision will be required.

Option 4 is somewhat more isolated and does not benefit as much from links to the urban fringes or existing small centres such as Grappenhall Heys and Appleton Thorn. There would be a greater need for self-sufficiency. Regardless of option, it is likely that a new primary and secondary school will be provided, which is positive with regards to health and wellbeing. The scale of growth for all options will also be capable of supporting a significant increase in affordable housing provision and some onsite provision of new community and leisure services and facilities. This is positive for all four options, particularly where it helps to build upon and improve existing small communities such as Grappenhall Heys.

With regard to health services, existing capacity to the south of Warrington is constrained and the scale of growth under all options would require the expansion of facilities. It is unclear if new facilities could be built. Therefore, access to existing facilities is important. In this respect, Options 1 and 2 are closer to existing bus routes and are also closer to several GP services. There are plans under consideration to provide a new facility at Appleton Cross, which would be in place of the two existing GP facilities. Should this take place, Options 1, 2 and 3 would all be well placed in terms of access to health facilities.

In terms of positive effects, each option ought to lead to improvements in relation to greenspace, healthcare, education and other community and leisure facilities as discussed above. Options 1 and 2 are currently better served by facilities though, and so enhancement is considered more likely.

Development of this scale is likely to increase the demand for car trips in the south east of Warrington and to and from Warrington Town Centre. There is potential for this to increase congestion along the A50/A5061, A56 and A49, which form the key road routes between the town centre and the South East Warrington Urban Extension and in an east to west direction for access to other areas and settlements.

The A50/A5061 and A49 between the town centre and the Manchester ship canal fall within an AQMA due to high levels of nitrogen dioxide. There is potential for all options to exacerbate existing poor air quality and potential noise pollution along these key road routes which partially run along existing densely populated residential areas. Although, some adverse effects can likely be mitigated through contributions towards improvements to public transport provision and other alternative traffic reduction measures, which are likely to be feasible at this scale of growth.

Overall, each option is predicted to have minor negative effects as growth could contribute towards increased traffic in areas that suffer poor air quality. Where development is adjacent to existing settlements, local communities might experience amenity issues. This is more likely to be an issue for options 1 and 2 which involve land adjacent to Grappenhall Heys, Stretton and Appleton Thorn. In terms of access to services and open space, Options 1 and 2 are closest to a wider range of facilities, and natural greenspace. In particular, there are several GP services on the urban fringes that will likely be important. All of the options are also likely to support new on site facilities, and open space improvements. For Options 1 and 2 which are already better serviced, a potential major positive effect is predicted when taking enhancement into account. Option 4 is predicted to have moderate positive effects, as it is somewhat more isolated in relation to existing built up areas and planned health facilities.

Option 1	Option 2	Option 3	Option 4
?	?	?	

Accessibility

For options 1, 2 and 3 there are existing public bus services passing through Grappenhall Heys and Appleton Thorn and connecting to the central Warrington area. Option 4 is somewhat more isolated with regards to existing transport links.

The scale of housing delivery would be likely to lead to improvements to existing public transport services, as well as the potential for new transport services made viable due to the large concentrated increase in population. This concentrated growth would also be likely to lead to junction and network improvements to cycle infrastructure, helping to increase the propensity for existing and future populations to travel by active means (a point reinforced by the fact that Warrington is within an acceptable distance to enable cycling journeys). Such improvements may be easier to implement where existing road networks are present. In this respect, Options 1, 2 and 3 perform better than option 4.

There would be an anticipated delivery of onsite shops and services, and access to nearby GP services at Appleton and Grappenhall in addition to on-site health provision, reducing the need to travel and promoting walkable neighbourhoods.

Whilst the site could lead to some increases in congestion, especially at peak journey times, a large site (recognising further growth beyond the plan period) also increases the viability of infrastructure improvements intended to mitigate the effects of increases in traffic volumes.

Overall, **moderate positive effects** are predicted for options 1-3, as development could help to improve services for existing communities, as well as creating accessible neighbourhoods for new communities. Alongside these benefits, some **minor negative effects** could be anticipated if there are localised increases in congestion. Some parts of the South East Warrington Urban Extension might also be less well served than others with regards to walkable services and public transport.

The positive effects are less significant for option 4 given that it is less well serviced by existing roads, public transport and community facilities. Therefore, **minor positive effects** are predicted.

Option 1		Option 2		Option 3		Option 4	

Housing

Growth in the South East Warrington Urban Extension could make a substantial contribution towards meeting housing needs (including affordable housing) near areas with existing high demand and values. The scale of growth proposed should further be able to support a mix of housing types, sizes and possible tenures. However, the South East Warrington Urban Extension will need to be supported by significant road infrastructure upfront, and this could create deliverability issues that will need to be resolved regardless of the spatial option that is pursued.

Whilst **major positive effects** could arise due to the scale of growth and attractiveness of housing growth, there is an element of uncertainty for each option.

Option 1	Option 2	Option 3	Option 4
?	?	?	?

Natural resources: Agricultural land

The area covered by option 1 is partially urbanised but mostly comprises Grade 2 (over 100 hectares) and Grade 3 agricultural land (Over 150ha in total). Much of the agricultural land is in existing agricultural use. Cumulatively, development would result in the permanent loss of important agricultural land resources, which is predicted to have a **major negative effect**.

The area covered by option 2 is partially urbanised but mostly comprises Grade 2 (206 hectares) and some Grade 3 (70 hectares) agricultural land. Much of the agricultural land is in existing agricultural use. Cumulatively, development would result in the permanent loss of approximately 276 hectares of important agricultural land resources, which is more than double the amount involved at other strategic locations (particularly in terms of the mix of Grade 2 to Grade 3 land). As a result, **major negative effects** are predicted.

The area covered by option 3 is partially urbanised but mostly comprises Grade 2 (222 hectares) and some Grade 3 (15 hectares) agricultural land. Much of the agricultural land is in existing agricultural use. Cumulatively, development would result in the permanent loss of approximately 237 hectares of important agricultural land resources, which is predicted to have a **major negative effect**.

Option 4 would result in the loss of mostly Grade 2 (189 hectares) and some Grade 3 (13 hectares) agricultural land in existing agricultural use. Cumulatively, development would result in the permanent loss of approximately 202 hectares of important arable agricultural land resources, which is predicted to have a **major negative effect**.

Option 1	Option 2	Option 3	Option 4

Natural resources: Water Quality

The high scale of growth proposed under the South East Warrington Urban Extension is likely to increase pressure on existing waste water infrastructure. However, growth at this scale should also allow for comprehensive drainage infrastructure upgrades and potential contributions towards addressing waste water capacity. Ideally, soft SUDs solutions would be prioritised, which could help to manage and improve water quality.

Development at this scale also has potential to have adverse effects on water quality, through potential pollution or increased effluents in run-off as a result of urbanisation. However, all four options are likely to support a low density of development, which should allow for the incorporation of comprehensive sustainable urban drainage and green infrastructure. This should safeguard surface water and groundwater quality through the natural purification of run-off.

As much of the land under all four options consist of agricultural land, most of which is in current agricultural use, the change in use is likely to reduce pollution associated with farming activities. This is particularly positive for option 2 which to the south west falls within an NVZ for surface water. There is potential for a reduction in nitrate associated with farming activities to improve water quality for River Weaver, although any effects are likely to be negligible due to the small area of NVZ overlap.

Overall, growth under all four options are likely to result in a **minor positive effect** (with Option 2 presenting a slightly increased potential to achieve such positive effects).

Option 1	Option 2	Option 3	Option 4

Natural Resources: Air Quality

Regardless of the option chosen, development would be expected to deliver onsite shops, services and facilities meaning that future residents could access these alongside those in nearby existing settlements, reducing car dependencies. That said, the number of dwellings proposed in the area and the behavioural norms associated with car use mean that it is likely that the development would result in a significant increase in traffic volumes, especially at peak journey times and at traffic pinch points. This would be expected to lead to some localised air quality issues. Whilst some onsite facilities would reduce the need to travel long distances, it is still likely that the prospective residents would regularly need access to central Warrington for a variety of needs. The increase in traffic volumes may lead to increased congestion along the link roads into central Warrington, potentially worsening AQMA4 which is in place on routes which connect the South East Warrington Urban Extension to the central urban area. For options 1 and 2 which are more closely related to

the existing urban areas, the links to existing services and the potential for public transport enhancements mean that these perform slightly better than options 3 and 4.

Whilst development would be well located in respect of existing and new employment growth, it is also likely that peripheral communities could be drawn to commute with good links to the M56 and M6. This would lead to a continuation of air quality issues around motorway junctions. Overall, **moderate negative effects** are predicted for all four options, though these would be expected to peak in the medium term. As electric vehicles start to dominate the roads, the impacts on air quality due to traffic are likely to reduce drastically. The slightly improved performance of options 1 and 2 is reflected by an uncertainty (as to whether the effects would actually be moderately negative)

Option 1	Option 2	Option 3	Option 4
?	?		

Natural resources: resource use and efficiency

The South East Warrington Urban Extension falls within an area mostly categorised as amongst the least deprived, with high house prices and possibly greater viability for more resource efficient homes. Improved resource efficiency could be achieved through design, material choice and construction, and during the operational phase from use of technologies such as solar PV. However, such effects are uncertain and would need to be secured through policy and other mechanisms. Competing pressures for development contributions such as social infrastructure, roads and affordable housing could also play a very important role in how sustainable homes can be built. In this respect, all four options perform the same and are predicted to have neutral effects at this high level of appraisal.

All of the options involve areas of glaciofluvial deposits potentially of sand and gravel resources. This includes a small area of less than 2 hectares which falls along the eastern boundary of option 3 and southern boundary of option 4. Options 1 and 2 contain approximately 36 hectares of glaciofluvial deposits, in the form of a linear area along the B5356 and to the west of Appleton Thorn.

Whilst development presents opportunities for the extraction of these resources, much of the resources are ‘pre-sterilised’ due to road infrastructure and built development covering and intersecting the area containing the mineral resources. This is likely to undermine the overall feasibility and attractiveness for mineral extraction.

Overall, **neutral effects** are predicted for each option taking the above factors into consideration.

Large scale development of a South East Warrington Urban Extension would require considerable raw materials and resource use during the construction phases, particularly to

support infrastructure improvements. As such, temporary **minor negative effects** are also recorded for each option.

Option 1	Option 2	Option 3	Option 4

Natural resources: Flooding

The South East Warrington Urban Extension area consists mostly of Flood Zone 1 with the exception of a small area of Flood Zone 2 and Flood Zone 3 to the north east of option 4. The site areas for options 1, 2 and 3 are also intersected by a small area at high risk of fluvial flooding along the western site boundaries. However, the scale of development proposed should be able to avoid these areas and comprehensively deliver any required flood alleviation measures. The South East Warrington Urban Extension area also does not include any large areas at risk of surface water flooding or contain apparent surface water flooding issues which cannot be addressed through adequate drainage.

With the South East Warrington Urban Extension area containing a number of ecologically rich habitats and features, their protection would require the preservation of existing and potential integration of new green infrastructure (regardless of the option pursued), which should support natural drainage and reduce run-off rates. In addition, the scale of development proposed is likely to deliver a relatively low density of development, with substantial opportunities for the integration of natural drainage solutions. Therefore, the urbanisation of the area is unlikely to significantly increase surface water run-off or exacerbate the risk of flooding onsite and in the local area.

Overall, a **neutral effect** is predicted for each option. With a focus on natural ‘soft’ solutions to drainage, there could potentially be minor improvements in terms of managing flood risk in the wider catchment.

Option 1	Option 2	Option 3	Option 4

Built Heritage

The Grappenhall Village Conservation Area, Victoria Road / York Drive Conservation Area and Ackers Road / Marlborough Crescent Conservation are all in close proximity to the north/north east of the South East Warrington Urban Extension broad location. Whilst screening and sensitive design would be expected to mitigate effects of the development on its setting, the increase in traffic could lead to some minor negative effects related to congestion in the conservation area (including noise and air pollution).

In addition to the above, Option 1 contains a number of Grade II listed buildings, mostly associated with existing small settlements / built up areas. It is unlikely that any of these assets would be lost to development, but their setting could certainly be affected. Measures taken during the design and masterplanning stage could help to avoid significant effects on the setting of assets by maintaining a low density development and avoiding coalescence between existing hamlets and villages. The scale of growth involved means that residual **minor negative effects** are still likely though.

Option 2 would involve the same location of growth as Option 1, but with additional land to the south of the urban area near Stretton. The main constraints in this area is an ancient monument (Roman Road), and a Grade II listed church (St Matthews). It is considered unlikely that development would have negative effects on the ancient monument, as it is not a visible feature and would be unaffected by development. The larger scale of growth could potentially lead to negative effects on the setting of the Grade II Church, but appropriate mitigation should ensure that the effects are not significant. Overall, this option is also predicted to have **minor negative effects**.

Options 3 and 4 are slightly less sensitive from a heritage perspective, as they do not contain listed buildings or other assets in the core areas of potential development. Therefore, the overall effects are predicted to be **neutral**. Option 3 is still within fairly close proximity to the Conservation Areas near Grappenhall though, which makes it slightly more sensitive than Option 4.

Option 1	Option 2	Option 3	Option 4
		?	

Landscape

All four options contain land within the Green Belt, mostly falling into the landscape character areas of Appleton Park and Grappenhall (Red Sandstone Escarpment). Regardless of the option taken, development would reduce the openness of a significant amount of land to the south of central Warrington. In this respect, all four options are likely to have negative effects. The extent of effects would largely depend upon the exact location of development, the density, layout, landscaping and other design measures. However, broadly speaking, the effects might be more difficult to mitigate or be of a greater significance depending on the option pursued.

Option 1 involves Green Belt land, the majority of which are classed as either having a weak or moderate contribution. It would be possible to focus built areas to the weaker parcels to the north close to Grappenhall / Stockton Heath / Dudlow's Green / Appleton Thorn. Farther south though, the majority of parcels make a moderate contribution, and so effects are more likely to be harder to mitigate. Overall, a **moderate negative effect** is predicted.

Option 2 would involve additional land which consists of a mix of weak and moderate performing green belt parcels.

Though the overall area of land involved would be greater, it would provide greater amounts of land beyond the plan period (which reduces longer term pressure on sensitive landscapes elsewhere). The additional growth is not considered to change the overall significance of effects and the growth would be well contained by the M56.

Option 3 contains a mix of weak and moderate performing parcels of greenbelt, many of which overlap with those involved for Options 1 and 2. The additional parcels of land involved (that differentiate to options 1 and 2) are mostly classed as moderate. It would be difficult to avoid effects in these locations. Furthermore, the expansion would also cause coalescence with employment growth at the Barleycastle; creating a large swathe of built form across the currently open countryside. This would leave Green Belt land to the south and north of the new built up areas that might be at threat of future development. Overall, a potential major negative effect is predicted reflecting these factors.

Option 4 encroaches onto some strong parcels and is made up of mostly moderate parcels. Development could also cause some coalescence with land to the south should this come forward for employment (which is likely to form part of the strategy). Overall, a potential major negative effect is predicted reflecting these factors.

Option 1	Option 2	Option 3	Option 4
		?	?

Biodiversity and Geodiversity

In the longer term, any of these approaches should create opportunities for net gain in biodiversity. However, this has not been factored into the assessment as details are unclear at this stage.

The South East Warrington Urban Extension area falls outside SSSI impact zones for residential use and is distant to SPAs and SACs. However, regardless of the option pursued, the cumulative scale of growth proposed could indirectly cause some minor adverse effects through disturbances from recreational use. These are uncertain effects.

For Options 1 and 2, there are local wildlife sites and BAP Priority Habitats which enclose existing development at Grappenhall Heys and create a linear separation between the broad location for growth and the built-up area to the west.

Development in the vicinity of these habitats could cause harm through increased recreational pressure, noise and land disturbance and pollution such as in surface water run-off.

Where not supported with substantial green infrastructure, development could possibly undermine ecological connectivity between existing habitats within and in the vicinity of the site. However, low density of development, retention of non-developable areas and enhancements to green infrastructure should ensure development is able to avoid direct intrusion onto wildlife sites. There is also potential for development to create new ecologically rich habitats, particularly in the form of stepping stone habitats to support ecological movement between existing habitats. In the short term, **minor negative effects** are predicted to reflect the presence of locally important wildlife sites.

The broader areas of development further south under Options 1 and 2 are less sensitive in terms of biodiversity habitats, and the effects are likely to be manageable.

For Option 3 many of the same effects (as option 1 and 2) would remain, as the same areas around Grappenhall are involved. The additional areas of growth are less sensitive in respect of designated habitats, and therefore the effects are likely to be manageable. As such, **minor negative effects** are predicted overall.

Option 4 overlaps with fewer designated wildlife sites. Rather, there are several BAP habitats scattered throughout the area, and along the periphery of the site. It should therefore be easier to implement buffering and mitigation to avoid negative effects. As such, **neutral effects** are predicted in this respect.

Option 1	Option 2	Option 3	Option 4
?	?	?	?

Climate change and resource use

Development for each option would be expected to deliver a range of onsite shops, services and facilities as well as providing access to similar amenities in nearby settlements. This should help to reduce the need to travel. However, it is likely that some degree of car dependence would lead to an increased or continuing level of car use, driving up emissions / energy usage to some extent.

Regardless of the option pursued, due to the scale of growth, it would be expected that significant green infrastructure enhancements would be required. Where green infrastructure could be designed to be throughout the scheme in strategically placed

networks, this should help with cooling effects and partly mitigate any potential increases in heating related to a large-scale change of land use from open countryside to residential development. There could also be the chance for tree planting, helping to sequester CO2, but this would not be a certainty.

There are no identified heat networks throughout this area that could make one option more or less suitable than another. As such, neutral effects are predicted in this respect.

The site is on low-lying land with an escarpment to the west, making it unlikely that development would be on areas suitable for wind energy generation. Therefore, neutral effects are predicted in respect of sterilisation of opportunities.

This large area of growth would be likely to necessitate a new household waste collection service, but efficient routes could be designed given the focused nature of development.

Overall, minor negative effects are predicted for all four options, reflecting the potential for increased emissions relating to transport and the built environment. The loss of greenfield land could be negative in terms of carbon release from soil, and would also affect the contribution made towards cooling in Warrington. However, with a focus on enhancements to GI, it could actually create potential to sequester carbon and assist with urban cooling (given that much of the land is currently agricultural in nature). Mixed **minor negative** and **moderate positive effects** are likely regardless of the option.

Option 1		Option 2		Option 3		Option 4	

Summary of findings

	Option 1		Option 2		Option 3		Option 4	
<i>Economy and regeneration</i>	Green		Green		Green		Green	Yellow
<i>Health and wellbeing</i>	Green ?	Yellow	Green ?	Yellow	Green ?	Yellow	Green	Yellow
<i>Accessibility</i>	Green	Yellow	Green	Yellow	Green	Yellow	Light Green	Yellow
<i>Housing</i>	Green ?		Green ?		Green ?		Green ?	
<i>Natural resources: Agricultural land</i>	Red		Red		Red		Red	
<i>Natural resources: Water quality</i>	Light Green		Light Green		Light Green		Light Green	
<i>Natural resources: Air quality</i>	Orange ?		Orange ?		Orange		Orange	
<i>Resource use and efficiency</i>	Yellow		Yellow		Yellow		Yellow	
<i>Flooding</i>	Grey		Grey		Grey		Grey	
<i>Built heritage</i>	Yellow		Yellow		Grey		Grey	
<i>Landscape</i>	Orange		Orange		Red ?	Red ?	Red ?	Red ?
<i>Biodiversity and geodiversity</i>	Yellow ?		Yellow ?		Yellow ?		Grey ?	
<i>Climate change</i>	Green	Yellow	Green	Yellow	Green	Yellow	Green	Yellow

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