

November 2020

Transport Locality Assessments

Introductory Note and Assessments –
Bolton allocations

GMSF 2020

Table of contents

1. Background	2
1.1 Greater Manchester Spatial Framework (GMSF)	2
1.2 Policy Context – The National Planning Policy Framework	3
1.3 Policy Context – Greater Manchester Transport Strategy 2040	5
1.4 Structure of this Note	9
2. Site Selection	10
2.1 The Process	10
2.2 Greater Manchester Accessibility Levels	13
3. Approach to Strategic Modelling	15
4. Approach to Technical Analysis	17
4.1 Background	17
4.2 Approach to identifying Public Transport schemes	18
4.3 Mitigations and Scheme Development	19
5. Conclusion	23
6. GMSF Allocations List	24
Appendix A - GMA4 Bewshill Farm Locality Assessment	A1
Appendix B - GMA5 Chequerbent North Locality Assessment	B1
Appendix C - GMA6 West of Wingates Locality Assessment	C1

1. Background

1.1 Greater Manchester Spatial Framework (GMSF)

1.1.1 The GMSF is a joint plan of all ten local authorities in Greater Manchester, providing a spatial interpretation of the Greater Manchester Strategy which will set out how Greater Manchester should develop over the next two decades up to the year 2037. It will:

- identify the amount of new development that will come forward across the 10 Local Authorities, in terms of housing, offices, and industry and warehousing, and the main areas in which this will be focused;
- ensure we have an appropriate supply of land to meet this need;
- protect the important environmental assets across the conurbation;
- allocate sites for employment and housing outside of the urban area;
- support the delivery of key infrastructure, such as transport and utilities;
- define a new Green Belt boundary for Greater Manchester.

1.1.2 The Plan focuses on making the most of Greater Manchester's brownfield sites, prioritising redevelopment of town centres and other sustainable locations. The Plan is required to demonstrate that Greater Manchester has enough land to deliver the homes and jobs people require up until 2037, and whilst there is an expectation that the focus of development will be on brownfield sites in the early years, it is recognised that some land will need to be released from the green belt to fully meet Greater Manchester's housing and employment requirement.

1.1.3 The comments from the Draft GMSF 2019, together with local and national policy, have helped to inform the Locality Assessments methodology for the Draft GMSF 2020. More information on the consultation comments can be found in the Consultation Statement and within each of the Allocation Locality Assessments.

1.1.4 This document has been prepared as evidence for the GMSF and is part of a suite of documents that examine the implications of the GMSF on transport in Greater Manchester. The other documents are:

- Greater Manchester Transport Strategy 2040 and supporting Five Year Transport Delivery Plan. These documents together set out our strategic aspirations for transport in Greater Manchester and articulate our plan for delivery.
- Greater Manchester Transport Strategy 2040 ‘Right Mix’ Technical Note. This note describes the ‘Right Mix’ transport vision and sets out a pathway to achieving this vision.
- GMSF Existing Land Supply and Transport Technical Note. This describes the distribution and quantity of the Existing Land Supply, identified key growth areas, and considers the relationship of these growth areas to the transport schemes proposed within the Greater Manchester Transport Strategy Delivery Plan.
- GMSF Allocations Strategic Modelling Technical Note. This provides analysis of the potential strategic impact of growth on our transport network in a “policy-off” scenario.

1.2 Policy Context – The National Planning Policy Framework

- 1.2.1 The National Planning Policy Framework sets out the Government’s planning policies for England and Wales and how these are to be applied. It provides a framework for which locally prepared plans for housing and development, such as the GMSF, can be produced.
- 1.2.2 The NPPF makes it clear that transport issues should be considered from the earliest stages of plan-making and development proposals, so that:
- the potential impacts of development on transport networks can be addressed;
 - opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;
 - opportunities to promote walking, cycling and public transport use are identified and pursued;
 - the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and
 - patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.

- 1.2.3 The NPPF makes clear that when assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:
- appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
 - safe and suitable access to the site can be achieved for all users; and
 - any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.
- 1.2.4 Importantly, NPPF states that: ‘development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe’. (NPPF, Chapter 9, Para 109).
- 1.2.5 In order to ensure that the requirements of the NPPF were fully met and that that these allocations can be brought forward and operate sustainably within the context of the wider transport network, Transport for Greater Manchester (TfGM), on behalf of the ten Greater Manchester Local Planning Authorities, appointed SYSTRA Ltd to oversee the development of Locality Assessments for each site.
- 1.2.6 These Locality Assessments forecast the likely level and distribution of traffic generated by each Allocation and assess its impact on the transport network. Where that impact is considered significant, possible schemes to mitigate that impact and reduce it back to the reference level of operation have been developed, tested and costed. Potential mitigations could include the introduction of new public transport schemes, cycling and walking routes, as well as highway engineering solutions. Where suitable mitigations could not be identified, a decision to either reduce the level of development at the Allocation such that it had a lesser impact on the transport network, or to remove the site from the GMSF completely were considered.
- 1.2.7 It is important to note that the mitigation schemes developed are intended to demonstrate only that significant transport impacts of the Allocation can be appropriately ameliorated. As such they are indicative only, and are not intended to

act as a definitive proposal for the mitigation of any Allocation, which would be developed as part of a Transport Assessment submitted as part of a planning application at a later date.

- 1.2.8 The Locality Assessments are one of a number of pieces of evidence developed in order to assess and evaluate the impact of the GMSF proposals on the transport network and focus only on the sites being allocated in the Plan. The majority of sites proposed for development are actually contained within the existing land supply (ELS) and have been split into three subcategories; Homes (both houses and apartments), Offices, and Industry and Warehousing. A separate “Existing Land Supply and Transport Technical Note” describes the quantity and distribution of the ELS, the key growth areas and the relationship between areas and the transport schemes proposed to serve them.
- 1.2.9 Transport for Greater Manchester has also worked closely with Highways England to understand the impact that the Allocations may have on the Strategic Road Network (SRN). SYSTRA Ltd was asked to carry out an exercise to assign the ‘with GMSF’ traffic flows to an representation of an empty SRN network and to produce network stress maps which identified areas of significant delay on the network, as well as providing detailed breakdowns of GMSF Allocation traffic for key sections of the SRN. This exercise has enabled all parties to move towards a common understanding of where the most significant traffic impacts are likely to occur, and provides a common basis to enable Highways England to make investment decisions as part of future Road Investment Strategy (RIS) planning discussions.

1.3 Policy Context – Greater Manchester Transport Strategy 2040

- 1.3.1 It is important to recognise that the GMSF has been developed with the benefit of an adopted Local Transport Plan – the Greater Manchester Transport Strategy 2040 (hereafter referred to as the 2040 Transport Strategy). The 2040 Transport Strategy has an established long-term vision for transport, of providing *world class connections that support long-term, sustainable economic growth and access to opportunity for all*. The four key elements of this vision are:

- Supporting sustainable economic growth;
- Protecting the environment;
- Improving quality of life for all; and,
- Developing an innovative city region.

1.3.2 The 2040 Transport Strategy was first published in February 2017. The Strategy has undergone a ‘light touch’ refresh to reflect work undertaken and the changed context, since 2017. As well as refreshing the 2040 Transport Strategy, to support the GMSF an updated Five Year Transport Delivery Plan has also been prepared. It sets out the practical actions planned to deliver the 2040 Transport Strategy and achieve the ambitions of the GMCA and the Mayor, providing a coordinated approach to transport investment. It is also intended to inform the development of the Greater Manchester Infrastructure Programme (GMIP).

1.3.3 Covid-19 has had a massive health and economic impact on our city region, affecting every person and every business in our city-region. The impact from the pandemic has not been equal or fair, highlighting inequalities across Greater Manchester. Travel demand remains well below levels prior to the pandemic and, although it is increasing, it is clear that Greater Manchester’s plans for transport and other policy areas will need to be adaptive as the recovery continues.

1.3.4 The aim will be to “lock in” some of the benefits our neighbourhoods, communities, towns and cities have experienced from lower vehicle traffic levels and embracing the opportunities to be more productive through flexible working and accessing services through high quality digital systems. The vision is for a future where walking and cycling are the obvious choice for shorter journeys and where the past dependency on the car is superseded by a reliable and responsive public transport system. Our Five Year Transport Delivery Plan sets out those first steps, from a transport and place making perspective to support leading the recovery and creating a stronger, sustainable and resilient Greater Manchester.

1.3.5 The Our Network policies in the GMSF and in Our Five Year Transport Delivery Plan support the implementation of “Our Network”, a ten-year plan to create an integrated, modern and accessible transport network for Greater Manchester. The Delivery Plan brings together different modes of public transport — bus, tram, rail,

tram-train and cycling and walking in an integrated, easy-to-use system with seamless connections, and simplified ticketing and fares.



- 1.3.6 The Five Year Delivery Plan has been prepared to respond to the transport opportunities and challenges facing Greater Manchester, in parallel with the development of the Greater Manchester Spatial Framework (GMSF). Together, these documents provide an integrated approach to transport and land use planning by identifying the strategic transport interventions required to deliver the scale of growth set out in the GMSF. It also supports the priorities of the Greater Manchester Strategy (2018).
- 1.3.7 A key ambition is to improve our transport system so that, by 2040, 50% of all journeys in Greater Manchester are made by public transport or active travel, supporting a reduction in car use to no more than 50% of daily trips. This will mean one million more sustainable journeys every day in Greater Manchester by 2040, enabling us to deliver a healthier, greener and more productive city-region – this is known as the “Right Mix”. Achieving the Right Mix is expected to lead to zero net growth in motor vehicle traffic in Greater Manchester between 2017 and 2040.
- 1.3.8 Fundamental to delivering the Right Mix will be the adoption of a “Streets for All” framework – to enable more people to walk, cycle and use public transport, and improve reliability for, in particular, buses and freight vehicles on the key route network serving our towns and Regional Centre.

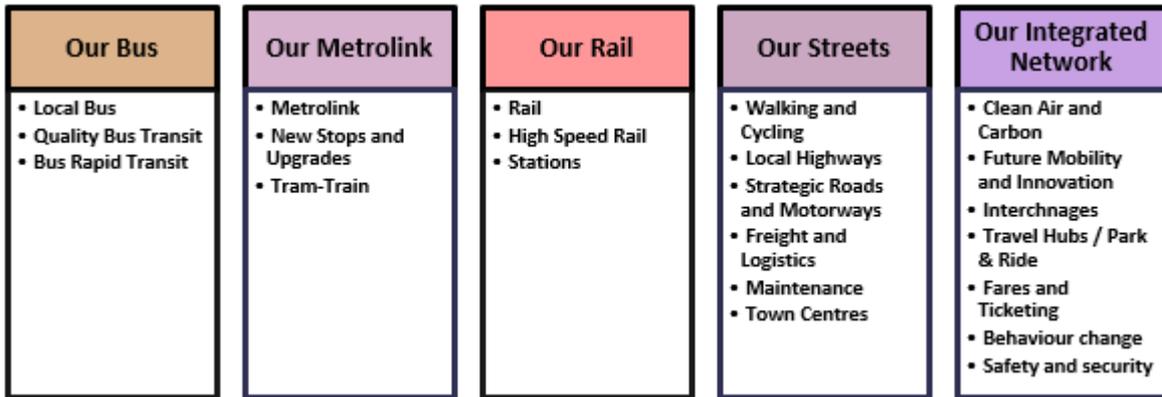
1.3.9 This will be one of the mechanisms used to grow bus patronage alongside:

- Bus Reform
- Integrated Ticketing
- Quality Bus Transit and Bus Corridor Upgrades
- Bus Rapid Transit

1.3.10 Following the introduction of the Bus Services Act (2017), the GMCA asked TfGM to carry out an assessment of a bus franchising scheme, have that assessment reviewed by an independent audit organisation, and carry out a consultation on a proposed franchising scheme which ran from 14 October 2019 to 8 January 2020. The Covid-19 pandemic has had a significant impact on Greater Manchester's bus market, including timetables, revenues, passenger numbers and the public's attitudes to public transport. Due to this, further work will be undertaken to assess the impact of coronavirus on the bus reform process.

1.3.11 Greater Manchester is also delivering the Bee Network - the UK's largest cycling and walking network as a key element in delivering the Right Mix vision. The Combined Authority has allocated £160m between 2018-2022 to fund the first phase of the Bee Network. The network has at its core a programme of new and upgraded pedestrian and cycling crossing points of major roads and other sources of severance, connected by a network of signed cycling and walking routes – known as Beeways – on existing quiet streets. These will be complemented by a number of routes on busier roads where Dutch style cycle lanes protected from motor traffic will be constructed.

1.3.12 Our Five Year Transport Delivery Plan sets out a comprehensive programme of work across all modes and in all Local Authorities which are focused on ensuring the realisation of the 'Right Mix' vision. It contains explanatory text and a summary of the interventions and their stage in the development and delivery process. These include committed, unfunded priorities for the next five years and our longer-term development priorities. The Delivery Plan sections are:



1.3.13 Many of these interventions support the GMSF Allocations directly, whilst others are intended to provide alternatives to private car travel more generally. The schemes demonstrate a clear plan for delivering strategic transport interventions for the first five years of the GMSF plan period, whilst also laying the foundations for longer term investment in sustainable transport across the length of the plan period.

1.3.14 Where relevant, each of the individual Locality Assessments will highlight elements of the Delivery Plan that are particularly relevant to each Allocation or the local area.

1.3.15 Our Five Year Transport Delivery Plan is supported by ten Local Implementation Plans (LIPs) covering the period 2020 to 2025. Each of the ten councils that make up Greater Manchester has its own LIP. The LIPs are designed to ensure local priorities are articulated in the Delivery Plan. The LIPs are included as an appendix to the Delivery Plan. They will be ‘live’ documents for a period of time and will be updated as councils develop and publish transport plans and strategies, or as new schemes are developed or delivered.

1.3.16 For more detail on the Greater Manchester Transport Strategy 2040 and Our Five Year Transport Delivery Plan visit the [TfGM website](#).

1.4 Structure of this Note

1.4.1 This note sets out the process that was implemented to identify the sites considered as suitable for inclusion in the draft GMSF. It also sets out a summary of the Greater Manchester Accessibility Level (GMAL) model which is TfGM’s tool for

assessing the accessibility of sites in public transport terms and which was used in assessing the transport requirements of the Allocations.

1.4.2 An associated exercise was carried out to assess the potential to introduce or extend bus services to the Allocations, and this note sets out the process implemented to assess the likely demand and revenue implications of these new services.

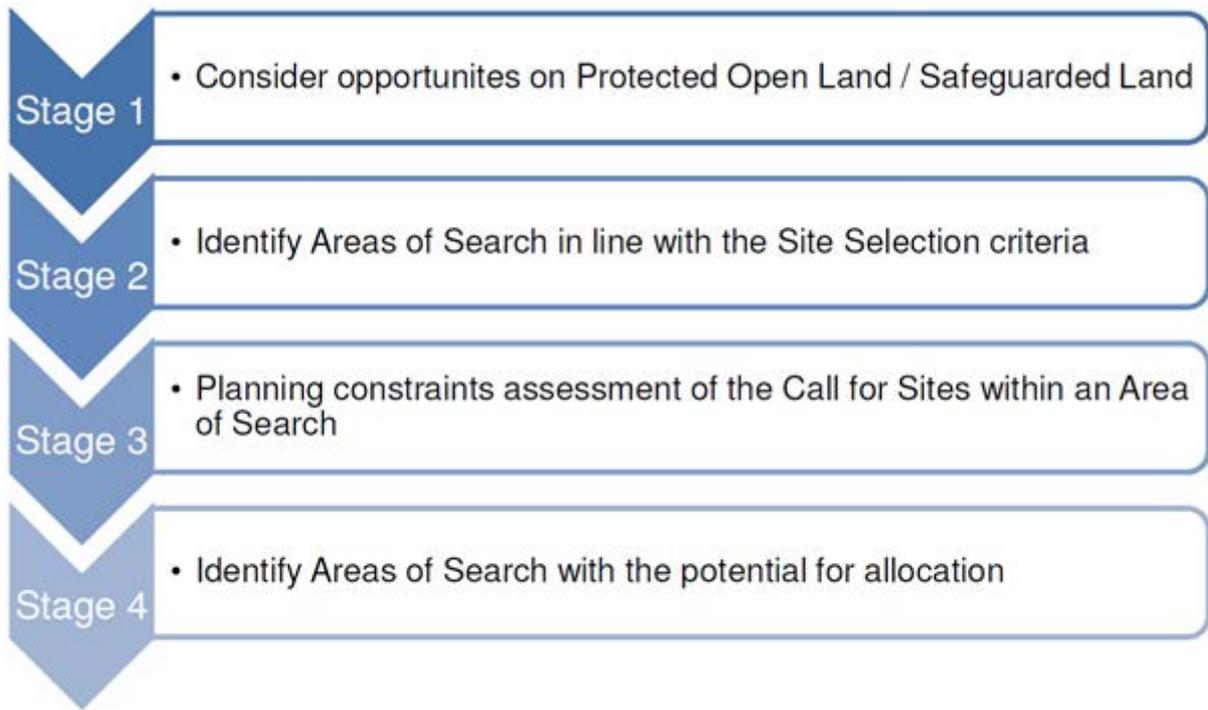
1.4.3 It then explains the approach to strategic modelling which was used to highlight the transport impacts of the Allocations on the transport network, and the process to identify, develop and categorise suggested mitigation schemes.

2. Site Selection

2.1 The Process

1.1.1 The process of identifying and selecting site allocations for the draft GMSF was led by the 10 Greater Manchester Authorities and provided the starting point for further investigation of the preferred sites through the Locality Assessments. It should be noted at the outset that a wide range of planning issues are considered when identifying sites for release, and transport is just one important aspect of this. A Site Selection methodology was developed that included seven criteria informed by the Vision, Objectives and Spatial Strategy in the GMSF 2019, and was used to guide the selection of sites for development within the green belt. A key objective for the process was to demonstrate a clear, consistent and transparent approach to the selection of sites in the GMSF.

1.1.2 The following stages set out the process used to identify the proposed allocations in the GMSF:



1.1.3 Stage One relates to land which is outside of the existing urban area but which is not in the green belt. This includes land which has been identified in Local Authority Local Plans as safeguarded land and/or protected open land (POL). This land is considered to be sequentially preferable to green belt. If stage one does not identify sufficient land to meet the need then it will be necessary to consider sites which are currently in the green belt as part of Stage two.

1.1.4 Stage Two is the identification of broad “Areas of Search” based on the Site Selection Criteria within which call for sites could be assessed. The Site Selection criteria reflect the priorities of the GMSF Spatial Strategy and objectives. The broad Areas of Search approach was chosen because of the volume of call for sites submitted and therefore it was necessary to undertake an initial high level sift to identify only those sites with the potential to meet the GMSF strategy. Sites which did not fall within an Area of Search were not considered to meet the strategy and were therefore excluded from the Site Selection process and not subject to any further assessment.

1.1.5 Based on the GMSF Spatial Strategy, plan objectives and guidance in the NPPF on green belt release, seven Site Selection Criteria were developed to identify the most sustainable sites in the green belt.

- Criterion 1 – Land which has been previously developed and/or land which is well served by public transport.
- Criterion 2 – Land that is able to take advantage of the key assets and opportunities that genuinely distinguish Greater Manchester from its competitors.
- Criterion 3 – Land that can maximise existing economic opportunities which have significant capacity to deliver transformational change and / or boost the competitiveness and connectivity of Greater Manchester and genuinely deliver inclusive growth.
- Criterion 4 – Land within 800 metres of a main town centre boundary or 800m from the other town centres' centroids.
- Criterion 5 – Land which would have a direct significant impact on delivering urban regeneration.
- Criterion 6 – Land where transport investment (by the developer) and the creation of significant new demand (through appropriate development densities), would support the delivery of long-term viable sustainable travel options and deliver significant wider community benefits.
- Criterion 7 – Land that would deliver significant local benefits by addressing a major local problem/issue.

1.1.6 Stage Three is an assessment of the sites within the identified Areas of Search to determine whether development in the Areas of Search would be appropriate, weighing the likely benefits against key planning constraints.

1.1.7 Stage four of the assessment identified proposed allocations within the Areas of Search. These Areas of Search were those which were considered to have no other significant constraints precluding development. Because the Areas of Search were derived from the Site Selection Criteria, it is considered that allocations within them represent the best fit for delivering the GMSF Spatial Strategy.

1.1.8 The Locality Assessments are not proposed to take the place of Transport Assessments (TA) which are a required part of individual Planning Applications. The Locality Assessments are intended to give a high-level assessment of how the site may impact on the surrounding transport network, in the absence of any detailed proposals for the configuration and phasing of a site. As such, they are intended to

highlight any significant 'show stoppers' that would suggest the site was not suitable for further consideration.

2.2 Greater Manchester Accessibility Levels

1.2.1 In order to support analysis of public transport accessibility and to assist in service development, TfGM has developed the [Greater Manchester Accessibility Levels \(GMAL\)](#) model, which provides a detailed and accurate measure of accessibility for any given location in the City Region for public transport (bus, rail and Metrolink), as well as flexible transport services such as Local Link.

1.2.2 GMAL provides a score of a location of between 1 to 8, where 1 represents the lowest level of accessibility and 8 represents the highest.

1.2.3 The GMAL measure reflects:

- Walking time from the point-of interest to the public transport access points;
- The number of services (bus, Metrolink and Rail) available within the catchment;
- The level of service at the public transport access points - i.e. average waiting time; and
- The operating areas of Local Link (flexible transport) services.

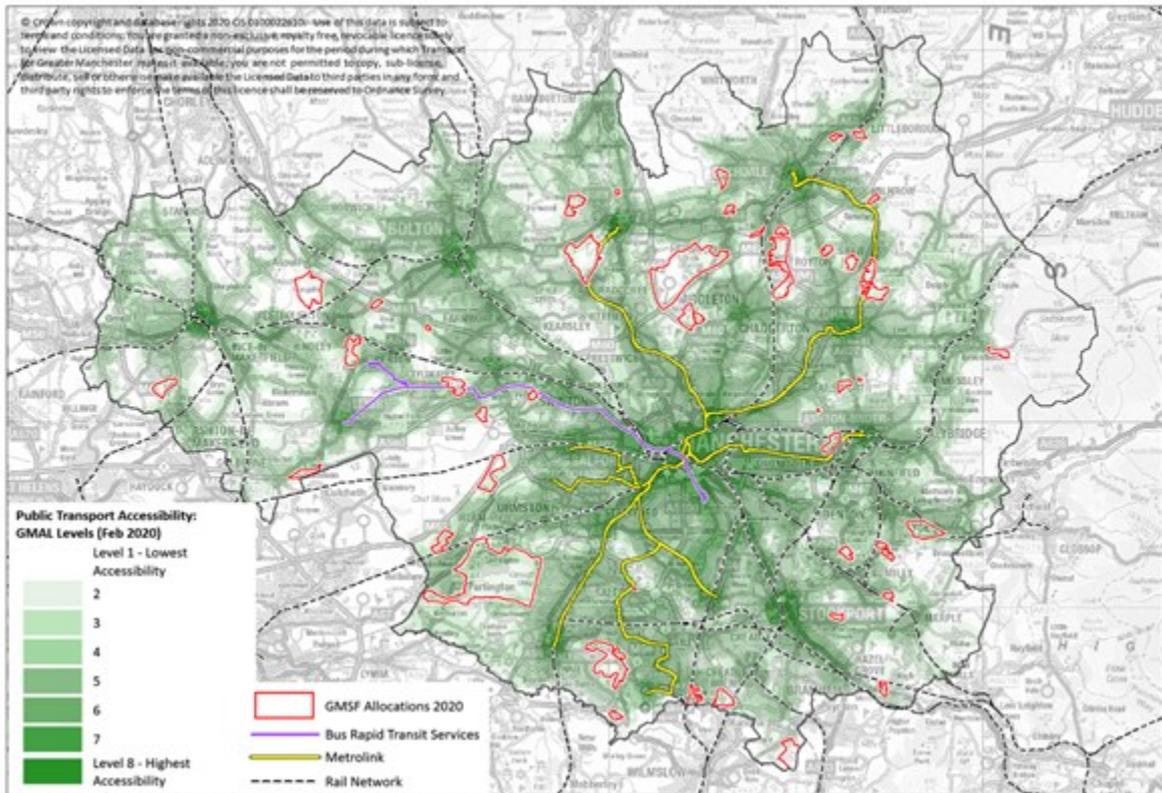
1.2.4 It does not consider:

- The speed or utility of accessible services;
- Crowding, including the ability to board services; or,
- Ease of interchange.

1.2.5 The map below displays the public transport accessibility of allocations within the Greater Manchester Spatial Framework. A representation of the Rail, Metrolink (including the Trafford Park Line completed in March 2020) and Bus Rapid Transit (Vantage bus services) corridors are provided for reference, as well as an indication of public transport accessibility through GMAL.

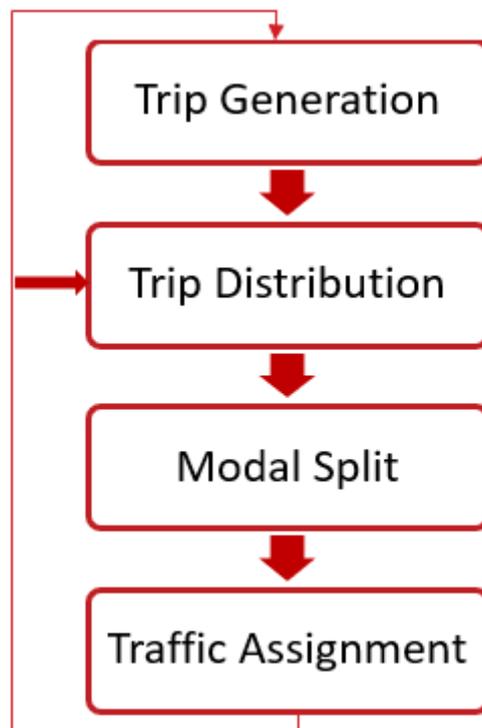
1.2.6 This accessibility data should be considered correct as of February 2020, providing a stable representation of the public transport network before changes in services associated with Covid-19. Since March 2020, public transport services have been under continuous review subject to the requirements of demand, social distancing

and funding. There have been a range of changes made regarding service frequencies across public transport networks, and while there was an initial reduction in services, much of this has now been restored, and this would still represent the areas best served by public transport within a stable service pattern.



3. Approach to Strategic Modelling

2.1 The GMSF Locality Assessments have been produced using data provided from TfGM's Variable Demand Model (GMVDM). This model is a mathematical representation of the transport network, which works by determining all of the origins and destinations of trips within a given area, matching these two together in order to generate a set of journeys, assigning these journeys to a mode (for example, car, bus, or cycling) and then assigning these trips to a route. The model runs numerous 'loops' in order to identify the best path (by generalised cost). This approach is summarised in the diagram below.



2.2 For this project, SYSTRA updated the model in order to produce a number of different scenarios to permit comparison and evaluation.

2.3 TfGM provided the Base Model to SYSTRA representing how the transport network operates at present (in 2017). SYSTRA made some refinements to the Base Model to add detail in the vicinity of some allocations. GMVDM is a strategic model and, as such, does have limitations in terms of investigating localised transport issues.

2.4 SYSTRA then produced a Reference Scenario, including the Existing Land Supply and committed transport infrastructure for two assessment years – 2025 and 2040. This facilitated an understanding of how the transport network was likely to operate in

the future, with the existing land supply identified in the GMSF, but without the introduction of the Allocations proposed in the plan.

- 2.5 Future trip generation to/from the site (i.e. how many people and vehicles will enter or leave the site) was estimated by applying a set of Greater Manchester-wide trip rates derived from an industry database known as TRICS (Trip Rate Information Computer System) to the agreed development quantum for each site. TRICS is a national system for trip generation analysis which allows users to establish potential levels of trip generation for a wide range of development types and scenarios. Trip rates were based on the Trafford Park Metrolink business case and were given for three periods, AM(0700-1000), Inter-Peak (1000-1600) and PM (1600-1900), different rates were also used for town centre and out-of-centre areas. Where Office or Industry and Warehouse was a part of the land use mix, floorspace was converted into a number of jobs, using densities derived from the Homes and Community Agency Employment Density Guide.
- 2.6 The distribution of trips (i.e. where they are going to or coming from) was derived by selecting nearby zones with similar land use characteristics as a proxy and using the existing distribution in the model.
- 2.7 In order to assess the cumulative impact of Greater Manchester allocations on the network, two test model scenarios were undertaken, a 'constrained' and 'high side' assessment. The constrained forecasts could reduce the number of future highway trips due to congestion on the highway network. This constraining process is undertaken by the GMVDM.
- 2.8 In simple terms, the GMVDM takes the unconstrained input demand and adjusts it to reflect changes in the costs of travel over time, due to:
- increased congestion due to the underlying increase in car trips forecast by the National Trip End Model (NTEM) a UK wide forecast of population, employment, car ownership and trip rates, produced by the Department for Transport
 - the inclusion of significant new developments causing additional local congestion
 - changes in values of time and vehicle operating costs
 - changes in public transport fares

- introduction of new public transport services or changes to journeys times / headways for existing services
- introduction of new road infrastructure

2.9 The model adjusts the input demand based on how the cost of travel changes from the base year to the future. For example, for a shopping trip undertaken by car which becomes more congested in future, changes might be:

- travel via a different route
- travel via a different mode, e.g. walk/cycle, bus, Metrolink
- travel to some different shops
- travel at a different time of day
- some combination of the above

2.10 The ‘standard’ development planning approach would generally not assume that future highway trips are constrained by congestion on the highway network. Discussions between SYSTRA and TfGM pointed towards a need to also look at such a ‘high-side’ scenario with the GMSF development scenario which does not take account of future congestion on the road network.

2.11 The outputs of these four Test Cases (“GMSF Constrained” and “GMSF High Side”, for both 2025 and 2040) were used to assess and mitigate the impact of the GMSF Allocations on the Greater Manchester transport network.

2.12 Further iterations of the above process were necessary in the case of some sites. When the process was completed, a comparison was made of the input TRICS trip rates and the output GMVDM development traffic flows, to confirm that both were broadly comparable.

4. Approach to Technical Analysis

4.1 Background

3.1.1 For each of the Site Allocations originally examined, SYSTRA worked with representatives of the ten Greater Manchester Local Authorities, TfGM and site promoters to identify key parts of the transport network (e.g. key road links and

junctions) likely to be impacted by the site. This was achieved by a combination of both professional judgement and local knowledge.

- 3.1.2 In almost all cases the junctions in a road network reach capacity before the road links. Hence, much of the analysis focused on the identified critical junctions. For each of these, a local junction model was built which replicated the current operation of the junction. Signalised junctions were assessed in detail using industry-standard modelling software 'LINSIG Version 3'. Where possible, traffic signal information (i.e. signal phasing and timings) and lane geometry (alignment, profile and lane position) were provided by TfGM to ensure that the local junction models reflected (as far as possible), the operation of the junctions on the ground. 'Junctions 9' software was used to assess priority and roundabout junctions.
- 3.1.3 Junction performance was tested for the "Reference", "GMSF Constrained" and "GMSF High Side" scenarios for both 2025 and 2040. Site traffic impacts were measured relative to the Reference scenario. Where these impacts were considered to be significant, transport mitigation schemes were developed to address these. Through discussions with TfGM and the Combined Authority, it was agreed that where mitigation was required, it should mitigate the impacts back to the Reference Case scenario – i.e. the allocations should mitigate their own cumulative impact rather than seek to mitigate the impact of general traffic growth arising from the Existing Land Supply. It should be noted that mitigating back to this level of operation may not mean that the junction operates within capacity by 2040.

4.2 Approach to identifying Public Transport schemes

- 3.2.1 Public transport interventions have been identified which could support non-car trips to and from the draft Allocation. In some instances sites have been proposed close to current or planned Metrolink stops or current rail stations, and for a majority of sites the introduction of new or extended bus services have been proposed and outline costs developed.
- 3.2.2 In order to develop these proposals, SYSTRA Ltd's bus service experts and TfGM's Operational Planning team held a workshop to identify potential new and improved services for each site, including any existing proposals identified during the early stages of the planning process. The identified services were then defined in more

detail to understand the likely catchments and patronage levels. Patronage was based on TRICS outputs moderated in line with the actual levels of services proposed (e.g. slow and/or low frequency services are unlikely to achieve the patronage implied by the raw TRICS outputs). The patronage forecasts were used to estimate the likely revenue levels to be generated by the new or improved bus service associated with each site.

3.2.3 Services were also costed using detailed costing information available to TfGM through its specification of current socially necessary bus services, to establish whether they could operate without subsidy, and, where subsidy was likely to be necessary, to understand the likely cost per passenger. Services with an unacceptably high cost per passenger subsidy were reviewed in order to understand if any changes could be made that would reduce the subsidy, which led to a reduction in the specification of some services.

3.2.4 Services which, following review, still had an unacceptably high cost per passenger subsidy were deemed to be unviable and were not included in the Locality Assessments.

3.2.5 It should be noted that the working environment for buses is likely to be substantially different in the future, and this exercise was intended to be indicative of the type of bus service that may be possible when an Allocation is developed. The opportunity for bus service improvements will need to be reviewed at the time of submission of the planning application (within the Transport Assessment) as circumstances and opportunities for service improvement may have changed.

4.3 Mitigations and Scheme Development

3.3.1 A number of the site allocations have a body of pre-existing planning information associated with them. This body of work includes consideration of how they could best be linked into the transport network. Therefore, for some sites, there were pre-existing proposals for interventions in the form of link roads, new rail or Metrolink stations, or extensions to existing or proposed bus, cycle and walking routes. Where these schemes had a base level of detail (which would allow them to be coded into the model), they could be examined to consider the level of relief they provided to the traffic impacts. In other instances, it was for the Locality

Assessment technical teams to identify possible interventions and off-site mitigations. Typical local mitigations that were considered included:

- priority junctions (both new priority junctions and modification of existing junctions)
- signalised junctions (both new signalised junctions, modification of existing signalised junctions and conversion of priority junctions to signalised arrangement)
- roundabouts (both mini and standard, modification of existing roundabouts and signalisation of standard roundabouts)
- carriageway construction (single and dual carriageway)
- installation of pedestrian / cycle crossings (pelican, toucan, puffin and zebra).

3.3.2 In addition, the team considered the introduction of new bus services, extensions to or increases in frequency for existing bus services, and the possible introduction of Demand Responsive Transport.

3.3.3 In parallel to the identification and costing of local mitigations, a costing exercise was undertaken to identify broad costs for each intervention to understand how these could be delivered and the extent to which they offered value for money. SYSTRA and other third-party consultants have pro-actively engaged with the Local Authorities and other stakeholders such as TfGM and Highways England throughout the assessment process and based on their inputs the list of transport interventions has been refined and consolidated.

3.3.4 In the case of certain allocations, it was necessary to undertake the process described above more than once. In the case of some larger and/or more complex sites, it was necessary to test the effectiveness of the identified mitigations via the GMVDM and to further check that traffic reassignment did not generate additional problems.

3.3.5 Each of the Locality Assessments has considered the full range of mitigations and interventions, from public transport, to highway schemes, to sustainable modes. Some of the sites allocated for development have proven to be more complex than others; due either to their size and composition, their proximity to other sites or their interaction with congested sections of the Strategic Road Network. In these instances, it has been necessary to complete several iterations of the process set out above. For example, mitigations developed for a site may not fully address the

issues identified, and further mitigations and/or reductions in development quantum have been considered in order to identify the correct level of scale. This has in some cases necessitated several rounds of strategic modelling.

3.3.6 In some instances, it was not possible to fully identify interventions which could suitably mitigate the impact of the site on the network. Where this is the case, this became a contributing factor in decisions to either reduce the scale or remove the site completely from the GMSF (Appendix 1 gives a full list of the final GMSF Allocations). In other instances, the proposed intervention made a contribution to mitigating the site, but could not fully ameliorate the impact. In these instances, care has been taken to ensure that the Allocation is not proposed for delivery in the early part of the Plan period, in order to allow further work to be done to improve the transport network, and ensure that the Allocation can be brought forward safely and sustainably.

3.3.7 Mitigations have been grouped in one of four categories depending on their size and significance:

Necessary strategic interventions

3.3.8 These comprise significant interventions that have potential to have strategic benefits – i.e. benefits to the wider network not just the local network. There is a consensus that the intervention is required to support the implementation of a specific site and that the site could not come forward without it

Supporting strategic interventions

3.3.9 These comprise significant interventions; similar in magnitude to those defined in the previous category. These interventions are considered highly desirable and may be required in order to deliver the GMSF at a Plan level but are not necessarily linked to the delivery of any one Allocation.

Necessary local interventions

3.3.10 These are essential for a site to come forward, but do not have a wider strategic impact on the transport network. They are comprised of three main types:

- Site Access – Direct connections between the external road network and the site.

- Local Mitigation – Local transport mitigation measures proposed to address direct impacts of the site. These might comprise road network improvements, localised public transport improvements and measures to support the use of active modes.
- SRN Mitigation – Highway mitigation measures specifically intended to address identified issues on the Strategic Road Network arising from an Allocation.

Supporting local interventions

- 3.3.11 Site Access, Local Mitigation and SRN mitigation which are considered highly desirable but are not essential to the delivery of any one Allocation.
- 3.3.12 It is important to note that the interventions developed are intended to demonstrate only that significant transport impacts of the Allocation can be appropriately ameliorated. As such they are indicative only and are not intended to act as a definitive proposal for the mitigation of any Allocation, which would be developed as part of a Transport Assessment submitted as part of a planning application at a later date.
- 3.3.13 All of the interventions set out in the Locality Assessments are included in Greater Manchester’s Five Year Transport Delivery Plan (or are covered within the associated Local Implementation Plans (LIP) for each local authority). This sets out those transport schemes which will be implemented or developed further across the next five-years in order to deliver on Greater Manchester’s wider economic, social and environmental objectives for transport as set out in 2040 Transport Strategy.
- 3.3.14 The focus of the main Transport Delivery Plan is on those GMSF schemes that have strategic benefits, while the LIP documents enable the local interventions to be incorporated into the local sustainable transport and highway programmes.
- 3.3.15 In all cases, we would expect significant developer funding to enable the delivery of both the strategic and local schemes, and where appropriate other sources of public funding will be sought to help ensure delivery over the plan period. Funding and delivery priorities of the Delivery Plan, over the next 3-5 years, will be reflected in the Greater Manchester Infrastructure Programme (GMIP).

3.3.16 Further iterations of the Delivery Plan will be published at regular intervals, and as sites come forward for development, we would expect to see interventions necessary to ensure new Allocations can be delivered sustainably to be reflected in those iterations. TfGM, the Local Authorities, Highway England and site promoters will work together to ensure that schemes which are brought forward support the City Region's commitment to the Right Mix vision and the ambition to enable more people to walk, cycle and use public transport.

5. Conclusion

- 4.2 The completion of Locality Assessments on the proposed GMSF Allocations has ensured that each site has been subject to a thorough, robust and consistent evaluation of its likely contribution to transport impacts in Greater Manchester. The sites that have been selected for inclusion in the latest version of the GMSF have been found to be suitable from a transport perspective, and satisfy the requirements of National Planning Policy Framework in that they do not place an unacceptable impact on highway safety or severe impact on the road network. Where necessary, illustrative mitigation schemes have been developed, and their effectiveness in reducing traffic impacts has been demonstrated. Those schemes which have a strategic benefit and are likely to be needed in the next five-year period have been referenced in Our Five Year Transport Delivery Plan and form part of GMIP.
- 4.3 Nonetheless, it is clear that for some Allocations there is further work to be done in order to develop a solution that fully mitigates the site's impact on the transport network. In these instances care has been taken to ensure that the Allocation is not identified for delivery in the first five years of the Plan, to enable more work to be undertaken to ensure that the site can be delivered in a safe and sustainable matter at a later point in time.

6. GMSF Allocations List

Local Authority	2019 Ref	2019 Title	2020 Ref	2020 Title
Cross Boundary	GMA01.1	Northern Gateway Heywood Pilsworth	GMA1.1	Northern Gateway Heywood Pilsworth
Cross Boundary	GMA01.2	Northern Gateway Simister and Bowlee	GMA1.2	Northern Gateway Simister and Bowlee
Cross Boundary	GMA01.3	Whitefield	Withdrawn	Withdrawn
Cross Boundary	GMA02	Stakehill	GMA2	Stakehill
Cross Boundary	GMA03	Kingsway South	Withdrawn	Withdrawn
Bolton	GMA04	Bewshill Farm	GMA4	Bewshill Farm
Bolton	GMA05	Chequerbent North	GMA5	Chequerbent North
Bolton	GMA06	West of Wingates	GMA6	West of Wingates
Bury	GMA07	Elton Reservoir	GMA7	Elton Reservoir
Bury	GMA08	Seedfield	GMA8	Seedfield
Bury	GMA09	Walshaw	GMA9	Walshaw
Manchester	GMA10	Global Logistics	GMA10	Global Logistics
Manchester	GMA11	Roundthorn MediPark Extension	GMA3.1	Roundthorn MediPark Extension
Manchester	GMA12	Southwick Park	GMA11	Southwick Park
Oldham	GMA13	Ashton Road Corridor	GMA18	Land south of Coal Pit Lane (Ashton Road)
Oldham	GMA14	Beal Valley	GMA12	Beal Valley

Local Authority	2019 Ref	2019 Title	2020 Ref	2020 Title
Oldham	GMA15	Broadbent Moss	GMA14	Broadbent Moss
Oldham	GMA16	Cowlshaw	GMA16	Cowlshaw
Oldham	GMA17	Hanging Chadder	GMA17	Hanging Chadder
Oldham	GMA18	Robert Fletchers	GMA15	Chew Brook Vale (Robert Fletchers)
Oldham	GMA19	South of Rosary Road	GMA19	South of Rosary Road
Oldham	GMA20	Spinners Way	Withdrawn	Withdrawn
Oldham	GMA21	Thornham Old Road	Withdrawn	Withdrawn
Oldham	GMA22	Woodhouses	GMA13	Bottom Field Farm (Woodhouses)
Rochdale	GMA23	Bamford and Norden	GMA20	Bamford and Norden
Rochdale	GMA24	Castleton Sidings	GMA21	Castleton Sidings
Rochdale	GMA25	Crimble Mill	GMA22	Crimble Mill
Rochdale	GMA26	Land north of Smithy Bridge	GMA23	Land north of Smithy Bridge
Rochdale	GMA27	Newhey Quarry	GMA24	Newhey Quarry
Rochdale	GMA28	Roch Valley	GMA25	Roch Valley
Rochdale	GMA29	Trows Farm	GMA26	Trows Farm
Salford	GMA30	Land at Hazelhurst Farm	GMA27	Land at Hazelhurst Farm

Local Authority	2019 Ref	2019 Title	2020 Ref	2020 Title
Salford	GMA31	East of Boothstown	GMA28	East of Boothstown
Salford	GMA32	North of Irlam Station	GMA29	North of Irlam Station
Salford	GMA33	Port Salford Extension	GMA30	Port Salford Extension
Stockport	GMA34	Bredbury Park Extension	GMA31	Bredbury Park Extension
Stockport	GMA35	Former Offerton High School	GMA32	Former Offerton High School
Stockport	GMA36	Gravel Bank Road/Unity Mill	Withdrawn	Withdrawn
Stockport	GMA37	Heald Green	GMA33	Heald Green 1 (West)
Stockport	GMA38	High Lane	GMA35	High Lane
Stockport	GMA39	Hyde Bank Meadows	GMA36	Hyde Bank Meadows
Stockport	GMA40	Griffen Farm/Stanley Green	GMA34	Heald Green 2 (East)
Stockport	GMA41	Woodford Aerodrome	GMA37	Woodford Aerodrome
Tameside	GMA42	Ashton Moss West	GMA38	Ashton Moss West
Tameside	GMA43	Godley Green Garden Village	GMA39	Godley Green Garden Village
Tameside	GMA44	South of Hyde	GMA40	South of Hyde

Local Authority	2019 Ref	2019 Title	2020 Ref	2020 Title
Trafford	GMA45	New Carrington	GMA41	New Carrington
Trafford	GMA46	Timperley Wedge	GMA3.2	Timperley Wedge
Wigan	GMA47	Land South of Pennington	Withdrawn	Withdrawn
Wigan	GMA48	M6 Jctn 25	GMA42	M6 Junction 25
Wigan	GMA49	North of Mosley Common	GMA43	North of Mosley Common
Wigan	GMA50	Pocket Nook	GMA44	Pocket Nook
Wigan	GMA51	West of Gibfield	GMA45	West of Gibfield

Greater Manchester Spatial Framework

Locality Assessment:

Bewshill Farm (GMA4)

Publication Version 1: Oct 2020

Identification Table	
Client	Bolton/TfGM
Allocation	Bewshill Farm
File name	GMA4 Bewshill Farm Locality Assessment 021020
Reference number	GMA4

Approval					
Version	Role	Name	Position	Date	Modifications
0	Author	Richard Murphy	Director (Mosodi)	01/07/20	Base report
	Checked by	Huw Williams	Associate (SYSTRA)	04/07/20	
	Approved by			DD/MM/YY	
1	Author	R Clowes	TfGM	30/09/20	Consistency edits
	Checked by	G Langley	Bolton MBC	30/09/20	
	Approved by	S Godley	Bolton MBC	03/09/20	

Table of contents

1.	Allocation Location & Overview	8
2.	Justification for Allocation Selection	10
3.	Key Issues from Consultation	11
4.	Existing Network Conditions and Allocation Access	11
5.	Multi-modal accessibility	17
6.	Parking	30
7.	Allocation Trip Generation and Distribution	30
8.	Current Highway Capacity Review	32
9.	Treatment of Cumulative Impacts	34
10.	Allocation Access Assessment	34
11.	Impact of Allocation Before Mitigation on the Local Road Network	35
12.	Transport Interventions Tested on the Local Road Network	40
13.	Impact of interventions on the Local Road Network (where appropriate)	41
14.	Impact and mitigation on Strategic Road Network (where applicable)	41
15.	Final list of interventions	45
16.	Strategic Context – GM Transport Strategy Interventions	47
17.	Phasing Plan	48
18.	Summary & Conclusion	50

List of figures

Figure 1.	Study Area: Bewshill Farm	9
Figure 2.	Allocation Location: Bewshill Farm	10
Figure 3.	Indicative Allocation Access: Bewshill Farm	15
Figure 4.	Bus services and Bus Stops within the vicinity of the allocation: Bewshill Farm	19
Figure 5.	Walking and Cycling Accessibility: Bewshill Farm	24
Figure 6.	Walk Times from the Allocation (up to 25 minutes): Bewshill Farm	25
Figure 7.	Cycle Times from the Allocation (up to 25 minutes): Bewshill Farm	26
Figure 8.	Cycle Facilities: Bewshill Farm	28
Figure 9.	Bee Network Proposals within the vicinity of the Allocation: Bewshill Farm	29
Figure 10.	Assessed Junctions: Bewshill Farm	32
Figure 11.	GMSF Allocations : Bewshill Farm	34

List of tables

Table 1.	Personal Accident Analysis Summary: Bewshill Farm	16
Table 2.	Personal Accident Analysis Severity by Year: Bewshill Farm	16
Table 3.	Personal Injury Accident Analysis – Vulnerable Road Users: Bewshill Farm	17
Table 4.	Bus Service Information: Bewshill Farm	20
Table 5.	Atherton Weekday Train Services Summary: Bewshill Farm	23
Table 6.	Accessibility by Foot: Bewshill Farm	25
Table 7.	Development Quantum: Bewshill Farm	31
Table 8.	Allocation Traffic Generation: Bewshill Farm*	31
Table 9.	Allocation Traffic Distribution, 2040 GMSF High-Side (Origin/Destination Combined)	31
Table 10.	Allocation Traffic Assignment, 2040 GMSF High-Side (Origin/Destination Combined)	32
Table 11.	Current Highway Capacity Review: Bewshill Farm	33
Table 12.	GMSF Trips in 2040 High Scenario on the LRN: Bewshill Farm	36
Table 13.	Impact of the Allocation on the LRN: Bewshill Farm	37
Table 14.	Results of Local Junction Capacity Before Mitigation: Bewshill Farm	38
Table 15.	Watergate Lane/A6 Bridgewater Avenue Roundabout Summary Results: Bewshill Farm	39
Table 16.	GMSF Trips in 2040 High Scenario on the SRN: Bewshill Farm	42
Table 17.	Impact of allocation on the SRN: Bewshill Farm	42
Table 18.	Results of Local Junction Capacity Analysis Before Mitigation: Bewshill Farm	42
Table 19.	J4 M61 Roundabout Summary Results: Bewshill Farm	43
Table 20.	J4 M61 Slip Road Flows: Bewshill Farm	44
Table 21.	Final list of interventions: Bewshill Farm	46
Table 22.	Allocation Phasing: Bewshill Farm	48
Table 23.	Indicative intervention delivery timetable: Bewshill Farm	48

Allocation Data	
Allocation Reference No.	GMA4
Allocation Name	Bewshill Farm
Authority	Bolton
Ward	Hulton
Allocation Proposal	21,000 sqm Industrial/Warehousing
Allocation Timescale	0-5 years <input checked="" type="checkbox"/> 6-15 years <input type="checkbox"/> 16 + years <input type="checkbox"/>

Glossary

“2025 GMSF Constrained” - is the 2025 forecast case in which the model adjusts the input demand based on how the cost of travel changes from the base year to the future. For example, for a shopping trip undertaken by car which becomes more congested in future, changes might be travel via a different route, mode, location or time of day.

“2040 GMSF Constrained” - as above, but for a 2040 forecast year

“2025 GMSF High-Side” - is the 2025 forecast case in which the model does not adjust the input demand based on how the cost of travel changes. In this scenario congestion does not lead to a reassignment of traffic, and therefore road traffic flow will generally be higher.

“2040 GMSF High-Side” - as above, but for a 2040 forecast year

“2025 Reference Case” - is the Do Minimum scenario which includes delivery of all transport schemes already committed and assumed to be completed by 2025

“2040 Reference Case” - is the Do Minimum scenario which includes delivery of all transport schemes already committed and assumed to be completed by 2040

AADT - Annual average daily traffic, is a measure used in transportation planning to quantify how busy the road is

Bee Network - is a proposal for Greater Manchester to become the very first city-region in the UK to have a fully joined-up cycling and walking network: the most comprehensive in Britain covering 1,800 miles.

Bus Rapid Transit - is a bus-based public transport system designed to improve capacity and reliability relative to a conventional bus system. Typically, a BRT system includes roadways that are dedicated to buses, and gives priority to buses at junctions where buses may interact with other traffic

Existing Land Supply - these are sites across the county that have been identified by each local planning authority across Greater Manchester and are available for development

Greater Manchester Variable Demand Model (GMVDM) - the multi-modal transport model for Greater Manchester. This transport model provides estimates of future year transport demand as well as the estimates of travel behaviour changes and new patterns that the Plan is likely to produce. These include

changes in choices of routes, travel mode, time of travel and changes in journey destinations for some activities such as work and shopping.

“LRN” (Local Road Network) All other roads comprise the Local Road Network. The LRN is managed by the local highways authorities

National Trip End Model (NTEM) - is a Department for Transport forecast that ensures that measures of population, jobs and trips made by various mode are consistent across the whole of Great Britain.

Rapid transit services - refers to high frequency, high capacity metro style transport services including Metrolink and Bus Rapid Transit.

“SRN” (Strategic Road Network) The Strategic Road Network comprises motorways and trunk roads, the most significant ‘A’ roads. The SRN is managed by Highways England.

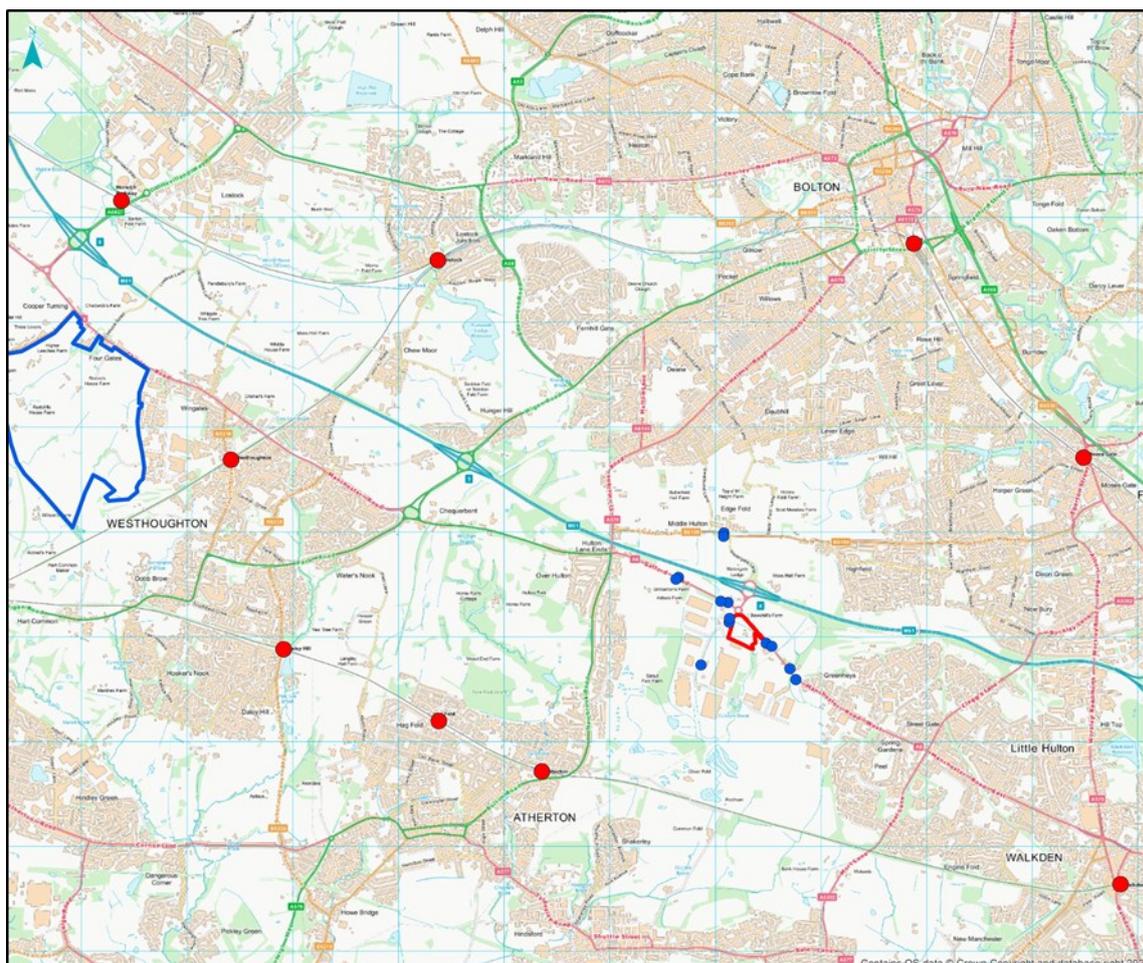
“TfGM” - Transport for Greater Manchester, the Passenger Transport Executive for Greater Manchester

Urban Traffic Control (UTC) - is a specialist form of traffic management that, by coordinating traffic signals in a centralised location, minimises the impact of stop times on the road user.

1. Allocation Location & Overview

- 1.1.1 SYSTRA have been commissioned by Transport for Greater Manchester (TfGM) to provide a series of locality assessments for strategic allocations within the Greater Manchester Spatial Framework (GMSF) in order to confirm their potential impacts on both the local and strategic network, as well as identifying possible forms of mitigation or the promotion of sustainable alternatives to reduce this impact. Mosodi have undertaken the technical work associated with this particular Locality Assessment.
- 1.1.2 The Bewshill Farm allocation is located to the south of the A6, off the M61 at junction 4. The small parcel of land lies adjacent to an area that occupies the Logistics North industrial area, which has over 3million sq. ft of Grade A logistics and manufacturing space employing over 5,500 people at present.
- 1.1.3 This GMSF allocation is for 21,000sqm of employment land at the allocation (industrial & warehousing). For the purposes of the testing the impact of the allocation through the strategic model, a total of 21,000 sqm of employment floorspace have been assumed to be built out by 2040. The GM transport modelling suite has a 2040 forecast year, as such it uses 2040 trajectory data as proxy for 2037 full build-out, this is not considered to materially impact on the analysis or conclusions of this report.
- 1.1.4 All phasing plans information contained in this Locality Assessment is indicative only and has only been used to understand the likely intervention delivery timetable. Final trajectory information and the final allocation proposal is contained in the GMSF Allocation Topic Paper.
- 1.1.5 The Study Area (shown in Figure 1) includes the section of the A6 that extends from the A6/Cleggs Lane Junction to the east of the allocation to Four Lanes End Junction to the west of the allocation. The Study Area also extends north from the allocation and Bridgewater Avenue/Watergate Lane roundabout through the M61 J4 roundabout to the junction with Plodder Lane.
- 1.1.6 The extent of the study area has been agreed and defined by all parties for the Logistics North development which is shown in Figure 1. As this development is much larger than the Bewshill Farm allocation it is deemed suitable to use the same study area.

Figure 1. Study Area: Bewshill Farm



Note: All boundaries shown were correct at time of writing – for definitive boundary information refer to the GMSF allocation maps.

Figure 2. Allocation Location: Bewshill Farm



Note: All boundaries shown were correct at time of writing – for definitive boundary information refer to the GMSF allocation maps.

1.1.7 At this stage a masterplan has not been developed for the allocation because it is not necessary to demonstrate deliverability of the scheme due to the modest scale. A sketch plan has been completed to confirm that the GFA that is sought for allocation can be accommodated on the site and this exercise confirmed this is the case.

2. Justification for Allocation Selection

2.1.1 The Bewshill Farm allocation is immediately adjacent to the existing strategic employment site at Logistics North (within the Wigan-Bolton Growth Corridor) and would form a well contained extension to this successful development. The allocation can take advantage of existing public transport arrangements for Logistics North, which include a demand responsive service. There are no significant physical constraints preventing the development of the allocation and development could have a positive impact on adjacent areas of deprivation.

2.1.2 The allocation would have a strong role to play in creating a thriving and productive economy, and reducing inequalities and improving prosperity.

3. Key Issues from Consultation

3.1.1 In relation to the Bewshill Farm allocation the following transport issues have been raised, as reported in the [GMSF Consultation Summary Report \(October 2019\)](#). Please note the below are summaries of the consultation responses received by Greater Manchester Combined Authority (GMCA) and their inclusion in this report does not indicate agreement to the statements by Mosodi and/or TfGM:

- Development will increase heavy traffic into the area, which will worsen the existing congestion;
- The potential considerable increase in HGV's via the M61 and A6 and other commuting traffic due to the proposals would disrupt existing neighbourhoods;
- There should be safe, accessible and sustainable transport included as part of the policy.

3.1.2 It should be noted that there was support for this allocation due to it being a natural extension of the Logistics North employment site.

3.1.3 The above responses have informed the consideration of potential mitigation measures and analysis throughout this report.

3.1.4 For a full breakdown of the key issues highlighted in relation to this allocation please refer to the Consultation Summary Report (October 2019).

4. Existing Network Conditions and Allocation Access

4.1.1 This section provides a detailed commentary of the existing highway network between the allocation and the strategic road network. These sections of highway are assessed in greater detail as these are the links that will accommodate the majority of the development traffic and those at which mitigation may be required to accommodate the additional traffic to be generated by the allocation.

Bridgewater Avenue/A6

4.1.2 Bridgewater Avenue meets the A6 and Watergate Lane at a 4-arm standard roundabout. It is an adopted highway which is subject to a 40mph speed limit as it passes the Allocation frontage.

- 4.1.3 Bridgewater Avenue is a dual carriageway with two lanes in each direction, separated by a central reservation at its northern section, it has a typical kerb to kerb width of 16.5m.
- 4.1.4 Bridgewater Avenue has a shared cycle/footway on both sides of the carriageway.
- 4.1.5 Watergate Lane on the northern arm of the standard roundabout has two lanes travelling in each direction, they are not separated however by a central reservation.
- 4.1.6 Watergate Lane also has the provisions of a shared cycleway/footway on either side of the dual carriageway with a pedestrian splitter island.
- 4.1.7 The A6 eastbound and westbound carriageways are both single carriageways approximately 10m in width with a shared footway/cycleway on either side of the carriageway with a pedestrian splitter island.

Four Lanes Junction

- 4.1.8 Located approximately 1.3km to the west of the allocation the Four Lanes Junction is a signalised 4 arm junction connecting the A6 and the A579. All arms of this junction are subject to a 30mph speed limit.
- 4.1.9 Located approximately 1.3km to the west of the allocation the Four Lanes Junction is a signalised 4 arm junction connecting the A6 and the A579. All arms of this junction are subject to a 30mph speed limit.
- 4.1.10 The kerb to kerb width of the A6 eastbound is circa 13.1m, two lanes are available with a dedicated right turn lane, and an ahead and left. A signalised pedestrian crossing is provided approximately 54m from the junction with dropped kerbs. Footways are also provided on both sides of the carriageway measuring 1.8m.
- 4.1.11 As with the eastbound carriageway travelling westbound of the A6 there is a right turn only lane and an ahead and left lane, the kerb to kerb width is circa 13.1m. A signalised pedestrian crossing is available at the junction with a 1.8m wide pedestrian island.
- 4.1.12 The northern arm (St Helens Road, A579) has a kerb to kerb width of 10.6m. A right turn only lane is provided alongside an ahead and left turn lane. An advanced cycle start box is available at the

junction along with a signalised pedestrian crossing, with dropped kerbs. A footway is provided on either side of the carriageway.

4.1.13 Similarly, the southern arm of St Helens Road has a kerb to kerb width of 10.6m, with two lanes, a dedicated right turn only and ahead and left. An advanced cycle start box is available at the junction along with a signalised pedestrian crossing, with dropped kerbs and pedestrian island. A footway is provided on either side of the carriageway.

A6/Cleggs Lane Junction

4.1.14 Located approximately 2.15km east of the allocation the A6 connected to Cleggs Lane via a signalised 4 arm junction.

4.1.15 The kerb to kerb width of all arms of the junction are circa 11.9m. Shared cycleways/footways are also available on both sides of the carriageway measuring at least 2.5m.

4.1.16 Pedestrians wishing to cross any of the four arms are able to use the push button crossing facilities. An advanced cycle stop line is provided on the southern arm (Armitage Avenue).

4.1.17 As part of the Logistics North development it was agreed that improvements would be implemented at this junction to enhance the capacity.

4.1.18 Discussions are ongoing with highway officers at Salford City Council regarding these improvements. These discussions are taking place due to the shift in focus following the promotion of the Bee Networks Schemes across Greater Manchester. Salford Council are currently determining if they should seek to amend the junction to enhance the cycling infrastructure at this location as opposed to increasing vehicle capacity.

Plodder Lane / Watergate Lane

4.1.19 Located approximately 900m north of the allocation Watergate Lane connects to Plodder Lane via a 3-arm signalised junction all of which are subject to a 30mph speed limit.

4.1.20 The kerb to kerb width as Plodder Lane routes through this junction is circa 8.3m.

- 4.1.21 Watergate Lane approaches the junction from the south via a single carriageway road approximately 6.7m in width, it has the provisions for a shared cycleway/footway on the northbound carriageway.
- 4.1.22 Plodder Lane western arm has the provisions for a shared cycleway/footway on both sides of the carriageway. The eastern arm only has provisions on the eastbound carriageway.
- 4.1.23 As part of the Logistics North planning approval it is conditioned that improvements are made to this junction. For the purposes of this assessment the layout approved as part of the planning permission for Logistics North is used.
- 4.1.24 The layout that will be implemented is subject to ongoing discussions as part of the Section 278 agreement.

M61 Junction 4

- 4.1.25 Junction 4 is located approximately 300m to the north of the allocation, Watergate Lane joins the M61 slip roads via a standard roundabout.
- 4.1.26 Watergate Lane North is a single carriageway approximately 9.9m in width, it is subject to a 30mph speed limit. A shared pedestrian / cycleway is provided on both sides of the carriageway.
- 4.1.27 Watergate Lane South is a dual carriageway with a width of 14m also subject to a 30mph speed limit. A shared pedestrian / cycleway is provided on either side of the carriageway.
- 4.1.28 The M61 eastbound and westbound slip roads consist of two lanes and are approximately 6.5m in width, the access onto the roundabout is controlled by signals.
- 4.1.29 This junction was improved as part of the Logistics North planning approval including enhancements to the pedestrian and cycle provision and full signalisation of the junction.

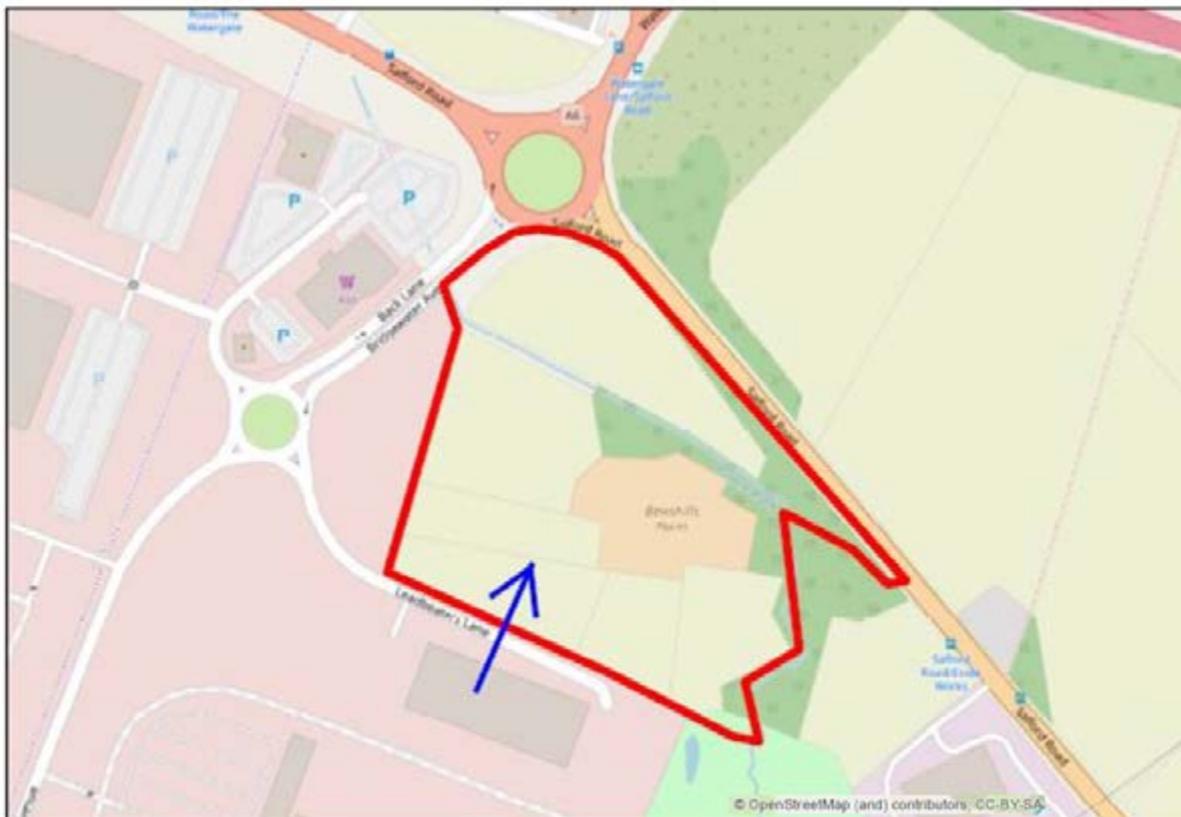
4.2 Proposed Allocation Access

4.2.1 The allocation is proposed to be accessed from the existing Logistics North development from Leadbeater Lane. Leadbeater lane meets Bridgewater Avenue at a roundabout within Logistics North, and has onward connectivity via a roundabout on the A6 at Watergate Lane/Salford Road, adjacent to M61 junction 4. The allocation is proposed to be accessed from Bridgewater Avenue and Leadbeater Lane as indicated on the image below.

4.2.2 There are no constraints to the provision of the Allocation access and it will be provided to industry accepted standards and is anticipated to include the following or other arrangement as agreed through the planning process:

- Minimum 12.5 radii with taper;
- 7.3m carriageway internally.

Figure 3. Indicative Allocation Access: Bewshill Farm



Note: All boundaries shown were correct at time of writing – for definitive boundary information refer to the GMSF allocation maps.

4.3 Incident Analysis

- 4.3.1 Personal injury accident data has been obtained for the highway network in the vicinity of the Allocation for the most recently available five year period between 1st September 2014 and 31st August 2019 inclusive. The accident data has been supplied by TfGM for the key areas in and around the key junctions on the network
- 4.3.2 The study area includes areas of Salford Road, Manchester Road and Watergate Lane.
- 4.3.3 For the 5 year period, there have been a total of 154 accidents, which were classified as 1 fatal and 8 Serious and 45 slight accidents within the study area. A comprehensive analysis of the accidents can be found in Table 1 and 2 below, Table 3 shows the accident that occurred with vulnerable road users.

Table 1. Personal Accident Analysis Summary: Bewshill Farm

Severity	Number of Accidents	Percentage
Slight	45	83%
Serious	8	15%
Fatal	1	2%
Total	54	100%

Table 2. Personal Accident Analysis Severity by Year: Bewshill Farm

Severity	2014	2015	2016	2017	2018	2019	Total
Slight	4	7	9	10	5	10	45
Serious	0	0	1	1	5	1	8
Fatal	0	0	0	0	1	0	1
Total	4	7	10	11	11	11	54

Table 3. Personal Injury Accident Analysis – Vulnerable Road Users: Bewshill Farm

Vulnerable Road Users	Number of Accidents	Percentage
Pedestrians	12	22%
Cyclists	8	15%
Motorcycle	8	15%

4.3.4 The following conclusions can be made from the above accident data following analysis:

- A Total of 54 accidents over 5 years for the extended study area;
- Average of 9 accidents per year over the extended study area;
- 45 slight accidents (83%), 8 serious accidents (15%) and 1 fatal accident (2%);
- An accident cluster has been identified within Area 4 A6/Cleggs Lane Junction, however this averages at 2.5 accidents per year which is considered normal for a signalised junction of this nature;
- No accidents have been recorded at Plodder Lane/Watergate Lane Junction;
- No accidents have been recorded on the Allocation frontage; and
- No accident trends have been identified.

4.3.5 It should be noted a single fatal accident occurred in 2018 on the M61 where a pedestrian entered the carriageway from the hard shoulder and was hit by a HGV. Whilst the location of this accident is separated from the immediate network it does lie within the vicinity of the Allocation.

4.3.6 Whilst any accident is regrettable, having reviewed the accidents in detail there is no evidence to suggest that the allocation will materially exacerbate the existing situation.

5. Multi-modal accessibility

5.1 Current

5.1.1 The allocation has been given a score of 3 from the Greater Manchester Accessibility level model, rating it as poor with regards to public transport accessibility, where 1 is very low, and 8 is very high.

- 5.1.2 Bus services 38, 551 and 553 pass the allocation along the A6 with bus stops located to the east and west of the Logistics North entrance gateway off Watergate Lane/Salford Road roundabout. An additional subsidised 'flexible' bus service is provided to get people to and from the Logistics North Development from other locations.
- 5.1.3 The nearest railway station is located approximately 2.5km from the allocation at Atherton.
- 5.1.4 Logistics North is covered by an extensive travel plan and the allocation would have the opportunity to come under the umbrella and benefit from the same level of service currently provided on site.
- 5.1.5 There is a quarterly Tenants Travel Plan Meeting which is organised and chaired by the Lead Travel Plan Co-ordinator (TPC). All Tenants attend and the group addresses on site sustainable travel related issues and opportunities. Guest speakers and relevant partners are also invited to attend to update Tenants on the latest corporate deals, ticket discounts and news.
- 5.1.6 Staff Travel Events are delivered to each individual Tenant where staff are given information and incentives to reduce single car occupancy. An electric vehicle showcase event has also been hosted at the site which was arranged by the TPC.
- 5.1.7 Similar events are run to promote the Demand Responsive Transport Local Link service and local public transport services.
- 5.1.8 The Lead TPC looks to source external funding to augment and improve current facilities. Funding has been secured to provide further improvements to existing local cycling and walking networks.
- 5.1.9 One to one travel advice is delivered to staff of all new Tenants on site. A wide range of partners are involved in delivery of sustainable travel work including Evans Cycles who assist Tenants to set up the Cycle to Work Scheme, Stagecoach who offer site specific discounted tickets for all staff and Bolton Council and Greater Sport are assisting the Lead TPC to deliver Healthy Workplace sessions to staff.
- 5.1.10 The Lead TPC works closely with Transport for Greater Manchester to ensure that the Local Link bus service times match the operational times of the Tenants as closely as possible. High profile events such as the recent Clean Air Greater Manchester Electric Vehicle Event are organised for Tenants and the wider business community and similar events are planned for Summer 2020 with

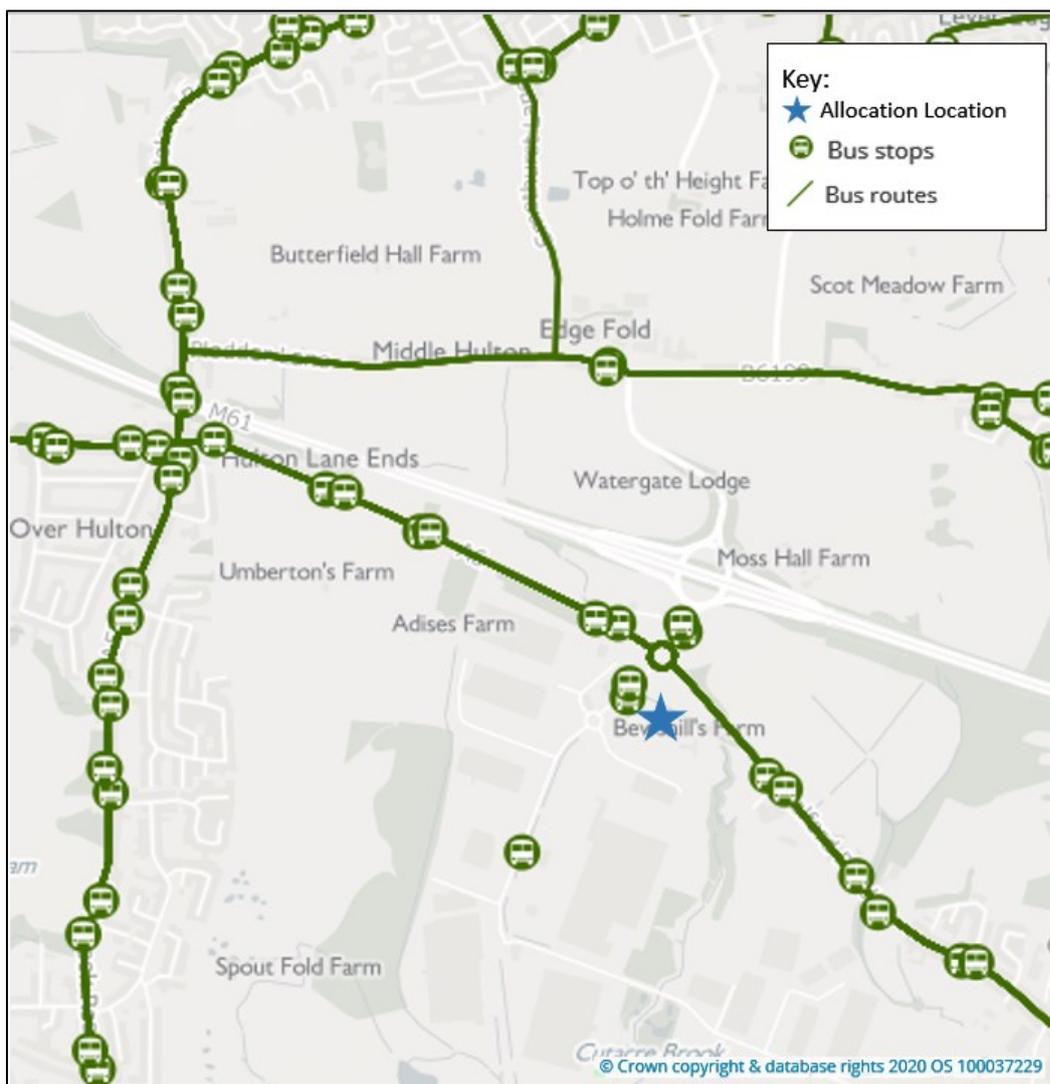
a focus on cycling and running. At the time of writing, plans are place to apply for the next tranche of funding from the Greater Manchester Bee Network. Funding will be sought to improve the surrounding cycling and walking routes to enable local residents to access local employment by sustainable travel along safe, high quality routes.

5.1.11 It should also be noted that the under the Framework Travel Plan, to be secured via a Section 106 agreement, individual tenants will be required to prepare their own Travel Plans which will be submitted as part of reserved matters applications.

Public Transport

5.1.12 There are a number of bus services operating within the vicinity of the allocation, which are shown on Figure 4.

Figure 4. Bus services and Bus Stops within the vicinity of the allocation: Bewshill Farm



5.1.13 The most accessible stop being located on the Allocation frontage on Bridgewater Avenue. This bus service review was undertaken in March 2020.

5.1.14 High frequency bus service 38 serves the allocation from Manchester with the first arrival at Logistics North being 05:35 and the last arrival being 00:28. The first departure from Logistics North is 05:40 and the last departure is 23:17 Monday – Friday, providing a 10 minute service.

5.1.15 Further services are available from bus stops located on the A6 to the east and west of the Allocation as shown in Table 4.

Table 4. Bus Service Information: Bewshill Farm

Service	Route	Day Of Operation	One Way Service Frequency*	Comments
38	Manchester – Logistics North	Weekday	Every 10 minutes	
		Saturday	Every 10-15 minutes until 19:00 then every 30 minutes	
		Sunday	Every 30 minutes	
38	Logistics North – Manchester	Weekday	Every 10 minutes	
		Saturday	Every 10-15 minutes until 19:00 then every 30 minutes	
		Sunday	Every 30 minutes	
511	Bolton to Leigh	Weekday	Every 10 minutes	
		Saturday	Every 10-15 minutes until 19:00 then every 30 minutes	
		Sunday	Every 30 minutes	

Service	Route	Day Of Operation	One Way Service Frequency*	Comments
511	Leigh to Bolton	Weekday	Every 10 minutes	
		Saturday	Every 10-15 minutes until 19:00 then every 30 minutes	
		Sunday	Every 30 minutes	
533	Bolton to Leigh	Weekday	Once an hour between 07:00 and 18:00	
		Saturday	18:43 then every hour until 22:43	
		Sunday	Every 60 minutes	
533	Leigh to Bolton	Weekday	Once an hour between 07:00 and 18:00	
		Saturday	18:43 then every hour until 22:43	
		Sunday	Every 60 minutes	
Total		Weekday	Once an hour between 19:00 and 23:00	This service is a continuation of 511
		Saturday	Every 60 minutes until 17:30	
		Sunday	No Service	

- 5.1.16 During the Weekday and Saturday, the services set out above combine to provide an overall hourly frequency of 7 buses in each direction i.e. 14 bus services per hour two-way within a short walk from the allocation. These services operate for the vast majority of the day commencing between 06:00 to 07:00 and running through until 22:00 to 00:00. On a Sunday the services combine to provide an overall hourly frequency of 3 buses in each direction i.e. 6 bus services per hour two-way.
- 5.1.17 It is considered that the frequency available from the services on Bridgewater Avenue and the A6 offer excellent connectivity for a development where there is the potential for employees to work shift patterns. The nearest bus stop is located on Bridgewater Avenue to the west of the Allocation. This provides access to the Allocation from the following destinations:
- Manchester (Piccadilly Gardens) – 55 minute journey every 10 minutes;
 - Salford – 30 minute journey every 10 minutes;
 - Swinton – 20 minute journey every 10 minutes; and
 - Walkden – 10 minute journey every 10 minutes
- 5.1.18 In addition to the service currently operating Diamond Bus are to commence operation of a 30 minute frequency service between the Trafford Centre and Farnworth entering Logistics North and Bolton Interchange. The service is proposed to commence in October 2020.
- 5.1.19 An additional form of public transport that would be available should Bewshill Farm be developed for commercial purposes is the Local Link Demand Responsive Transport (DRT or Local Link). This DRT bus service was implemented for all visitors/employees to the Logistics North site. The service offers a door to door service and acts as a taxi bus whereby you book and pay for journeys made.
- 5.1.20 There are currently two minibuses that run from 4am – 1:30am with pick-ups from Bolton Transport Interchange and Farnworth Transport Interchange as well as Little Hulton, Rumworth, Atherton, Washacre, Shakerley, Hag Fold and Weshoughton.
- 5.1.21 It is therefore concluded that the Allocation is accessible by bus from the local and surrounding residential areas. It is clear that employees and visitors alike will have an opportunity to access the Allocation by public transport and this will reduce the reliance on the private car. Furthermore, the travel planning measures will have a positive influence on the sustainable travel choices made by users of the allocation.

5.1.22 The nearest train station to the Allocation is situated at Atherton on the Manchester to Wigan (via Atherton) corridor approximately 2.5km from the allocation. Trains from Atherton provide connections to Manchester Victoria within a 25 minute journey time and Wigan within a 15 minute journey time. Atherton Station benefits from 64 free car parking spaces, 11 cycle spaces, ticket office and machines, waiting rooms, seating and timetable information.

5.1.23 A summary of the available services is contained in Table 5.

Table 5. Atherton Weekday Train Services Summary: Bewshill Farm

Origin/ Destination	First Arrival	Last Departure	Journey Time	Frequency
Wigan	05:56	22:55	15	20
Blackburn	06:16	22:21	80	30
Manchester Victoria	06:15	23:37	25	20
Kirkby (Merseyside)	06:36	19:46	45	60
Leeds	05:12	21:30	90	45

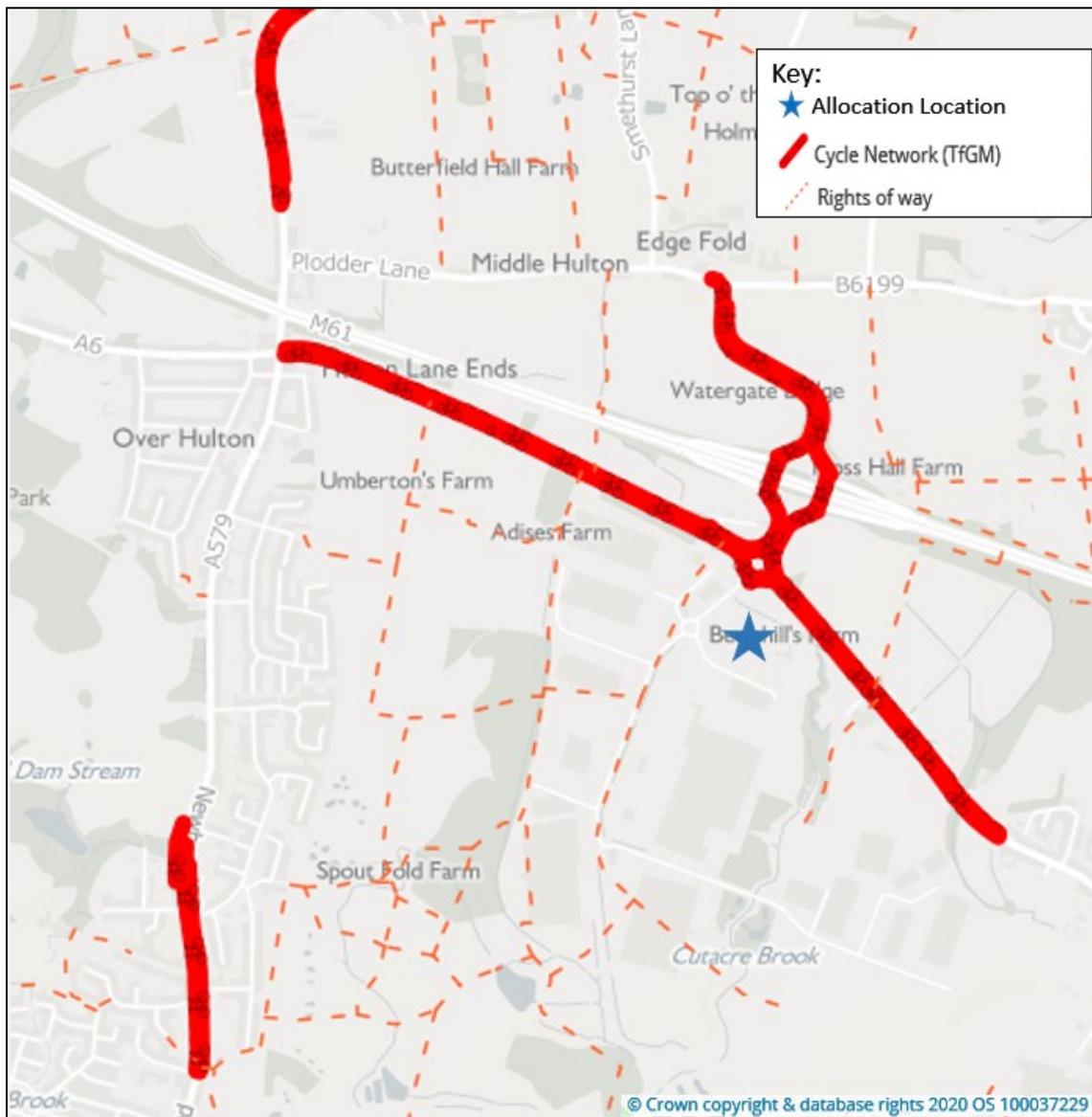
5.1.24 Bolton and Walkden stations are also accessible from the Allocation via the 551/553 bus services on Salford Road within an approximate 17 and 9 minute journey time.

5.1.25 Bolton Station provides frequent connections to Manchester, Edinburgh, Preston, Wigan and Blackburn amongst other destinations.

Walking & Cycling

5.1.26 The allocation is positioned in an area with good local walking and cycling facilities. As can be seen in Figure 5 below, the TfGM Cycle Network runs on an east-west axis along the A6 north through the roundabout with the M61 towards Watergate Lane. PRoW facilities are also available to the west of the allocation, which will not be impacted by the allocation, and will remain to provide good accessibility via foot to the surrounding areas.

Figure 5. Walking and Cycling Accessibility: Bewshill Farm



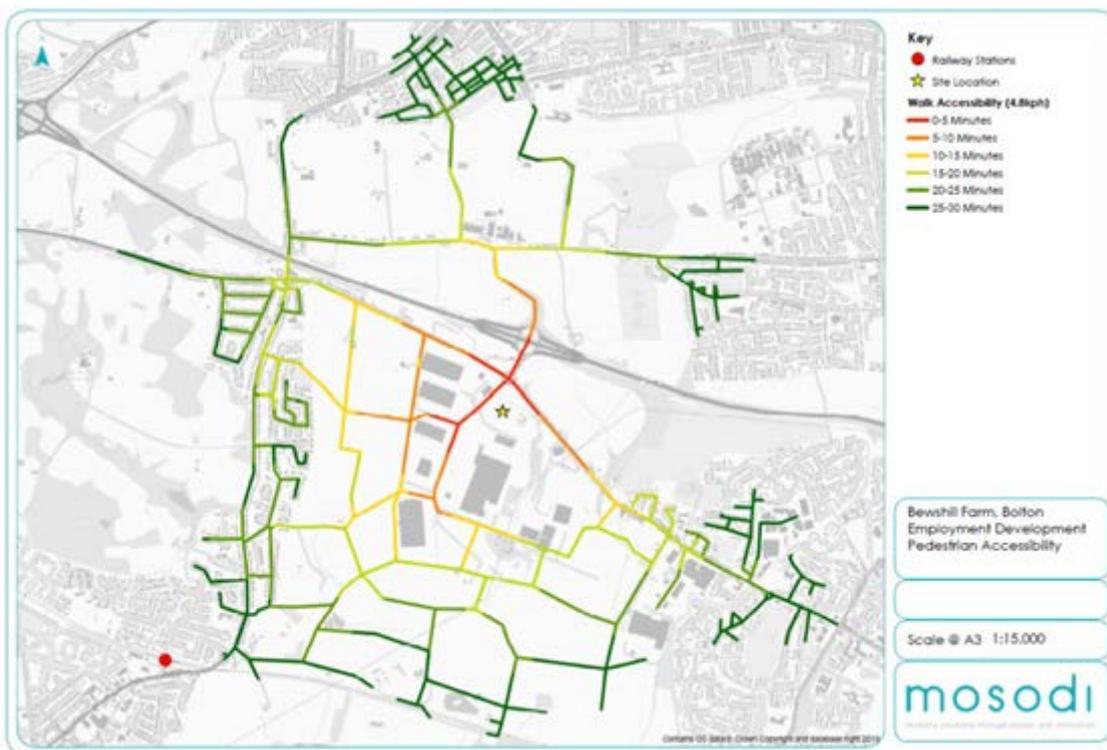
5.1.27 It is generally considered that an acceptable walking distance from home to a place of work is 2km (The Institute for Highways and Transportation. 2000. Guidelines for Providing for Journeys on Foot). The IHT document Guideline for Providing for Journeys on Foot recommends various thresholds for desired, acceptable and preferred maximum distances to various services as shown in Table 6.

Table 6. Accessibility by Foot: Bewshill Farm

	Town Centre (m)	School/Work (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1000	800
Preferred Maximum	800	2000	1200

5.1.28 Using GIS software, typical walk times (up to 25 mins) from the Allocation centre are shown on Figure 6.

Figure 6. Walk Times from the Allocation (up to 25 minutes): Bewshill Farm



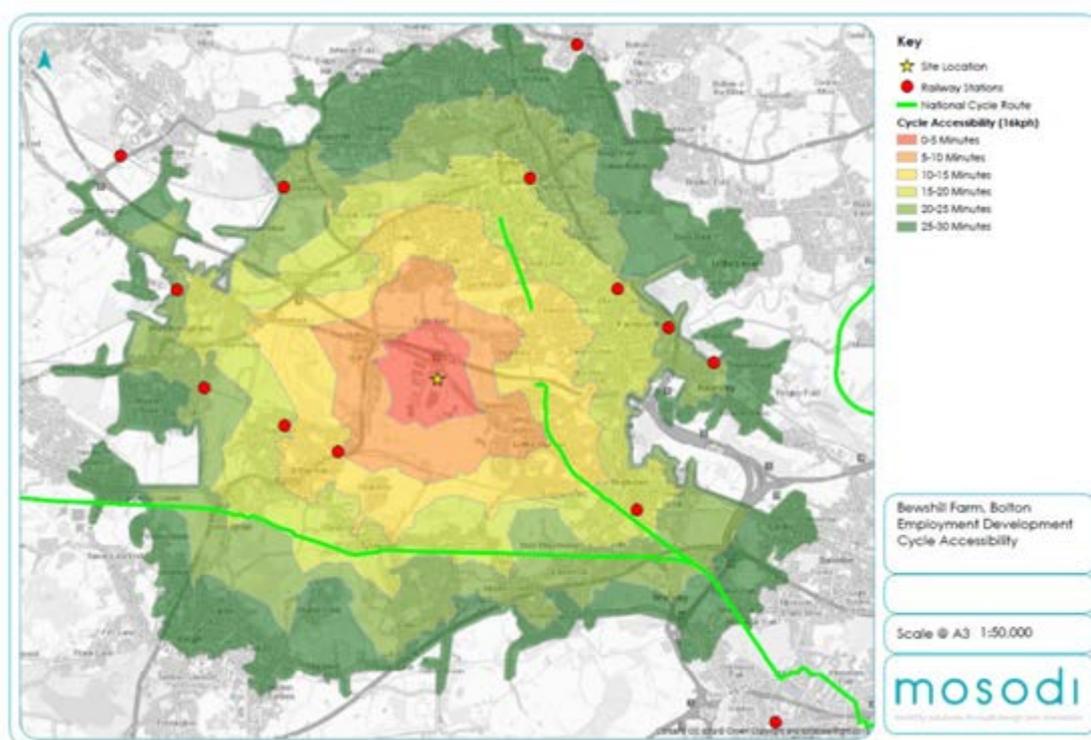
5.1.29 This figure demonstrates that:

- The Allocation is within the preferred maximum walk distance to the residential areas of Over Hulton, parts of Little Hulton and Farnworth. Several amenities which staff could use are located in these settlements including restaurants a café and a grocery store.
- The Allocation is situated within the preferred maximum walking distance to a number of local residential areas providing employment opportunities at the proposed allocation.

5.1.30 It is therefore concluded that the Allocation is accessible from the local residential areas of Over Hulton, Little Hulton and Farnworth by foot. It is also considered that the more active employees will choose to walk further than this guideline distance.

5.1.31 An acceptable and comfortable distance for general cycling trips is considered to be up to 5 kilometres as referred to in Local Transport Note 2/08 Cycle Infrastructure Design Department for Transport, 2008. (published by the Department for Transport (DfT)). However, the same guidance also refers to commuting cycle trips up to 8km. Using GIS Network Analyst software, typical cycle times (with 20 mins approximating to just over a 5km distance) from the Allocation are shown on Figure 7.

Figure 7. Cycle Times from the Allocation (up to 25 minutes): Bewshill Farm



5.1.32 The figure shows that:

- The Allocation is accessible from the residential areas of Over Hulton within a 10 minute cycle ride;
- The residential areas of Little Hulton, Atherton, parts of Little Hulton, parts of Farnworth and the southern edge of Bolton can be reached within a 20 minute cycle ride, providing key employment opportunities;

- The further residential areas of Westhoughton, Worsley, northern Bolton, Little Lever and Kearsley can be reached within a commutable time of 30 minutes;
- Bolton Town Centre, with numerous facilities, is accessible within a 30 minute cycle of the Allocation;
- The nearest rail station at Atherton can be reached in a 10 minute cycle ride with Hag Fold Station being reached in a 15 minute cycle time;
- A further 8 stations are within a 30 minute cycle of the Allocation; and
- The Allocation is located within a 10 minute cycle time to the National Cycle Route.

5.1.33 It is also considered that the more active employees will choose to cycle further than this guideline distance.

Road Safety

5.1.34 As can be seen in Figure 8 below, there is a traffic free cycle route on the westbound carriageway of the A6 providing a severance free cycle path, this was implemented as part of the Logistics North development. Similarly, travelling northbound onto Watergate Lane the cycle path is traffic free with toucan crossings provided for safe crossing of the M61 junction. As such it can be considered the quality of the cycle facilities in terms of road safety is good in the proximity of the allocation.

Figure 8. Cycle Facilities: Bewshill Farm



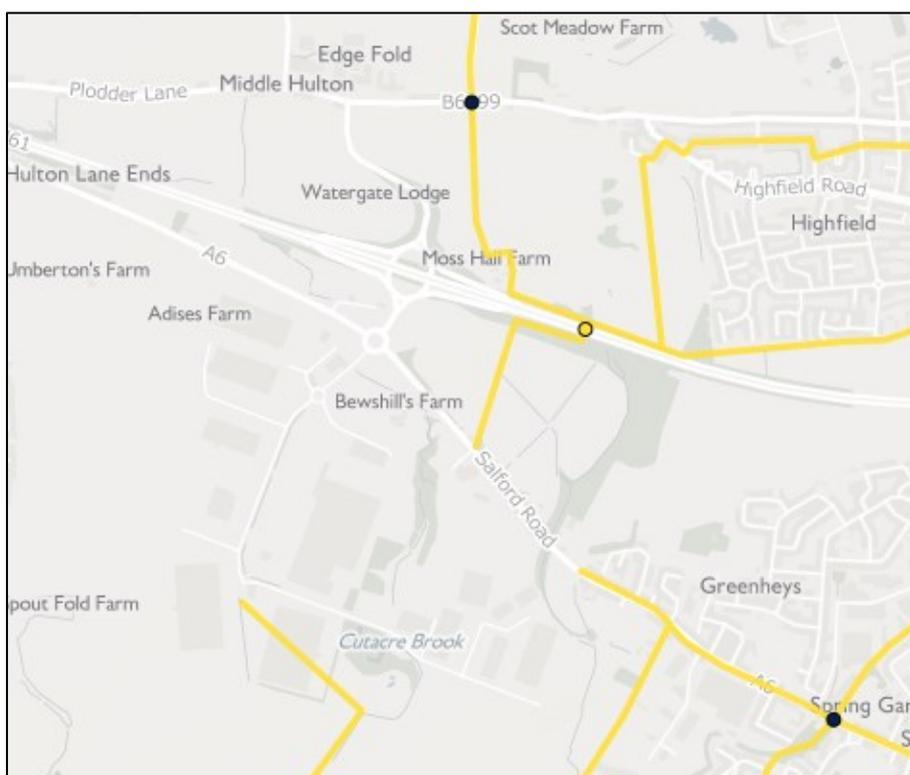
5.1.35 In terms of walking, as previously mentioned the allocation is in close proximity to a number of PRoW routes, none of which will be interrupted by the allocation. It should be recognised that the allocation is close to the A6, a main traffic route which has the capacity for a large number of vehicular movements, where severance is possible however due to the high quality cycle and walking facilities these risks are lessened. This is also shown in the accident analysis in section 4.3 which shows that no pedestrians or cyclists were fatally injured in the vicinity of the allocation in the last 5 years.

5.2 Proposed

5.2.1 The allocation is in an appropriate location to be accessed by public transport as is highlighted above. It is a small extension to the major employment site Logistics North which already benefits from high levels of public transport accessibility. It is proposed that as part of any future application that the existing Logistics North Local Link shuttle service would be reviewed to ensure that it has sufficient capacity to serve the proposed allocation.

5.2.2 In addition to this, Transport for Greater Manchester have recently unveiled a new plan to create joined up cycle and walking network than will cover the entire Greater Manchester City Region. These proposals are subject to ongoing review but given the potential importance of the Bee Network in securing sustainable infrastructure for the future consideration has been given to the proposals as part of this application. Figure 9 below highlights the current Bee Network proposals within the vicinity of the Allocation.

Figure 9. Bee Network Proposals within the vicinity of the Allocation: Bewshill Farm



5.2.3 Furthermore, the Greater Manchester Transport Strategy 2040: Draft Delivery Plan 2020-2025 sets out a number of potential public transport enhancements on the local network. TfGM is currently evaluating potential new rail stations and Metrolink Stops, within this, Little Hulton has been identified as a potential new station which is situated south of the allocation (approx. 2km from the allocation). The Atherton Line has also been identified as a priority for Tram train in the next 10-15 years. Further investigation is being undertaken to the feasibility of these.

5.2.4 Bus Network Improvements are also being implemented between Salford-Bolton to increase the efficiency of the local transport network to include bus, cycling and walking enhancements.

6. Parking

6.1.1 [Bolton Councils Core Strategy Development Plan Document \(2011\)](#) sets out the following parking standards:

6.1.2 Car Parking:

- B2 - General Industry. 1 space per 60sqm (max standard).
- B8 - Storage/ Distribution. 1 space per 100sqm (max standard).

6.1.3 Cycle Parking:

- B2 - General Industry. 1 cycle space per 700sqm (minimum standard).
- B8 - Storage/ Distribution. 1 cycle space per 850sqm (minimum standard).

6.1.4 Based on the parking standards above and the assumed development quantum of 21,000sqm based entirely on B2 which would represent the worst case scenario the maximum number of permitted car parking spaces would be 350, and the minimum number of cycle spaces required would be 30. However, as the allocation is to be split by B2 and B8 the final number of spaces require is likely to be lower.

6.1.5 Appropriate car parking provision would be established through the planning process.

7. Allocation Trip Generation and Distribution

7.1.1 Future trip generation to/from the allocation (i.e. how many people and vehicles will enter or leave the allocation) was estimated by applying a set of GM-wide trip rates to the agreed development quantum for each allocation. The distribution of trips (i.e. where they are going to or coming from) was derived by selecting nearby zones with similar land use characteristics as a proxy and using the existing distribution in the model.

7.1.2 Future trip generation to/from the allocation (i.e. how many people and vehicles will enter or leave the allocation) was estimated by applying a set of GM-wide trip rates to the agreed development quantum for each allocation. The distribution of trips (i.e. where they are going to or coming from) was derived by selecting nearby zones with similar land use characteristics as a proxy and using the existing distribution in the model.

Table 7. Development Quantum: Bewshill Farm

Use	Use Sub Category	Development Quantum	
		2025	2040
Industrial	B2/B8	21,000 sqm	21,000 sqm
Total		21,000 sqm	21,000 sqm

Table 8. Allocation Traffic Generation: Bewshill Farm*

Year	AM Peak Hour		AM Peak Hour		PM Peak Hour		PM Peak Hour	
	0800	0900	0800	0900	1700	1800	1700	1800
	Departures		Arrivals		Departures		Arrivals	
2025 GMSF Constrained	39		67		59		21	
2025 GMSF High-Side	49		81		59		26	
2040 GMSF Constrained	35		61		52		19	
2040 GMSF High-Side	49		81		52		26	

*Units are in PCU (passenger car units/hr)

Table 9. Allocation Traffic Distribution, 2040 GMSF High-Side (Origin/Destination Combined)

Route	AM Peak Hour	PM Peak Hour
A6 Salford Road (West)	16%	9%
M61 (West)	20%	20%
Watergate Lane	2%	6%
M61 (East)	48%	52%
A6 Salford Road (East)	14%	13%

Table 10. Allocation Traffic Assignment, 2040 GMSF High-Side (Origin/Destination Combined)

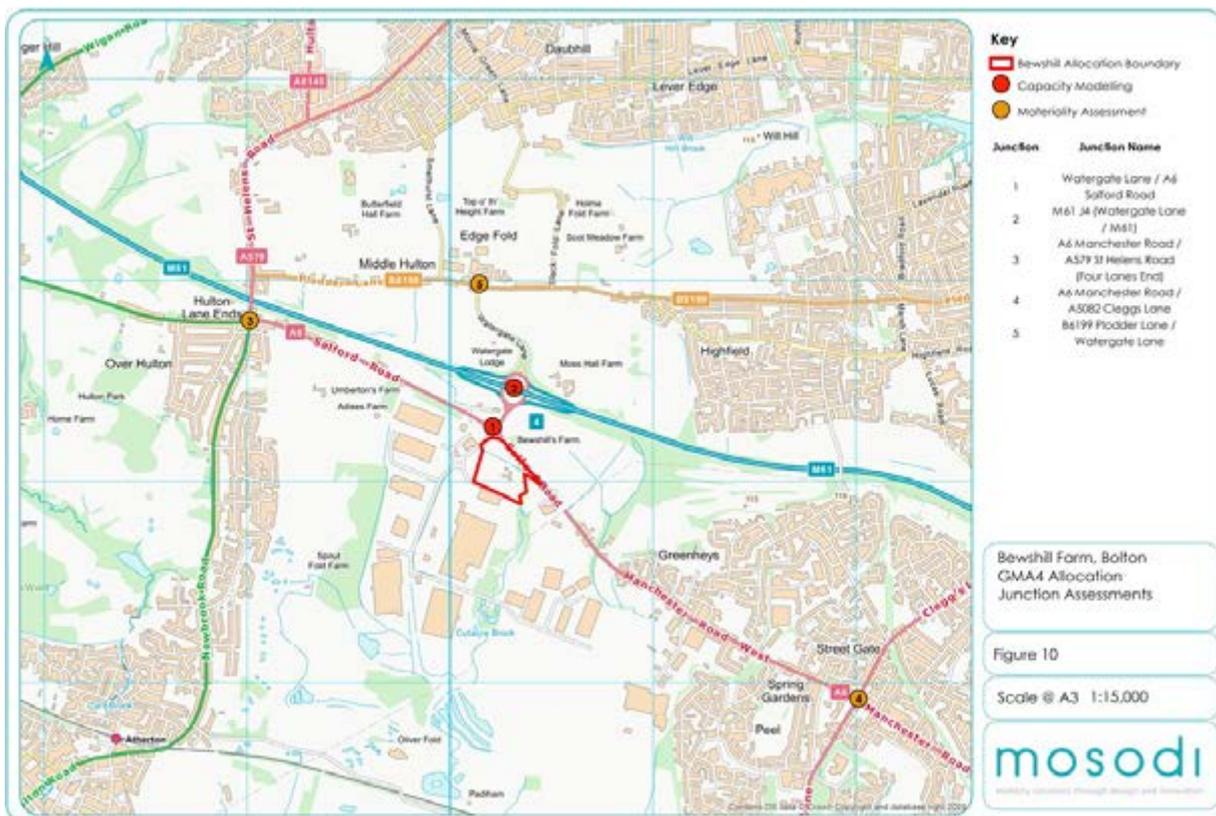
Route	AM Peak Hour		PM Peak Hour	
	0800	0900	1700	1800
Watergate Lane Roundabout	130		78	
M61 J4	89		61	
Four Lanes End Junction	21		7	
Cleggs Lane Junction	11		10	
Plodder Lane/Watergate Lane Junction	3		5	

8. Current Highway Capacity Review

8.1.1 The local network is well catered for in capacity terms.

8.1.2 Figure 10 shows the location of the junctions in relation to the allocation.

Figure 10. Assessed Junctions: Bewshill Farm



8.1.3 The Four Lane ends junction does suffer from congestion and the proximity of the allocation to the SRN at junction 4 is likely to require further assessment. The A6 Manchester Road junction with Armitage Avenue/ Cleggs Lane (south east of the site) also suffers from congestion during peak periods.

8.1.4 An assessment of the highway network under existing neutral traffic conditions has been completed and is shown in Table 11. This includes five junctions identified by TfGM in the near vicinity of the Allocation, the locations of which are shown in Figure 10 above. Due to changes in traffic since Covid 19, an assessment of highway capacity within neutral conditions has not been able to be completed in 2020.

Table 11. Current Highway Capacity Review: Bewshill Farm

No.	Junction	2025 Reference Case AM	2025 Reference Case PM	Notes
1	Watergate Lane Roundabout	0.55	0.56	Operates within capacity in the 2025 Reference Case in the AM and PM Peaks
2	M61 J4			
3	Four Lanes End Junction	105.5	97.2	Operates within capacity in the 2025 Reference Case PM but over capacity in the AM
4	Cleggs Lane Junction	97.8	150.0	Operates within capacity in the 2025 Reference Case AM but over capacity in the PM
5	Plodder Lane/Watergate Lane Junction	81.8	90.0	Operates within capacity in the 2025 Reference Case in the AM and PM Peaks

8.1.5 Table 11 shows that Watergate Lane Roundabout and Plodder Lane/Watergate Lane Junction currently operate within absolute capacity in the 2025 Reference Case AM and PM peak periods. However, Four Lanes End Junction and Cleggs lane junction are predicted to operate above capacity in the AM and PM peak respectively. As such this would suggest mitigation measures are required.

9. Treatment of Cumulative Impacts

9.1.1 In terms of the cumulative impacts, Figure 11 below shows the GMSF Bewshill Farm allocation in relation to other GMSF allocations.

Figure 11. GMSF Allocations : Bewshill Farm



9.1.2 As the Bewshill Farm, Chequerbent North and West of Wingates allocations are all located directly south of the A6 it is likely that the trips generated from each will utilise some of the same highway networks. To address this, the High Side model that has been assessed in the upcoming chapters takes into account traffic associated with all GMSF allocations in order to provide a fully comprehensive overview of the cumulative impacts.

10. Allocation Access Assessment

10.1.1 Drawings have not been produced in detail for the allocation at this stage.

10.1.2 The allocation is proposed to be accessed from the existing Logistics North infrastructure and traffic exiting the allocation will only have to give way to the traffic generated by a small commercial unit (2,550sqm) in future years. There is no option for this situation to change in the future. Therefore detailed modelling is not required and has not been undertaken.

11. Impact of Allocation Before Mitigation on the Local Road Network

11.1.1 In order to understand a worst case impact of the GMSF, the 'high side' runs from the GMVDM were used to derive with GMSF development flows for 2040. These flows were then entered into junction based models for the junctions identified in section 8. Flows from a 2040 reference case scenario (including approved Local Plan development from the respective districts) were also extracted to provide a comparison between the operation of those junctions in the 2040 reference case and the 2040 with GMSF development scenarios.

11.1.2 The 'with GMSF' scenario has been assessed against a Reference Case which assumes background growth and includes the housing and employment commitments from the districts. Through discussions with TfGM and the Combined Authority, it has been agreed that where mitigation is required, it should mitigate the impacts back to a reference case scenario. It should be noted that mitigating back to this level of impact may not mean that the junction operates within capacity.

11.1.3 These assessments were then used to identify the junctions where there was considered to be a substantial impact, relative to the operation of the junction in the 2040 reference case, and hence where mitigation was considered to be required in order to bring GMSF allocations forward. Through discussions with TfGM and the Combined Authority, it was been agreed that where mitigation is required, it should mitigate the impacts back to the reference case scenario. It should be noted that mitigating back to this level of impact may not mean that the junction operates within capacity by 2040.

11.1.4 This section looks at the impact on the network at the junctions highlighted in section 9. Signalised junctions were assessed in detail using industry-standard modelling software LINSIG version 3. Where possible, traffic signal information was requested from TfGM in order to ensure that the local junction models reflected (as far as possible), the operation of the junctions on the ground. Junctions 9 software was used to assess priority and roundabout junctions. Table 4 below provides a comparison between the operation of the in scope junctions in the 2040 reference case and the

2040 'high side' scenarios, as well as the allocation development flows through each respective junction. The table shows a comparison between the ratio of flow to capacity on the worst case arm at each junction as well as the total development flows through the junction.

11.1.5 The total trips from all the GMSF development has been calculated by taking the 2040 base trips away from the 2040 GMSF high trips and Table 12 shows the total additional trips from the GMSF Allocations and the Bewshill Farm proportion of the additional trips.

Table 12. GMSF Trips in 2040 High Scenario on the LRN: Bewshill Farm

Junction	2040 AM High Scenario	2040 PM High Scenario	Combined	Allocation Proportion Of Additional Trips
Watergate Lane Roundabout	204	399	603	34%
Four Lanes End Junction	186	374	560	5%
Cleggs Lane Junction	104	130	234	9%
Plodder Lane/Watergate Lane Junction	97	3	100	8%

11.1.6 As shown in Table 12, the number of trips generated by the Bewshill Farm allocation is non-material at Four Lanes End, Cleggs Lane and Plodder Lane and as such the operation of the network will not be materially affected by this allocation as there is currently spare capacity at the Watergate Lane Roundabout. The percentage impact of the allocation on the total 2040 GMSF High Flows is shown in Table 13.

Table 13. Impact of the Allocation on the LRN: Bewshill Farm

Junction	2040 AM High Scenario Bewshill Farm	2040 PM High Scenario Bewshill Farm	2040 AM High Scenario Total	2040 PM High Scenario Total	Bewshill Farm Am Peak % Impact	Bewshill Farm Pm Peak % Impact
Watergate Lane Roundabout	130	78	3,688	4,076	3.52%	1.91%
Four Lanes End Junction	21	7	3,783	3,770	0.56%	0.19%
Cleggs Lane Junction	11	10	3,030	3,244	0.36%	0.31%
Plodder Lane/Watergate Lane Junction	3	5	1,856	1,828	0.16%	0.27%

11.1.7 The percentage impact on the number of trips through the junctions is small, with all junctions having less than a 5% impact. Due to the low percentage impact from the allocation, the daily fluctuations are likely to be greater than the impact of the allocation and as such once occupied, the vehicular impact would be negligible. Table 12 has identified that the impact of the Bewshill Farm allocation is not considered to be material at any offsite junction in the LRN with the exception of Watergate Lane Roundabout. Detailed junction modelling of this junction is described in the following sections.

11.1.8 In addition to this, an assessment of the highway network under existing neutral traffic conditions has been completed in Table 14. This includes the four junctions identified by TfGM within the LRN. Due to changes in traffic since Covid 19, an assessment of highway capacity within neutral conditions has not been able to be completed in 2020.

Table 14. Results of Local Junction Capacity Before Mitigation: Bewshill Farm

Junction	2040 Reference Case AM	2040 Reference Case PM	2040 GMSF High AM	2040 GMSF High PM	Allocation Flows AM	Allocation Flows PM
1. Watergate Lane Roundabout	0.56	0.68	0.73	0.72	204	399
2. Four Lanes End Junction	126.2	117.5	121.5	143.6	186	374
3. Cleggs Lane Junction	111.5	186.6	125.5	177.8	104	130
4. Plodder Lane/Watergate Lane Junction	96.6	92.4	110.0	102.5	-8	-126

11.1.9 As table 14 shows all junction with the exception of Watergate Lane Roundabout are predicted to operate above capacity in the 2040 Reference Case (except Plodder Lane/Watergate Lane Junction) and the 2040 High Side Scenario.

11.1.10 In terms of Four Lanes End Junction, scenarios it is evident that the worsening of the junction operation cannot be attributed to the allocation of Bewshill Farm for commercial purposes with only 21 (AM) and 7(PM) trips routing through the junction. This is not considered material and therefore the allocation policy should not specify a contribution but identify that any impact should be reassessed through the planning application process and mitigation identified as appropriate at that stage.

11.1.11 The same applies to Cleggs Lane Junction, the additional traffic flows that will route through this junction associated with the allocation of Bewshill Farm are not sufficient to warrant a contribution to the enhancement of capacity at this junction.

11.1.12 At Plodder Lane/Watergate Lane Junction the predicted traffic flows anticipate that only 3 and 5 trips would route through the Plodder Lane in the AM and PM peaks respectively in the 2040 Design Scenario. This level of traffic cannot be considered material.

Watergate Lane/A6/Bridgewater Avenue Roundabout

11.1.13 As the only junction that is predicted to have a material impact on the LRN is Watergate Lane/A6/Bridgewater Avenue Roundabout the existing layout has been modelled using the Arcady function in Junctions 9 software. The junction has been modelled for the AM and PM peak hours in the 2025, 2040 Base and GMSF High scenarios and the results are summarised in Table 15 below.

Table 15. Watergate Lane/A6 Bridgewater Avenue Roundabout Summary Results: Bewshill Farm

Scenario	Lane	AM Peak	AM Peak	PM Peak	PM Peak
		Hour 0800 0900 RFC	Hour 0800 0900 Ave Q	Hour 1700 1800 RFC	Hour 1700 1800 RFC
2025 Reference Case	A6 Salford Road (E)	0.55	1.2	0.55	1.2
	Bridgewater Avenue	0.24	0.3	0.47	0.9
	A6 Salford Road (W)	0.51	1.0	0.13	0.2
	Watergate Lane	0.46	0.9	0.56	1.3
2025 GMSF High-Side	A6 Salford Road (E)	0.60	1.5	0.54	1.2
	Bridgewater Avenue	0.28	0.4	0.51	1.0
	A6 Salford Road (W)	0.56	1.3	0.30	0.4
	Watergate Lane	0.49	1.0	0.69	0.69

Scenario	Lane	AM Peak	AM Peak	PM Peak	PM Peak
		Hour 0800 0900 RFC	Hour 0800 0900 Ave Q	Hour 1700 1800 RFC	Hour 1700 1800 RFC
2040 Reference Case	A6 Salford Road (E)	0.64	1.8	0.68	2.1
	Bridgewater Avenue	0.28	0.4	0.54	1.2
	A6 Salford Road (W)	0.56	1.3	0.21	0.3
	Watergate Lane	0.49	1.0	0.64	1.8
2040 GMSF High- Side	A6 Salford Road (E)	0.73	2.7	0.72	2.5
	Bridgewater Avenue	0.34	0.5	0.64	1.8
	A6 Salford Road (W)	0.70	2.3	0.39	0.6
	Watergate Lane	0.53	1.1	0.83	4.8

11.1.14 The Design Manual for Roads and Bridges (DMRB) TD42/95 suggests that in order for a junction to be operating within its practical capacity, the Ratio of Flow to Capacity (RFC) value from ARCADY should not exceed 0.85. For RFC values of between 0.85 and 1.0 some queuing and delays are likely to occur and beyond a RFC value of 1.0, a junction is considered to be operating in excess of its theoretical capacity and as such queuing and delay will increase.

11.1.15 It can be seen from the summary results contained in Table 15 that the junction operates within capacity in all scenarios and therefore no mitigation is required.

12. Transport Interventions Tested on the Local Road Network

12.1.1.1 No transport interventions are required within the network where the allocation has a material impact on the operation of the highway.

13. Impact of interventions on the Local Road Network (where appropriate)

13.1.1 No testing required.

14. Impact and mitigation on Strategic Road Network (where applicable)

14.1 Overview

14.1.1 This chapter covers those impacts where traffic generated by the GMSF allocations meets the Strategic Road Network (SRN). Junctions at the interface between the Local Road Network (LRN) and the Strategic Road Network (SRN) have been assessed using a similar approach to that described in the preceding chapters. Wider issues relating to the SRN mainline are being assessed separately as described below.

14.1.2 SYSTRA is currently consulting with Highways England on behalf of TfGM and the Combined Authority in relation to the wider impacts of the GMSF allocations on the Strategic Road Network (SRN). This consultation is ongoing and it is expected that it will allow Highways England to gain a strategic understanding of where there is an interaction between network stress points and GMSF allocation demand which will facilitate further discussion and transfer of information between TfGM and Highways England (yet to be defined) in reaching agreement and/or common ground relating to the acceptability of GMSF allocations in advance of Examination in Public (EiP).

14.2 Impact of the Allocation before Mitigation on the Strategic Road Network

14.2.1 The total trips from the GMSF development that will use the strategic road network have been calculated by taking the 2040 base trips away from the 2040 GMSF High Scenario trips. Table 16 shows the total additional trips from the GMSF development and the Bewshill Farm proportion of the additional trips.

Table 16. GMSF Trips in 2040 High Scenario on the SRN: Bewshill Farm

Junction	2040 AM High Scenario	2040 PM High Scenario	Combined	Allocation Proportion Of Additional Trips
M61 J4	103	197	300	50%

14.2.2 The percentage impact of the allocation on the total 2040 GMSF High Flows is shown in Table 17.

Table 17. Impact of allocation on the SRN: Bewshill Farm

Junction	2040 AM High Scenario Bewshill Farm	2040 PM High Scenario Bewshill Farm	2040 AM High Scenario Total	2040 PM High Scenario Total	Bewshill Farm AM Peak % Impact	Bewshill Farm PM Peak % Impact
M61 J4	89	61	3,868	4,343	2.30%	1.40%

14.2.3 As Table 17 shows the percentage impact on the number of trips through the junctions is minor.

14.2.4 The impact on J4 of the M61 has been assessed and Table 18 demonstrates that the junction continues to operate within capacity. The number of trips on each slip road is shown in Table 20. Due to the low percentage impact from the allocation, the daily fluctuations are likely to be greater than the impact of the allocation and as such once occupied, the vehicular impact would be negligible. Although a minor impact the existing layout of the M61 J4 junction has been modelled using TRANSYT 15 Software in the base scenario to demonstrate how the junction operates, the results are shown in Table 19.

Table 18. Results of Local Junction Capacity Analysis Before Mitigation: Bewshill Farm

Junction	2025 Reference Case AM	2025 Reference Case PM	2040 GMSF High AM	2040 GMSF High PM	Allocation Flows AM	Allocation Flows PM
2. M61 4			86%	83%	103	197

14.2.5 The full modelling outputs for 2040 GMSF High Side Scenario are shown in Table 19.

Table 19. J4 M61 Roundabout Summary Results: Bewshill Farm

Scenario	Lane	AM Peak Hour		AM Peak Hour		PM Peak Hour		PM Peak Hour
		0800	0900	0800	0900	1700	1800	1700
		DoS		MMQ		DoS		MMQ
2040 GMSF High Assessment	M61 NB Offslip Left	58		7		83		14
	M61 NB Offslip Ahead & Left	62		8		59		8
	Internal (East)	64		13		82		18
	Watergate Ln (S) Left	86		15		71		11
	Watergate Ln (S) Ahead	54		7		60		8
	Internal (South)	69		11		68		8
	M61 SB Offslip Left	50		5		25		2
	M61 SB Offslip Ahead	72		9		73		10
	Internal (West)	59		14		68		14
	Watergate Ln (N) Left & Ahead	65		6		61		6

Scenario	Lane	AM Peak Hour		AM Peak	PM Peak	PM Peak
		0800	0900	Hour 0800	Hour	Hour
		DoS		0900	1700	1800
				MMQ	DoS	MMQ
	Watergate Ln (N) Ahead	33		3	25	2
	Internal (North)	50		9	61	10

14.2.6 Industry standards state that target capacity is 90% for traffic signal junctions, as such, the results in Table 7 demonstrate that the Junction operates within capacity in the future year scenario with all development and therefore no mitigation is required. The number of trips on each slip road are shown in Table 20.

Table 20. J4 M61 Slip Road Flows: Bewshill Farm

Junction	2040 AM High Scenario	2040 PM High Scenario
Northwest bound Diverge	39	13
Northwest bound Merge	9	11
Southeast bound Diverge	16	5
Southeast bound Merge	23	28

14.2.7 The development flows show that the impact of the allocation is less than 30 trips when averaging the AM and PM peaks and as such the proposed allocation would not have a material impact on the operation of the slip roads or the strategic highway network.

14.2.8 The worst case impact is just 39 and is not material. As such no merge/diverge assessment are required.

14.3 Transport Interventions tested on the Strategic Road Network

14.3.1 Not applicable.

14.4 Impact of Interventions on the Strategic Road Network

14.4.1 Not applicable.

15. Final list of interventions

15.1.1 It is not expected that the allocation would be required to provide additional off site highway capacity due to the scale of the development.

15.1.2 It is expected however that any development on this allocation would be expected to:

- Contribute towards the Local Link service to ensure that its timetable can accommodate the proposed development;
- Provide pedestrian and cycle connections to the existing network, and
- That the occupants of the development would be expected to conform to the measures set out in the framework travel plan and any further appropriate travel planning measures at the time of occupation.

Table 21. Final list of interventions: Bewshill Farm

Mitigation	Description
Allocation Access	
Access	3 arm priority junction
Travel Plan	
Necessary Strategic interventions	
N/A	
Supporting Strategic Interventions	
N/A	
Necessary Local Mitigations	
Pedestrian and cycle facilities and connections to the existing network	
Contribution towards the Local Link service	
Supporting Local Mitigations	
N/A	
SRN Interventions	
N/A	

16. Strategic Context – GM Transport Strategy Interventions

- 16.1.1 The GMCA 2040 Transport Strategy Delivery Plan sets out a comprehensive programme of work across all modes and in all Districts. Which are all focused on ensuring the realisation of the 'Right Mix' vision. Many of these interventions support the GMSF Allocations directly, whilst others are intended to provide alternatives to private car travel more generally. The schemes demonstrate a clear plan for delivering strategic transport interventions for the first five years of the GMSF plan period, whilst also laying the foundations for longer term investment in sustainable transport across the length of the plan period.
- 16.1.2 Bewshill Farm allocation benefits from its position to the north of Logistics North and the Department for Transport Pinch Point Scheme implemented at Junction 4 of the M61 and the A6 Watergate Lane/A6 Roundabout providing sufficient network capacity to support this allocation.
- 16.1.3 Bolton Council is working with the Bolton Active Travel Forum to progress the Bee Network routes across the Bolton area and has recently secured funding via Tranche 6 for the Westhoughton Bee Network to the west of the Bewshill Farm allocation. In addition, the Council is also looking to define a Bee Network for the Farnworth area with links to Logistics North and a more general Logistics North network linking employment to the residential areas of Farnworth, Westhoughton and Over Hulton; as well as Little Hulton in Salford and Atherton in Wigan. Pending additional funding allocated to the Bee Network programme, it is anticipated these routes will be delivered within the next 5 years.
- 16.1.4 The Council will continue to work with TfGM and Harworth to promote the local link bus service with the long term intension to become commercially viable. The Council will also work with and support private bus operators choosing to service Logistics North and the allocation of Bewshill Farm ensuring economically deprived areas of the borough are connected to employment opportunities.
- 16.1.5 Longer term the Council will work with TfGM on implementing Quality Bus Transit (QBT) on key bus corridors. QBT is typified by improvements to frequency and quality of the bus service as well as localised public realm enhancements. The Wigan – Bolton corridor route is a candidate for improvement. . Further work between the Council and TfGM includes the identification of Little Hulton as a prospective new rail station development, which will facilitate further development in

the area, and improvements to the Bus Network between Salford – Bolton to increase efficiency, encompassing bus, cycle and walking enhancements to promote the use of sustainable transport. The Atherton Line has also been identified as a priority for Tram train in the next 10-15 years. Further investigation is being undertaken to the feasibility of these.

17. Phasing Plan

17.1.1 Due to the scale of the allocation it is likely that should planning approval be granted, any development would be constructed as a single speculative development with a build programme of circa 18 months from approval.

17.1.2 No highway infrastructure interventions required.

Table 22. Allocation Phasing: Bewshill Farm

Allocation Phasing	2020 2025	2025 2023	2030 2037*	2038+	Total
Total	100%	0%	0%	0%	100%

* GM modelling suite has a 2040 forecast year, as such it uses 2040 data as proxy for 2037 full build out, this will not materially impact on the analysis.

Table 23. Indicative intervention delivery timetable: Bewshill Farm

Mitigation	2020 2025	2025 2030	2030 2037*	2038+
Allocation Access				
Access via 3 arm priority junction	✓			
Travel Plan	✓			
Necessary Strategic interventions				
N/A				
Supporting Strategic Interventions				

Mitigation	2020 2025	2025 2030	2030 2037*	2038+
N/A				
Necessary Local Mitigations				
Pedestrian and cycle facilities and connections to the existing network	✓			
Contribution towards the Local Link service	✓			
Supporting Local Mitigations				
N/A				
SRN Interventions				
N/A				

* GM modelling suite has a 2040 forecast year, as such it uses 2040 data as proxy for 2037 full build out, this will not materially impact on the analysis.

18. Summary & Conclusion

- 18.1.1 The Bewshill Farm allocation is adjacent to the existing Logistics North development and will effectively extend the existing development. It will be accessed from within the Logistics North site. The proposed land use matches the existing site. Consultation responses in terms of transportation focused on the addition of traffic, in particular HGVs onto the local network, contributing to congestion and the requirement for accessible, sustainable transport options for the allocation. These comments have been reviewed and integrated into the proposals demonstrated in this assessment.
- 18.1.2 The impact on the local highway network is considered to be negligible as the allocation trips can be accommodated onto the highway network within the existing spare capacity.
- 18.1.3 Following analysis of the consultation responses, it can be stated that the allocation can be accommodated safely and efficiently without the need to implement mitigation measures.
- 18.1.4 Further detailed work will be necessary to identify any specific interventions required to ensure the network works effectively based on transport network conditions at the time of the planning application. All final design solutions should be consistent with Greater Manchester's best practice Streets for All highway design principles.
- 18.1.5 Based on the information contained within this report, it is concluded that the traffic impacts of the allocation are likely to be less than severe. Whilst the modelling work does indicate that junctions may experience capacity issues, they are not significantly worse than those experienced in the 2040 reference case. At this stage, the modelling work is considered a 'worst case' scenario as it does not take full account of the extensive opportunities for active travel and public transport improvements in the local area. On this basis, it is considered that the allocation is deliverable from a transport perspective.

Greater Manchester Spatial Framework

Locality Assessment:

Chequerbent North (GMA5)

Publication Version 1: Oct 2020

Identification Table	
Client	Bolton Council /TfGM
Allocation	Chequerbent North
File name	GMA5 Bolton - Chequerbent North Locality Assessment 021020
Reference number	GMA5

Approval					
Version	Role	Name	Position	Date	Modifications
0	Author	Steven Eggleston	Partner i-Transport	20/07/20	Base report
	Checked by	H Williams	Associate (SYSTRA)	22/07/20	
	Approved by			DD/MM/YY	
1	Author	R Clowes	TfGM	30/09/20	Consistency edits
	Checked by	G Langley	Bolton MBC	02/10/20	
	Approved by	S Godley	Bolton MBC	02/10/20	

Table of contents

1.	Allocation Location & Overview	9
2.	Justification for Allocation Selection	13
3.	Key Issues from Consultation	14
4.	Existing Network Conditions and Allocation Access	15
5.	Multi-modal Accessibility	20
6.	Parking	28
7.	Allocation Trip Generation and Distribution	30
8.	Current Highway Capacity Review	32
9.	Treatment of Cumulative Impacts	33
10.	Allocation Access Assessment	34
11.	Impact of Allocation Before Mitigation on the Local Road Network	36
12.	Transport Interventions Tested on the Local Road Network	49
13.	Impact of interventions on the Local Road Network	54
14.	Impact and mitigation on Strategic Road Network	60
15.	Final list of interventions	70
16.	Strategic Context – GM Transport Strategy Interventions	72
17.	Phasing Plan	74
18.	Summary & Conclusion	76

List of figures

Figure 1.	GMSF Wigan-Bolton Growth Corridor	10
Figure 2.	Strategic Allocations in Bolton	11
Figure 3.	GMSF Draft Allocation Plan	12
Figure 4.	Illustrative Development Framework Plan	13
Figure 5.	Chequerbent North – Existing Access	17
Figure 6.	Norris Road Access to Chequerbent Works	18
Figure 7.	Indicative Access off Norris Road	19
Figure 8.	Indicative Access off A58 Snydale Way	20
Figure 9.	Existing Bus Services	22
Figure 10.	Westhoughton Bee Network	26

Figure 11.	Junctions for Assessment	41
Figure 12.	Illustrative Chequerbent to Platt Lane Link Road	51
Figure 13.	Illustrative Chequerbent Roundabout Improvements	52
Figure 14.	Illustrative Chequerbent Signalisation	53
Figure 15.	Illustrative M61J5 Improvements	67

List of tables

Table 1.	Existing Bus Services and Frequencies	21
Table 2.	Existing Rail Services	23
Table 3.	Bolton Council Parking Standards	28
Table 4.	Cumulative Development Quantum	30
Table 5.	Chequerbent North – Trip Generations	31
Table 6.	Allocation Traffic Distribution, 2040 GMSF High-Side (Origin/Destination Combined)	32
Table 7.	Cross-Boundary Trip Distribution at 2040	32
Table 8.	A6 Manchester Road Allocation Access Capacity Assessment – AM Peak Hour	35
Table 9.	A6 Manchester Road Allocation Access Capacity Assessment – PM Peak Hour	35
Table 10.	Snydale Way Allocation Access (LILO) Capacity Assessment – AM Peak Hour	36
Table 11.	Snydale Way Allocation Access (LILO) Capacity Assessment – PM Peak Hour	36
Table 12.	Predicted Proportional Impacts of Allocation and GMSF Traffic Flows	39
Table 13.	Predicted Proportional Impacts of Allocation and GMSF Traffic Flows	41
Table 14.	Results of Local Junction Capacity Analysis Before Mitigation (Source GMVDM)	41
Table 15.	Chequerbent Roundabout Capacity Assessments – 2025 AM Peak Hour	42
Table 16.	Chequerbent Roundabout Capacity Assessments – 2025 PM Peak Hour	43
Table 17.	Chequerbent Roundabout Capacity Assessments – 2040 AM Peak Hour	43
Table 18.	Chequerbent Roundabout Capacity Assessments – 2040 PM Peak Hour	44
Table 19.	Four Lane Ends Capacity Assessments – 2025 AM Peak Hour	45
Table 20.	Four Lane Ends Capacity Assessments – 2025 PM Peak Hour	46
Table 21.	Four Lane Ends Capacity Assessments – 2040 AM Peak Hour	47
Table 22.	Four Lane Ends Capacity Assessments – 2040 PM Peak Hour	48
Table 23.	Approach to Mitigation	50
Table 24.	Chequerbent North Traffic at Four Lane Ends Junction (A6/A659)	54

Table 25.	Chequerbent Roundabout – 2025 with Mitigation (Option 1) Assessments: AM Peak Hour	55
Table 26.	Chequerbent Roundabout – 2025 with Mitigation (Option 1) Assessments: PM Peak Hour	55
Table 27.	Chequerbent Roundabout – 2040 with Mitigation (Option 1) Assessments: AM Peak Hour	56
Table 28.	Chequerbent Roundabout – 2040 with Mitigation (Option 1) Assessments: PM Peak Hour	56
Table 29.	Summary Results of Local Junction Capacity Analysis After Mitigation – 2025: Option 1	57
Table 30.	Summary Results of Local Junction Capacity Analysis After Mitigation – 2040: Option 1	57
Table 31.	Chequerbent Roundabout – 2025 with Traffic Signals: AM Peak Hour	58
Table 32.	Chequerbent Roundabout – 2025 with Traffic Signals: PM Peak Hour	58
Table 33.	Chequerbent Roundabout – 2040 with Traffic Signals: AM Peak Hour	59
Table 34.	Chequerbent Roundabout – 2040 with Traffic Signals: PM Peak	59
Table 35.	Summary Results of Local Junction Capacity Analysis After Mitigation – 2025: Option 2	60
Table 36.	Summary Results of Local Junction Capacity Analysis After Mitigation – 2040: Option 2	60
Table 37.	Predicted Proportional Impacts of Allocation and GMSF Traffic Flows	62
Table 38.	Results of Strategic Road Network Junction Capacity Analysis Before Mitigation (Source GMVDM)	63
Table 39.	M61J5 Capacity Assessments – 2025 AM Peak Hour	63
Table 40.	M61J5 Capacity Assessments – 2025 PM Peak Hour	63
Table 41.	M61J5 Capacity Assessments – 2040 AM Peak Hour	64
Table 42.	M61J5 Capacity Assessments – 2040 PM Peak Hour	64
Table 43.	M61J5 – 2025 with Mitigation Assessment Results – AM Peak Hour	68
Table 44.	M61J5 – 2025 with Mitigation Assessment Results: PM Peak Hour	68
Table 45.	M61J5 – 2040 with Mitigation Assessment Results: AM Peak Hour	69
Table 46.	M61J5 – 2040 with Mitigation Assessment Results: PM Peak Hour	69

Table 47. Summary Results of Strategic Road Network Junction Capacity Analysis After Mitigation: 2025	70
Table 48. Summary Results of Strategic Road Network Junction Capacity Analysis After Mitigation: 2040	70
Table 49. Final List of Interventions: Chequerbent North	70
Table 50. Allocation Phasing: Chequerbent North	74
Table 51. Indicative Intervention Delivery Timetable	75

Allocation Data	
Allocation Reference No.	GMA5
Allocation Name	Chequerbent North
Authority	Bolton
Ward	Westhoughton North & Chew Moor
Allocation Proposal	Around 25,000 sqm of B2 and B8 uses
Allocation Timescale	0-5 years <input checked="" type="checkbox"/> 6-15 years <input type="checkbox"/> 16 + years <input type="checkbox"/>

Glossary

“2025 GMSF Constrained” - is the 2025 forecast case in which the model adjusts the input demand based on how the cost of travel changes from the base year to the future. For example, for a shopping trip undertaken by car which becomes more congested in future, changes might be travel via a different route, mode, location or time of day.

“2040 GMSF Constrained” - as above, but for a 2040 forecast year

“2025 GMSF High-Side” - is the 2025 forecast case in which the model does not adjust the input demand based on how the cost of travel changes. In this scenario congestion does not lead to a reassignment of traffic, and therefore road traffic flow will generally be higher.

“2040 GMSF High-Side” - as above, but for a 2040 forecast year

“2025 Reference Case” - is the Do Minimum scenario which includes delivery of all transport schemes already committed and assumed to be completed by 2025

“2040 Reference Case” - is the Do Minimum scenario which includes delivery of all transport schemes already committed and assumed to be completed by 2040

AADT - Annual average daily traffic, is a measure used in transportation planning to quantify how busy the road is

Bee Network - is a proposal for Greater Manchester to become the very first city-region in the UK to have a fully joined-up cycling and walking network: the most comprehensive in Britain covering 1,800 miles.

Bus Rapid Transit - is a bus-based public transport system designed to improve capacity and reliability relative to a conventional bus system. Typically, a BRT system includes roadways that are dedicated to buses, and gives priority to buses at junctions where buses may interact with other traffic

Existing Land Supply - these are sites across the county that have been identified by each local planning authority across Greater Manchester and are available for development

Greater Manchester Variable Demand Model (GMVDM) - the multi-modal transport model for Greater Manchester. This transport model provides estimates of future year transport demand as well as the estimates of travel behaviour changes and new patterns that the Plan is likely to produce. These include

changes in choices of routes, travel mode, time of travel and changes in journey destinations for some activities such as work and shopping.

“LRN” (Local Road Network) All other roads comprise the Local Road Network. The LRN is managed by the local highways authorities

National Trip End Model (NTEM) - is a Department for Transport forecast that ensures that measures of population, jobs and trips made by various mode are consistent across the whole of Great Britain.

Rapid transit services - refers to high frequency, high capacity metro style transport services including Metrolink and Bus Rapid Transit.

“SRN” (Strategic Road Network) The Strategic Road Network comprises motorways and trunk roads, the most significant ‘A’ roads. The SRN is managed by Highways England.

“TfGM” - Transport for Greater Manchester, the Passenger Transport Executive for Greater Manchester

Urban Traffic Control (UTC) - is a specialist form of traffic management that, by coordinating traffic signals in a centralised location, minimises the impact of stop times on the road user.

Allocation Location & Overview

- 1.1 The ten local planning authorities in Greater Manchester have agreed to prepare a joint Development Plan document to guide the development of land for housing and employment over the next 20 years. This is known as the Greater Manchester Spatial Framework (GMSF).
- 1.2 This Locality Assessment (LA) is one of a series being prepared for proposed allocations within the GMSF in order to confirm the potential impacts.
- 1.3 For the purposes of the testing the impact of the allocation through the strategic model, a total of 25,000 sqm of employment floorspace have been assumed to be built out by 2040. The GM transport modelling suite has a 2040 forecast year, as such it uses 2040 trajectory data as proxy for 2037 full build-out, this is not considered to materially impact on the analysis or conclusions of this report.
- 1.4** All phasing plans information contained in this Locality Assessment is indicative only and has only been used to understand the likely intervention delivery timetable. Final trajectory information and the final allocation proposal is contained in the GMSF Allocation Topic Paper.
- 1.5 The authorities issued a revised draft consultation document in January 2019. The 2019 document notes that the overall spatial strategy of the GMSF seeks to take advantage of the opportunities for delivering high levels of economic growth. Policy GM-Strat 8 identifies that the Wigan-Bolton growth corridor will deliver a regionally-significant area of economic growth and residential development and proposes to allocate Chequerbent North as Policy GM Allocation 5 for employment uses.
- 1.6 The revised draft GMSF (January 2019) identifies the potential of the Wigan – Bolton Growth Corridor to support long-term economic prosperity. Chequerbent North is proposed for allocation and is identified on Figure 4.7 of the draft GMSF, as part of the Wigan-Bolton Growth Corridor, which is reproduced below.

Figure 1. GMSF Wigan-Bolton Growth Corridor (Extract from Draft GMSF (January 2019) Figure 4.7)



1.7 Chequerbent North is one of the three allocations in Bolton, the others being Bewshill Farm and West of Wingates, both also proposed for employment uses. The strategic allocations in Bolton are shown in Figure 11.3 of the draft GMSF, reproduced below.

Figure 2. Strategic Allocations in Bolton (Extract from Draft GMSF (January 2019) – Figure 11.3)

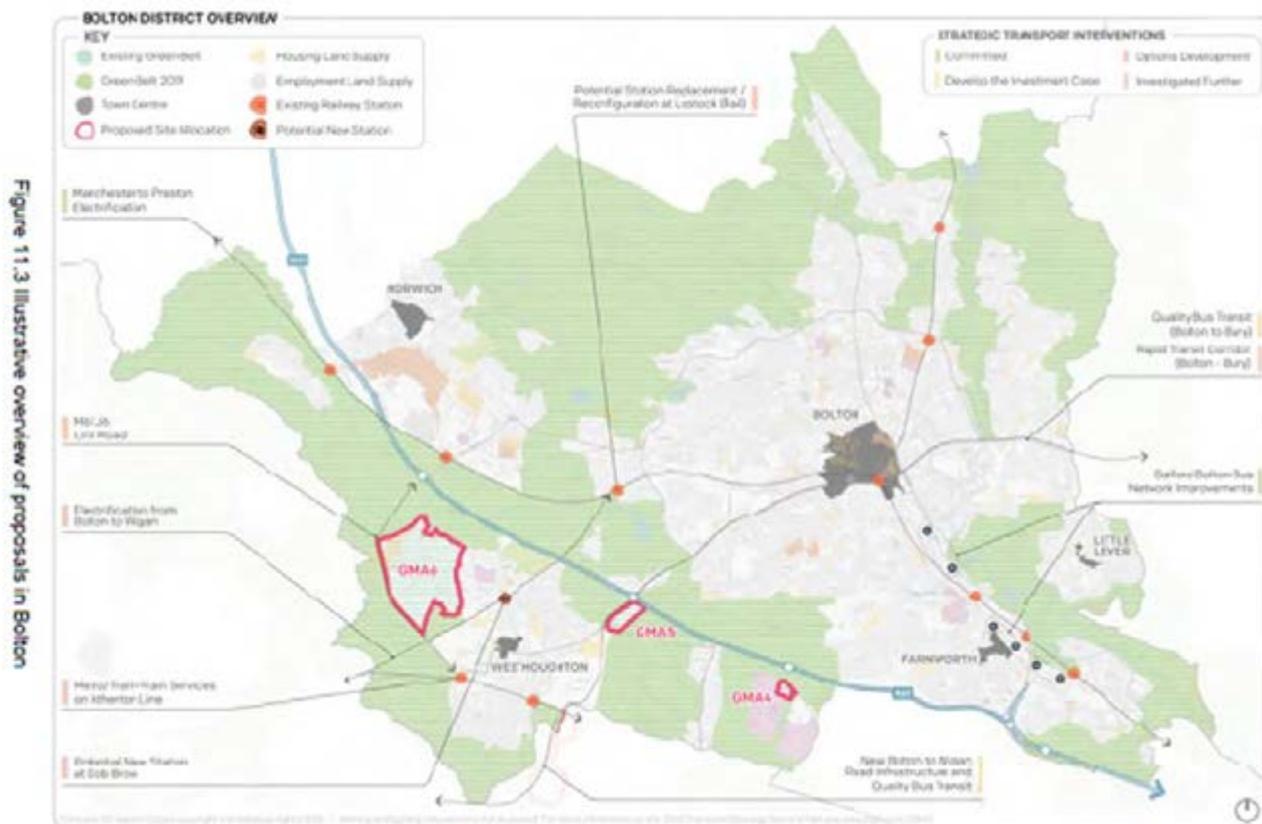
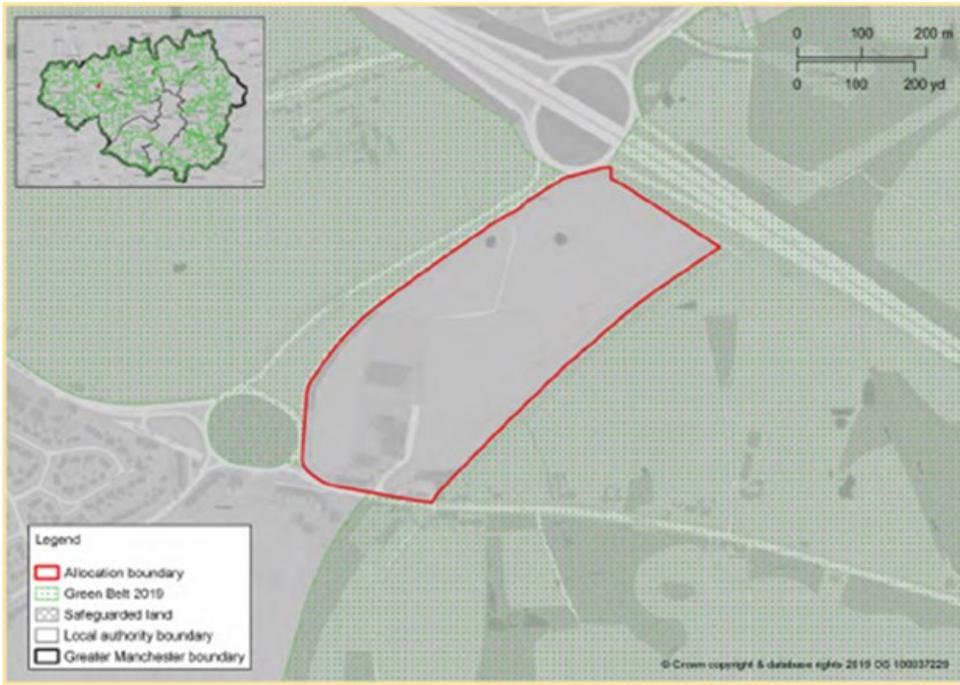


Figure 11.3 Illustrative overview of proposals in Bolton

1.8 The draft GMSF allocation plan for the allocation is shown below, confirming its location to the east of A58 Snydale Way (part of TfGM’s key route network), close to and south of M61J5 and north of A6 Manchester Road. Note that all boundaries shown were correct at time of writing, minor adjustments are to be made to the allocation boundary for definitive boundary information refer to the GMSF allocation maps.

Figure 3. GMSF Draft Allocation Plan (Extract from Draft GMSF (January 2019) – Allocation Plan (No figure reference, page 220)



1.9 An Illustrative Development Framework Plan for the allocation has been developed and is shown below.

Figure 4. Illustrative Development Framework Plan



Justification for Allocation Selection

- 2.1 An employment use in this location would take advantage of its strategically important location within the Wigan-Bolton Growth Corridor. The allocation's location along Manchester Road (A6) and the A58 provides access to the nearby strategic road network, including the M61. The area is on a regular bus route between Bolton and Westhoughton which provides sustainable access to the allocation. Westhoughton is subject to a Bee Network proposal to promote active travel and the A6 corridor will benefit from segregated cycle facilities.
- 2.2 The allocation would have a strong role to play in creating a thriving and productive economy in all parts of Greater Manchester, and reducing inequalities and improving prosperity.

Key Issues from Consultation

- 3.1 The [GMSF Consultation Summary Report \(October 2019\)](#) sets out a summary of the responses received on the consultations to the GMSF draft plan. A summary of the representations for each strategic allocation is set out in the report.
- 3.2 In total, 77 comments were received on GM Allocation 5: Chequerbent North. The summary of the transport and highways related comments, extracted from the consultation summary report, are set out below:

Transport – Highways / Public Transport / Cycling / Walking

The traffic in and around Westhoughton and M61 junction 5 is gridlocked and traffic backs up onto the motorway. The proposals will only increase traffic along Logistics North and Wingates expansions.

The Chequerbent roundabout already takes some 4000 cars per hour. The congestion at the roundabout will only get worse with increased traffic as a result of the proposed development.

The outlined plans will bring an increase in the number of HGVs using existing roads, which will create more congestion and air pollution.

Cyclists’ ability to travel efficiently and safely amongst the congestion will be impacted by the proposals.”

- 3.3 The relevant matters are addressed in this Locality Assessment Report which demonstrates that the transport impacts of the allocation can be accommodated on the surrounding networks without severe impacts.

Existing Network Conditions and Allocation Access

4.1 Existing Network Conditions

- 4.1.1 The allocation is located to the immediate south of M61J5 with the motorway and A6 Manchester Road forming its northern and southern boundaries respectively. The A58 Snydale Way runs between M61 and A6 to the west of the allocation and forms its western boundary. Chequerbent roundabout is the junction of A58 and A6.
- 4.1.2 The M61 motorway runs between M60 motorway at Wardley and M6 motorway at Preston. In the vicinity of the allocation it is a dual three-lane motorway. Junction 5 (M61J5) is located to the immediate north of the allocation and is a four-arm large grade-separated roundabout connecting M61 with A58 Snydale Way/Wigan Road; Snydale Way providing access towards Westhoughton and beyond and Wigan Road providing access to Bolton. The roundabout is priority controlled on all arms except for the left turn from the westbound M61 to A58 Snydale Way where a left-filter lane is provided.
- 4.1.3 A58 Snydale Way runs south from M61J5 towards Chequerbent roundabout, with the latter located c.550m from the motorway junction. Snydale Way is a two-lane dual carriageway with a 40mph speed limit; it has street lighting and footways down both sides.
- 4.1.4 Chequerbent roundabout is a large at-grade roundabout of c.150m diameter. The roundabout has five entry arms; as well as A58 Snydale Way to the north, these are A58 Park Road to the south west, A6 Manchester Road to the east and west and an un-named minor road to the south. This minor road will be improved by the committed Lee Hall development (located immediately south of Chequerbent roundabout) with a road connection provided through the allocation to Platt Lane. The roundabout is subject to a 40mph speed limit with this reducing to 30mph on A58 Park Road.
- 4.1.5 A6 Manchester Road to the east of Chequerbent roundabout is a wide single carriageway road subject to a 40mph speed limit. It is street-lit with footways on both sides. It connects Chequerbent roundabout with the A6/A579 Newbrook Road/A579 St Helens Road (Four Lane Ends) junction.

- 4.1.6 A58 Park Road connects Chequerbent roundabout with Westhoughton town centre. It is a typical urban single carriageway road subject to a 30mph limit and with street lighting. It has frontage development on both sides with direct access to mainly residential properties. Footways are provided on both sides. About 600m to the south west of Chequerbent, Platt Lane joins Park Road at a priority controlled 'T' junction. Platt Lane continues in a southerly direction towards Atherton.
- 4.1.7 The area in which the allocation sits is served by a wide range of existing public transport services, including bus and rail routes, the majority of roads and streets in the area have footways and there are cycle routes nearby.
- 4.1.8 Buses run along the allocation frontage on Snydale Way and around Chequerbent roundabout, also travelling along the allocation's A6 frontage. These provide connections to a range of destinations including Bolton, Westhoughton and Daisy Hill station.
- 4.1.9 There are four railway stations within the vicinity of the allocation with Daisy Hill being the closest, accessed via Park Road and Leigh Road.
- 4.1.10 The majority of the streets close to the allocation have footways and there are footways/a cycle lane around the perimeter of Chequerbent roundabout, adjacent to the south-west corner of the draft allocation.

4.2 Current Access

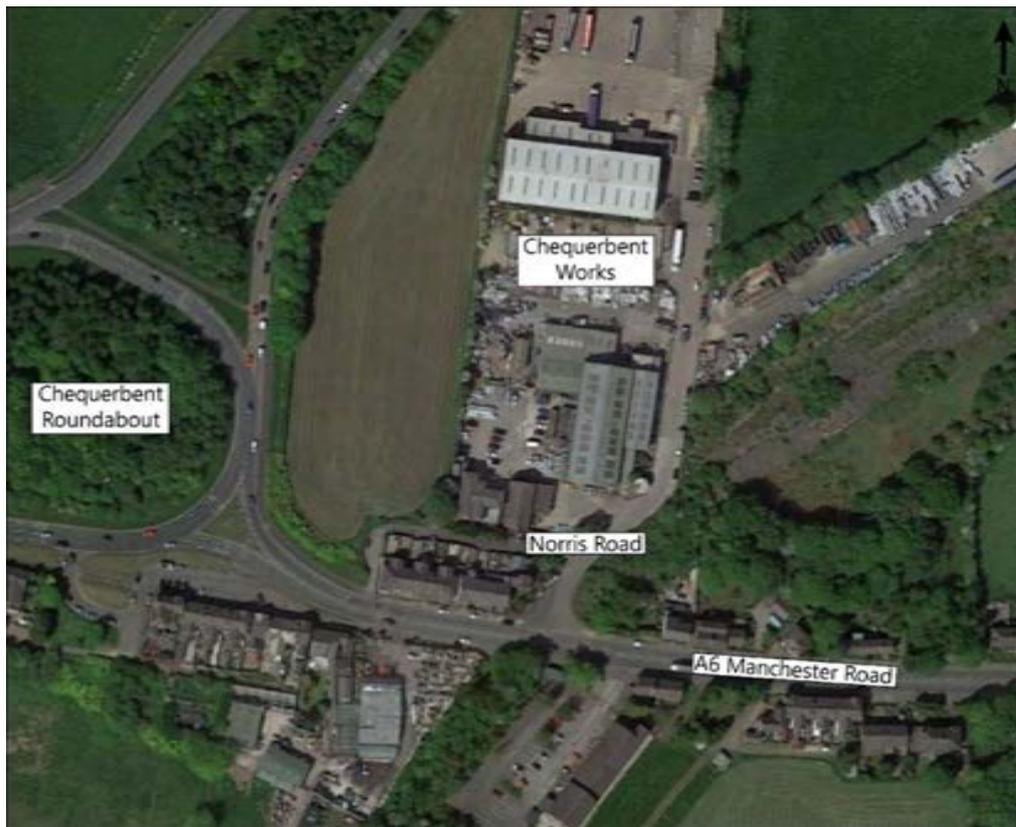
- 4.2.1 The allocation has highway frontage with A58 Snydale Way, which runs between M61J5 and Chequerbent roundabout, and A6 Manchester Road which runs east-west and also connects with Chequerbent roundabout. The location is shown below.

Figure 5. Chequerbent North – Existing Access (© Google Maps 2020)



4.2.2 The Chequerbent Works is part of the draft allocation and this is accessed via Norris Road, at a priority 'T' junction that joins A6 Manchester Road c140m to the east of its junction with Chequerbent roundabout. A ghost-island right-turn lane is provided. The junction has a wide bell-mouth, capable of accommodating large Heavy Goods Vehicles (HGVs). An extract from google mapping below shows the junction and the access to Chequerbent Works, as well as its location in relation to Chequerbent roundabout.

Figure 6. Norris Road Access to Chequerbent Works (© Google Maps 2020)



4.3 Proposed Access

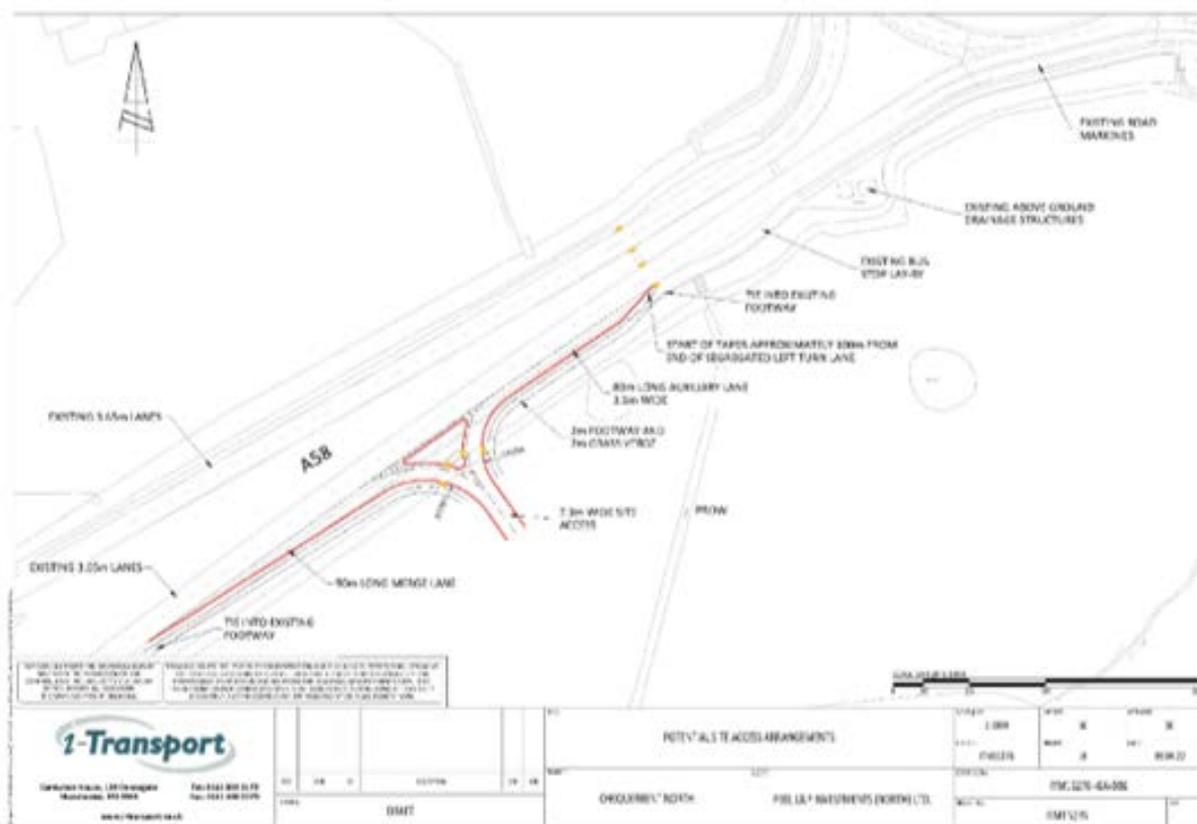
4.3.1 The illustrated development framework plan included at Figure 4 shows two potential accesses to the allocation:

- Utilising the existing access to the area via Norris Road off A6 Manchester Road.
- Using a new access off A58 Snyderdale Way, c.200m to the south-west of Chequerbent roundabout.

4.3.2 The draft policy requires access to be provided from the A6 with a potential additional access via Snyderdale Way; the access strategy and framework plan are consistent with this.

4.3.3 The access from A6 will use the existing Norris Road junction which is wide enough to accommodate large HGVs. The access road will be extended into the allocation to connect with individual development plots as shown on the framework plan. Where necessary, Norris Road can be widened to a consistent width as it enters the allocation and an indicative access arrangement is shown on drawing ITM15276-GA-002A below.

Figure 8. Indicative Access off A58 Snydale Way



© Crown Copyright Reserved. Reproduced from the Ordnance Survey map with the permission of the controller of Her Majesty's Stationary Office Licence No. 100044285

Multi-modal Accessibility

5.1 Current

5.1.1 The area in which the allocation sits is served by a wide range of existing public transport services, including bus and rail routes, the majority of roads and streets in the area have footways and there are cycle routes nearby.

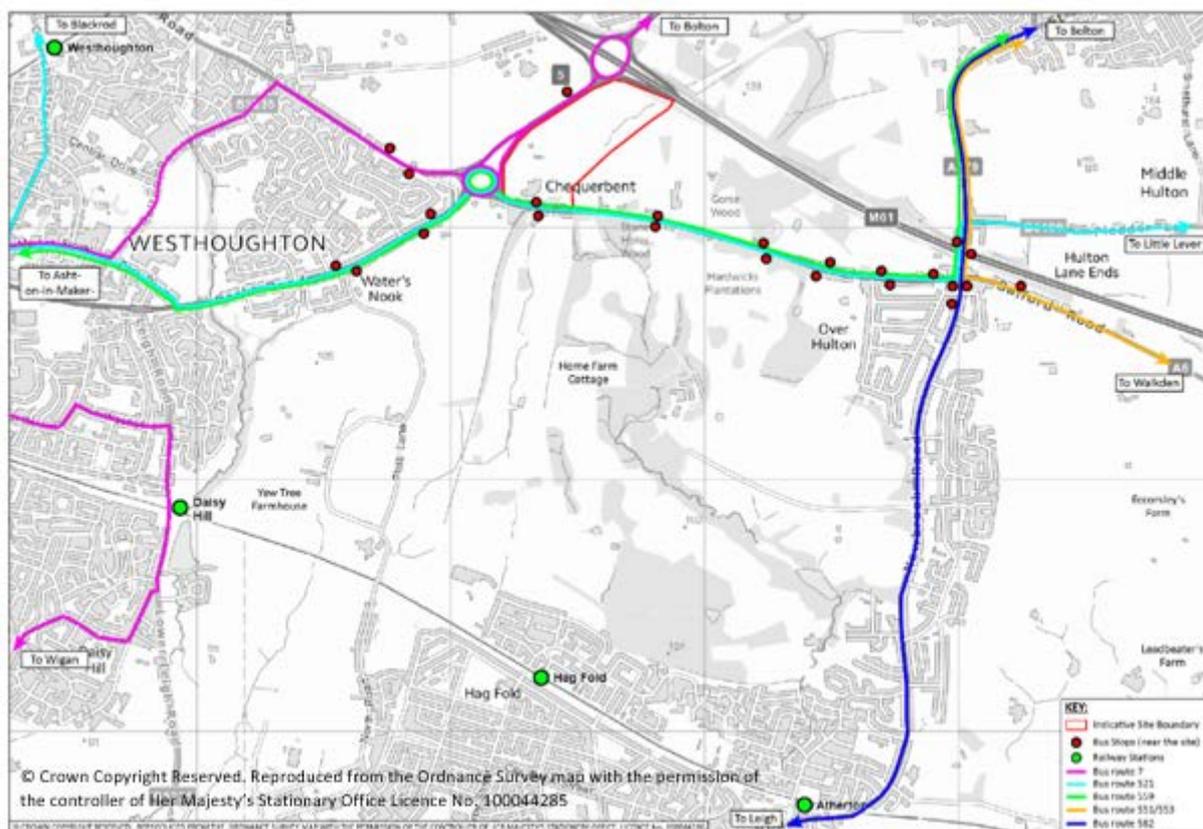
Bus Services

5.1.2 Table 1 below sets out the bus route and frequency details for all of the bus services around the allocation. The bus routes within the vicinity of the allocation are shown on the plan below the table.

Table 1. Existing Bus Services and Frequencies

Service No.	Mon Fri Day	Mon Fri Eve	Sat Day	Sat Eve	Sun Day	Sun Eve	Route
521	60 mins	-	60 mins	-	-	-	Little Lever – Farnworth – Royal Bolton Hospital – Westhoughton – Blackrod
559	60 mins	-	60 mins	-	-	-	Ashton-in-Makerfield - Hindley – Westhoughton – Bolton
7	15-20 mins	60 mins	15-20 mins	60 mins	30 mins	60 mins	Wigan – Ince – Hindley – Daisy Hill station - Westhoughton – Bolton

Figure 9. Existing Bus Services



5.1.3 Service 7 passes along the Snydale Way allocation frontage and provides a 15-20 minute frequency service between Westhoughton, Bolton and Wigan, also serving Daisy Hill railway station. It runs close to the allocation at Chequerbent roundabout. The 521 and 559 services run along Park Road and A6 Manchester Road, around Chequerbent roundabout. Both services are hourly, with no evening or Sunday services.

Rail Services

5.1.4 There are four railway stations within the vicinity of the allocation, as illustrated on the above figure. Daisy Hill, Hag Fold and Atherton stations all lie on the Manchester to Wigan line. Of the three, Daisy Hill station is the closest to the allocation, accessed via Park Road and Leigh Road. The journey times to Wigan and Manchester from Daisy Hill are 12-minutes and 31-minutes at peak times respectively. GMCA/TfGM proposes to develop options for Metro/tram-train services on the Atherton line which will also see increases in frequency. Westhoughton railway station is located to the north-west of the town and provides additional rail connections to Bolton, Wigan and Manchester Victoria.

5.1.5 The stations are within cycling distance of the allocation. The route to Westhoughton station is through residential areas, along Molyneux Road and Cherwell Road. Improvements are to be introduced by the Council as set out below. The routes to the three stations on the Wigan – Manchester line are largely via existing streets, with the closest, Daisy Hill, accessed via Park Road, Bank Side, Lademans and Leigh Road. Bank Side and Lademans are on-road advisory routes.

5.1.6 Table 2 below provides details of the available rail connections from each station, together with frequencies.

Table 2. Existing Rail Services

Destination	Mon Fri AM Peak	Mon Fri Day	Mon Fri Eve	Sat Day	Sat Eve	Sun Day	Sun Eve	Journey Time (Mins)
Daisy Hill/ Hag Fold/ Atherton								
Manchester Victoria	4	3	2-3	3	1-2	1	1	26-34 mins
Wigan Wallgate	3	3	3	3	2	1	1	11-15 mins
Southport	3	2	1	1	-	-	-	43-51 min
Kirkby (Merseyside)	1	1	-	1	-	-	-	36-37 mins
Blackburn	1	1	-	1	1	1	1	1 hour 32 mins – 2 hours 3 mins
Westhoughton								
Bolton	2	2	2	2	2	1	1	08-11 mins

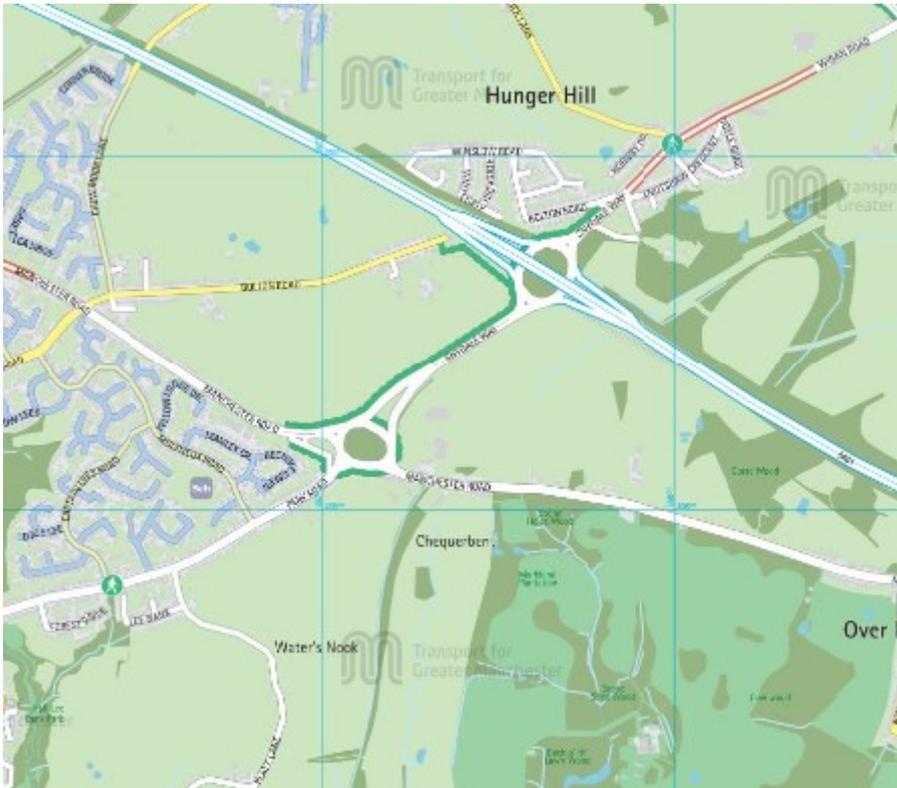
Destination	Mon Fri AM Peak	Mon Fri Day	Mon Fri Eve	Sat Day	Sat Eve	Sun Day	Sun Eve	Journey Time (Mins)
Manchester Victoria	1	1	1	1	1	1	1	35-41 mins
Manchester Piccadilly	1	1	1	1	1	-	-	33-34 mins
Wigan North Western	2	2	1-2	2	2	1	1	9-11 mins
Southport	-	-	1	1	max 1	-	-	42-44 mins

Note that frequency is expressed as number of services per hour, the AM Peak is between 0700-0900 and not all services stop at Hag Fold.

Walk and Cycle Networks

5.1.7 The majority of the roads and streets in the area have footways with pedestrian crossing facilities at key locations, particularly at junctions. Chequerbent roundabout has a traffic-free shared footway/cycleway around the perimeter of the roundabout. Cycle crossings in the form of marked crossing points with dropped kerbs are provided across each arm of the roundabout. The traffic-free cycle route continues along Snyderdale Way on its western side, both connecting to Bolton Road to the south-west of the M61 and crossing beneath the M61 at Junction 5 and continuing northwards as an on-road cycle lane along the A58, north of the motorway. The traffic-free route runs adjacent to the allocation's south west boundary.

5.1.8 The cycle route around Chequerbent as a traffic-free route with a good surface.



Contains Ordnance Survey Data © Crown Copyright 2019. All rights reserved. Produced by Pindar Creative. Updated 10-07-2019. Copyright © 2020 Transport for Greater Manchester All rights reserved.

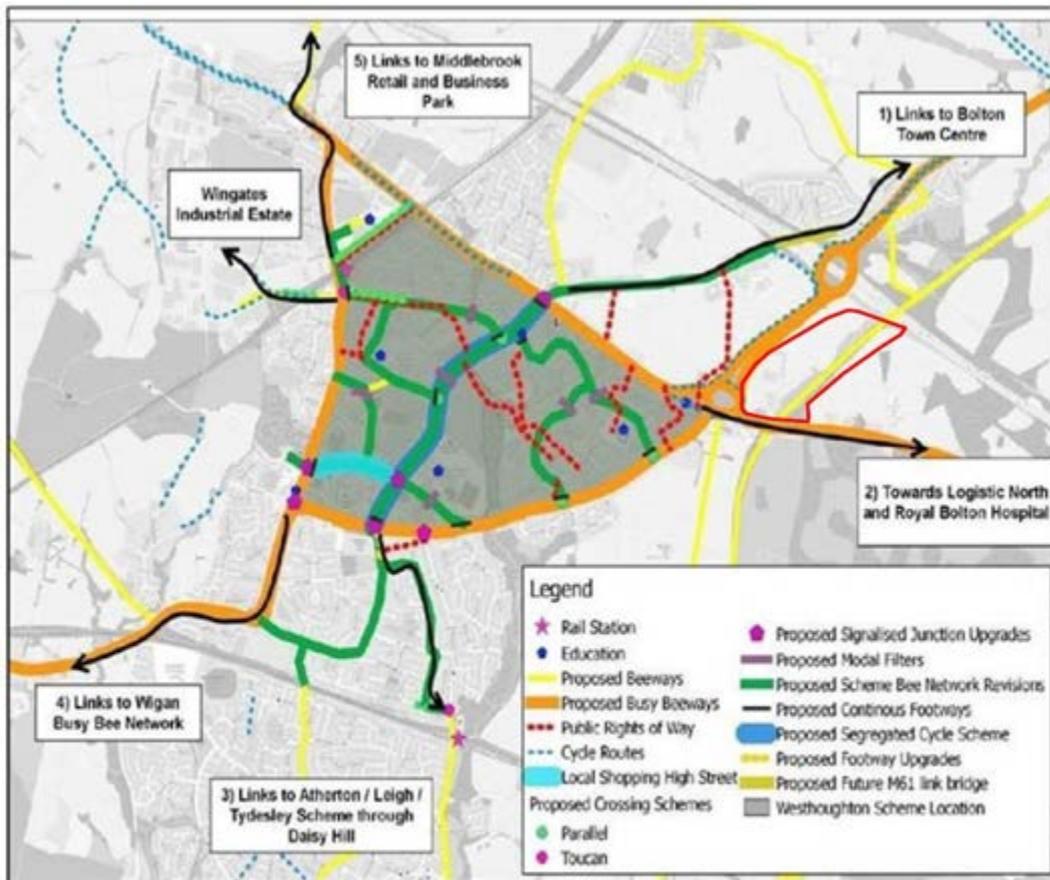
- 5.1.9 There are a number of Public Rights of Way (PRoW) around the Chequerbent North allocation. Each of these footpaths provides an unsurfaced leisure trail route connecting into the wider footway/footpath networks around Westhoughton, Over Hulton and Atherton.

5.2 Proposed

- 5.2.1 As an employment use, the allocation will largely be accessed by employees from residential areas with goods vehicle traffic approaching the allocation mainly from the motorway.
- 5.2.2 IHT guidelines note that 2km and 5km are acceptable walking and cycling distances for commuter trips. Much of Westhoughton is within 2km of the allocation and workers could therefore walk to the allocation from these areas. Many areas are within cycling distance including Westhoughton and Atherton and parts of Hindley and Tyldesley as well as much of the southern and western parts of Bolton.

- 5.2.3 Pedestrian routes are available to the allocation including along Snydale Way which can, if necessary, be improved. This could include upgrading to cycle route standard between Chequerbent roundabout and the allocation access on Snydale Way; the [Bolton Cycle map](#) identifies that the existing traffic free route around Chequerbent is suitable for commuting. Alternatively, a pedestrian/cycle connection could be made from the footway/cycle route at Chequerbent roundabout into the allocation at its south-west corner. These will connect into the network of pedestrian routes within the allocation and the internal roads will be suitable for cyclists. Both access junctions will also include pedestrian facilities by way of footways into the allocation.
- 5.2.4 Greater Manchester's 2040 Transport Strategy sets ambitious targets to increase sustainable journeys by 50%, the majority of which will be walking and cycling. The GMCA and local authorities have developed a 'Bee Network' to deliver a step-change in walking and cycling and funding by the government's Transforming Cities Fund has allowed delivery to start.
- 5.2.5 Bolton Council, as part of its identification of schemes, has developed plans for a 'filtered neighbourhood' at Westhoughton and this is summarised on the figure below also showing connections to the wider Bee Network in the area. The figure also shows the outline of the allocation.

Figure 10. Westhoughton Bee Network



Examples of future links to the wider network are shown on this map. Direct links to Bolton Town Centre **(1)** could be provided by a pedestrian / cycling bridge over the M61 (potentially through Highways England Designated Funds). A potential link to Logistics North and Royal Bolton Hospital **(2)**, towards the Tranche Four Atherton / Leigh / Tydesley scheme through Daisy Hill **(3)**, towards Wigan Busy Road Bee Network on the A58 **(4)** and to Middlebrook Retail and Business Park **(5)** are also shown.

Extract from TfGM Bee Network Map © Crown Copyright & database rights 2020 OS 100037229

- 5.2.6 The Bee Network will significantly enhance walking and cycling access to the Chequerbent North allocation, complementing the existing facilities in the area.
- 5.2.7 It is therefore concluded that the allocation will be accessible on foot and by bicycle.
- 5.2.8 Bus service 7 runs along Snyderdale Way and there are stops close to the allocation, ensuring that buildings will be in close proximity to bus routes, easily within generally recognised walking distances. The 7 provides a frequent 15-20 minute service from several origins including Wigan, Hindley, Westhoughton and Bolton. There are 30 minute frequency services during the day on Sundays and hourly services in the evenings, seven days a week.

- 5.2.9 The 7 bus services also provides a connection to and from Daisy Hill railway station which has 30 minute daytime train services to both Manchester Victoria and Wigan Wallgate. Westhoughton station is a c.2.3km walk from the allocation with services to Bolton, Wigan, Manchester stations and Manchester Airport. Westhoughton station can also be accessed via existing streets which are advisory cycle routes and which will benefit from the Bee Network improvements.
- 5.2.10 As well as the bus route along Snydale Way, the 521 and 559 bus routes travel through Chequerbent roundabout (along Park Road and Manchester Road East) and are close to the allocation. Both provide hourly day-time services connecting the allocation with Westhoughton and a range of other destinations including: for the 521, Farnworth and Blackrod; and, for the 559, Hindley and Bolton.
- 5.2.11 The accessibility of the allocation by public transport, both bus and rail, is concluded to be excellent.
- 5.2.12 Thus, in summary, the allocation benefits from its close proximity to both sustainable travel networks (bus, rail, footways and cycle routes) and residential areas. The accessibility of the allocation by pedestrians and cyclists will be improved by either extending the traffic-free footway/cycleway along Snydale Way to the proposed access, or by making a connection from it to the south-west corner of the allocation. If necessary, and to be considered at planning application stage, bus stops nearest to the allocation could be improved.
- 5.2.13 It is therefore concluded that the allocation is sustainable and accessible by a range of travel modes and will therefore be in accordance with the NPPF.

Parking

- 6.1.1 The allocation will be developed for B2 and/or B8 uses.
- 6.1.2 Bolton Council's Core Strategy (March 2011) includes parking standards at its Appendix 3. These are maximum standards for car parking and minimum standards for other users and are set out below.

Table 3. Bolton Council Parking Standards

Use Class	Maximum Standard For Car Parking*	Minimum Standard For Car Parking For Disabled People	Minimum Standard For Cycle Parking	Minimum Standard For Motorcycle Parking
B2 – General Industry	1 per 60sqm	Up to 200 bays – individual bays for each disabled employee + 2 bays or 5% of capacity whichever is greater. Over 200 bays – 6 bays + 2% of total capacity.	1 per 700sqm – minimum of 2 spaces	1 per 2,800sqm – minimum of 2 spaces.
B8 – Storage or distribution	1 per 100sqm	Up to 200 bays – individual bays for each disabled employee + 2 bays or 5% of capacity whichever is greater. Over 200 bays – 6 bays + 2% of total capacity.	1 per 850sqm – minimum of 2 spaces	1 per 4,000 sqm – minimum of 2 spaces

*Excludes disabled parking

6.1.3 Noting the Council’s car parking standards are maxima, actual parking provision will also take account of the commercial requirements of the occupiers of the units. It is, however, concluded that sufficient parking can be provided on the allocation.

6.1.4 The number and location of Electrical Vehicle (EV) charging points at the allocation will be determined at planning application stage.

Allocation Trip Generation and Distribution

7.1 Introduction

7.1.1 Future trip generation to/from the allocation (i.e. how many people and vehicles will enter or leave the allocation) was estimated by applying a set of GM-wide trip rates to the agreed development quantum for each allocation. The distribution of trips (i.e. where they are going to or coming from) was derived by selecting nearby zones with similar land use characteristics as a proxy and using the existing distribution in the model.

7.1.2 The peak hour trip generations for the allocation have therefore been derived from Select Link Analysis provided by TfGM. These vary depending on the model scenario and are described in 7.2 below.

7.1.3 The Select Link Analysis provides a summary of the distribution and assignment of trips in terms of allocation generated traffic flows on the surrounding road network. These are described in Section 7.3.

7.1.4 The development quantum adopted in the model is as follows:

Table 4. Cumulative Development Quantum

Use	Use Sub Category	Development Quantum 2025	Development Quantum 2040
Industrial	B2/B8	25,000sqm	25,000sqm

7.2 Trip Generation

7.2.1 The levels of trips generated by the allocation which are output from GMVDM for the forecast years are set out in Table 5 below for the following scenarios:-

- With mitigation – constrained by the supply/demand model.
- With mitigation – high side: unconstrained by the model.

Table 5. Chequerbent North – Trip Generations

Year	AM Peak Hour		AM Peak Hour		PM Peak Hour		PM Peak Hour	
	0800	0900	0800	0900	1700	1800	1700	1800
	Departures		Arrivals		Departures		Arrivals	
2025 GMSF Constrained	44		81		72		25	
2025 GMSF High-Side	58		97		72		31	
2040 GMSF Constrained	41		73		65		22	
2040 GMSF High-Side	58		97		65		31	

Units are in PCU (passenger car units/hr)

7.2.2 The trip generation rates will be reviewed if a detailed Transport Assessment (TA) is prepared to accompany a planning application.

7.3 Trip Distribution/Assignment

7.3.1 The routes used by traffic approaching/leaving the allocation have been assessed using the select link data derived from the GMVDM and are summarised in the table below for the roads surrounding the allocation.

Table 6. Allocation Traffic Distribution, 2040 GMSF High-Side (Origin/Destination Combined)

Route	AM Peak Hour		PM Peak Hour	
	0800	0900	1700	1800
A58 Wigan Road (N of M61)	9.7%		14.6%	
M61 East	45.2%		38.5%	
M61 West	14.2%		11.5%	
A6 East	12.9%		12.5%	
A6 West	7.1%		4.1%	
A58 Park Road*	10.9%		18.8%	
Total	100.0%		100.0%	

*Includes via link road

7.3.2 The cross-boundary GMSF high-side trip distribution/assignment at 2040 is as follows:

Table 7. Cross-Boundary Trip Distribution at 2040

Route	Share		2 Way Flow		2 Way Flow			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	0800	0900	1700	1800	0800	0900	1700	1800
Platt Lane/North Road (Wigan)	5.8%		10.4%		9		10	
A6 Salford Road (Salford)	5.2%		3.1%		8		3	

Units are in PCU (passenger car units/hr)

Current Highway Capacity Review

8.1.1 The A58 corridor between Westhoughton and M61J5 carries between c.19,000 and c.32,000 vehicles per day (AADT), increasing towards the motorway, with two-way peak hour flows of

c.2,500 vehicles per hour (vph) to the south west of Chequerbent and rising further to c.2,800-2,900 vph on Snyderdale Way. Peak hour flows are generally tidal towards the motorway in the AM peak hour and from the motorway in the evening peak hour.

- 8.1.2 A6 Manchester Road typically carries c.14,000 vehicles per day (AADT) with peak hour flows of c.1,200-1,500 vph; flows are higher to the west of Chequerbent, reflecting traffic travelling towards M61J5.
- 8.1.3 Platt Lane carries c.6,400 vehicles per day (AADT) with around 700 vph in the peak hours. The majority of the traffic using Platt Lane travels to/from A58 Park Road from/to Chequerbent roundabout, reflecting its use as a route from Atherton (and beyond) to M61 motorway and Bolton.
- 8.1.4 In terms of junctions, Chequerbent roundabout and M61J5, connected by Snyderdale Way, carry the highest traffic flows with the flows at Chequerbent being similar to those at M61J5.
- 8.1.5 M61J5 currently operates within capacity in both peak hours. Modelling of the junction identifies some queuing on Snyderdale Way approaching the junction in the AM peak hour albeit the modelled queue is greater than that observed in surveys; it appears this may result from drivers using different lanes than those suggested by the markings at the junction.
- 8.1.6 Chequerbent roundabout currently operates within capacity in the morning peak but significantly over-capacity in the evening peak, with long queues in particular along Snyderdale Way as far back as M61J5.
- 8.1.7 The A6 Manchester Road / A579 Newbrook Road / St Helens Road junction (Four Lane Ends) operates at capacity in the AM peak hour and just under capacity in the PM peak.

Treatment of Cumulative Impacts

- 9.1.1 The Chequerbent North allocation forms part of the Wigan-Bolton Growth Corridor and other allocations within and near the corridor will potentially impact on the same sections of the road network. The following allocations will likely add traffic flows to the same sections of road network:

- Bolton

- GM Allocation 4: Bewshill Farm – around 21,000 sqm of B2 and B8 floorspace.
- GM Allocation 6: West of Wingates – around 440,000 sqm of B2 and B8 floorspace.
- Wigan
- GM Allocation 50: Pocket Nook – 600 dwellings and around 15,000 sqm of employment floorspace.
- GM Allocation 51: West of Gibfield around 700 dwellings and around 45,500 sqm of B1, B2 and B8 floorspace.

9.1.2 The GM Allocation 47: Land South of Pennington (around 160,000 sqm of employment development) is no longer proposed for allocation and has been removed from GMSF.

9.1.3 The constrained and high side GMVDM runs take account of traffic associated with all GMSF allocations to look at cumulative impacts.

9.1.4 The overall approach in this Locality Assessment is to identify mitigation that will accommodate the full GMSF traffic flows, where the Chequerbent North allocation has a potential impact. Various allocations and general growth in travel demands contributes to impacts and some locations already experience capacity issues (e.g. at Chequerbent roundabout as described above). As such, any mitigation identified at this stage is not solely attributable to the Chequerbent North allocation.

9.1.5 The aim is to demonstrate that mitigation can be identified but also noting that the GMVDM is a strategic modelling tool and mitigation will therefore be refined through a comprehensive TA which will be conducted at planning application stage, should the allocation be confirmed. This approach has been agreed by TfGM via their consultants, SYSTRA.

Allocation Access Assessment

10.1.1 This allocation access arrangement has been developed to illustrate that there is a practical option for allocation access in this location and to develop indicative cost estimations. It is assumed that a detailed design consistent with Greater Manchester's best practice Streets for All highway design principles will be required at the more detailed planning application stage

10.1.2 The traffic capacity of the allocation access junctions described in Section 4 has been assessed using the PICADY software in JUNCTIONS9. The derivation of traffic flows from the Greater

Manchester Variable Demand Model (GMVDM) is considered later in this Locality Assessment report but at this stage it should be noted that the access capacity assessment has used 2040 GMSF high-side traffic flows for Snyderdale Way and A6 Manchester Road and allocation generated traffic flows taken from the select link data provided from GMVDM for the purposes of assessment; it has been assumed that all traffic could use each access as this represents a worst case.

10.1.3 The results of the capacity assessments for the 2040 forecast year are summarised in the tables below.

Table 8. A6 Manchester Road Allocation Access Capacity Assessment – AM Peak Hour

Movement	2040 GMSF High Side RFC	2040 GMSF High Side Queue (PCU)
Left Turn out of Access	0.03	0
Right Turn our of Access	0.17	0
A6 Manchester Road (East) – Right Turn to Allocation	0.02	0

Table 9. A6 Manchester Road Allocation Access Capacity Assessment – PM Peak Hour

Movement	2040 GMSF High Side RFC	2040 GMSF High Side Queue (PCU)
Left Turn out of Access	0.02	0
Right Turn our of Access	0.19	0
A6 Manchester Road (East) – Right Turn to Allocation	0.01	0

Table 10. Snyderdale Way Allocation Access (LILO) Capacity Assessment – AM Peak Hour

Movement	2040 GMSF High Side RFC	2040 GMSF High Side Queue (PCU)
Access Left-Turn	0.20	0

Table 11. Snyderdale Way Allocation Access (LILO) Capacity Assessment – PM Peak Hour

Movement	2040 GMSF High Side RFC	2040 GMSF High Side Queue (PCU)
Access Left-Turn	0.26	0

10.1.4 The analysis demonstrates that both access junctions will operate comfortably within capacity. The designs will be subject to road safety audit if the allocation is confirmed and a planning application is progressed. It is concluded, at this stage, that satisfactory access to the allocation can be provided in accordance with the NPPF.

Impact of Allocation Before Mitigation on the Local Road Network

11.1.1 In order to understand a worst case impact of the GMSF, the ‘high side’ runs from the GMVDM were used to derive with GMSF development flows for 2040. These flows were then entered into junction based models for the junctions identified in section 8. Flows from a 2040 reference case scenario (including approved Local Plan development from the respective districts) were also extracted to provide a comparison between the operation of those junctions in the 2040 reference case and the 2040 with GMSF development scenarios.

11.1.2 The ‘with GMSF’ scenario has been assessed against a Reference Case which assumes background growth and includes the housing and employment commitments from the districts. Through discussions with TfGM and the Combined Authority, it has been agreed that where mitigation is required, it should mitigate the impacts back to a reference case scenario. It should be noted that mitigating back to this level of impact may not mean that the junction operates within capacity.

11.1.3 These assessments were then used to identify the junctions where there was considered to be a substantial impact, relative to the operation of the junction in the 2040 reference case, and hence

where mitigation was considered to be required in order to bring GMSF allocations forward. Through discussions with TfGM and the Combined Authority, it was been agreed that where mitigation is required, it should mitigate the impacts back to the reference case scenario. It should be noted that mitigating back to this level of impact may not mean that the junction operates within capacity by 2040.

11.1.4 This section looks at the impact on the network at the junctions highlighted in section 9. Signalised junctions were assessed in detail using industry-standard modelling software LINSIG version 3. Where possible, traffic signal information was requested from TfGM in order to ensure that the local junction models reflected (as far as possible), the operation of the junctions on the ground. Junctions 9 software was used to assess priority and roundabout junctions. Table 4 below provides a comparison between the operation of the in scope junctions in the 2040 reference case and the 2040 'high side' scenarios, as well as the allocation development flows through each respective junction. The table shows a comparison between the ratio of flow to capacity on the worst case arm at each junction as well as the total development flows through the junction.

11.1.5 TfGM/SYSTRA has provided the following:

- Modelled turning movements at key junctions for the 2025 and 2040 'Reference Case' and 'With full GMSF development' scenarios.
- Select Link Analysis from the GMSF scenarios which provides the modelled Chequerbent North traffic flows at each junction.
- Volume/Capacity (V/C) data at the key junctions.
- Traffic Signal Controller data where appropriate.

11.1.6 SYSTRA initially noted that following key junctions should be considered and provided data for these:-

1. A6 / Watergate Lane / Bridgewater Avenue
2. M61 Junction 4
3. A6 / A579 (Four Lane Ends)
4. A6/A58 (Chequerbent Roundabout)
5. M61 Junction 5
6. A58 / A676

7. A6 / B5235 Bolton Road
8. A6 / Church Street
9. A58 / B5215 Leigh Road

11.1.7 Impacts on the Strategic Road Network are considered in Section 14.

Proportional Impacts

11.1.8 The first stage in the assessment was to consider the predicted Chequerbent North allocation flows at junctions and also the total GMSF flows as predicted by the GMVDM Model.

11.1.9 Table 12 below summarises these flows and, based on this, it was concluded that the impacts of the Chequerbent North allocation need only be assessed at the Chequerbent roundabout (SYSTRA reference junction 4) and M61 Junction 5 (SYSTRA junction 5). Following liaison with SYSTRA, it was subsequently agreed that the A6/A579 Four Lane Ends (junction 3) would also be considered and assessed:

Table 12. Predicted Proportional Impacts of Allocation and GMSF Traffic Flows

Junction Name	2040 Ref Case AM	2040 Ref Case PM	2040 With Total GMSF AM	2040 With Total GMSF PM	% Diff (GMSF/ Ref) AM	% Diff (GMSF/ Ref) PM	Chequer bent North Only AM	Chequer bent North Only PM	% Difference (Chequerbent North / Ref) AM	% Difference (Chequerbent North / Ref) PM
1. A6/ Bridgewater Avenue/ Watergate Lane	3,485	3,677	3,688	4,076	5.8%	10.9%	9	15	0.3%	0.4%
3. A6/ A579	3,597	3,396	3,783	3,770	5.2%	11.0%	18	25	0.5%	0.7%
4. A6 Manchester Road /A58 Park Road /Snydale Way	4,620	4,764	5,287	5,161	14.4%	8.3%	104	50	2.2%	1.0%
6. A58/ A676/ Wigan Road	2,573	2,875	2,477	2,788	-3.7%	-3.0%	11	8	0.4%	0.3%
7. A6 Manchester Road /B5235 / Bolton Road	1,908	2,078	2,570	2,245	34.7%	8.0%	11	4	0.6%	0.2%

Junction Name	2040 Ref Case AM	2040 Ref Case PM	2040 With Total GMSF AM	2040 With Total GMSF PM	% Diff (GMSF/Ref) AM	% Diff (GMSF/Ref) PM	Chequer bent North Only AM	Chequer bent North Only PM	% Difference (Chequer bent North / Ref) AM	% Difference (Chequer bent North / Ref) PM
8. A6 Manchester Road /B5236/ Church Street	1,667	1,780	2,197	2,001	31.8%	12.4%	5	2	0.3%	0.1%
9. A58 Cricketers Way /B5235/ Leigh Road	1,857	2,213	1,872	2,044	0.8%	-7.6%	10	5	0.3%	0.2%

Table 13. Predicted Proportional Impacts of Allocation and GMSF Traffic Flows

11.1.10 The locations of the junctions to be assessed are shown on the figure below.

Figure 11. Junctions for Assessment (© Google Maps 2020)



11.1.11 The maximum traffic demand (Volume, V) to capacity (C) ratios (V/C ratio) at each of the local junctions are given in the table below, with the V/C ratios taken from GMVDM.

Table 14. Results of Local Junction Capacity Analysis Before Mitigation (Source GMVDM)

Junction	Reference Case AM	Reference Case PM	GMSF AM	GMSF PM	Allocation Flows AM	Allocation Flows PM
4. Chequerbent Roundabout	109%	105%	110%	103%	104	50
3. Four Land Ends (A5/A579)	120%	121%	114%	115%	18	25

Impacts on Junctions

Chequerbent Roundabout

11.1.12 Chequerbent roundabout has been modelled with ARCADY using traffic flows supplied from GMVDM for the following:

- 2025 and 2040 reference case scenarios
- 2025 and 2040 reference case + allocation (with allocation traffic taken from the SLA).
- 2025 and 2040 with GMSF.

11.1.13 A summary of the ARCADY traffic model results are included below.

Table 15. Chequerbent Roundabout Capacity Assessments – 2025 AM Peak Hour

Arm	2025 Reference Case RFC	2025 Reference Case Queue (PCU)	2025 Reference Case + Development Traffic RFC	2025 Reference Case + Development Traffic Queue (PCU)	2025 Full GMSF RFC	2025 Full GMSF Queue (PCU)
A6 (E)	0.27	0	0.31	0	0.34	1
Unnamed	0.00	0	0.00	0	0.00	0
A58 Park Road	0.75	3	0.83	5	0.80	4
A6 (W)	0.31	0	0.32	1	0.46	1
A58 Snydale Way	0.76	3	0.80	4	0.80	4

Table 16. Chequerbent Roundabout Capacity Assessments – 2025 PM Peak Hour

Arm	2025 Reference Case RFC	2025 Reference Case Queue (PCU)	2025 Reference Case + Development Traffic RFC	2025 Reference Case + Development Traffic Queue (PCU)	2025 Full GMSF RFC	2025 Full GMSF Queue (PCU)
A6 (E)	0.99	14	1.01	16	1.03	21
Unnamed	0.00	0	0.00	0	0.00	0
A58 Park Road	0.47	1	0.48	1	0.50	1
A6 (W)	1.11	42	1.11	44	1.13	56
A58 Snydale Way	1.55	592	1.56	603	1.59	634

Table 17. Chequerbent Roundabout Capacity Assessments – 2040 AM Peak Hour

Arm	2040 Reference Case RFC	2040 Reference Case Queue (PCU)	2040 Reference Case + Development Traffic RFC	2040 Reference Case + Development Traffic Queue (PCU)	2040 Full GMSF RFC	2040 Full GMSF Queue (PCU)
A6 (E)	0.93	10	0.91	8	0.98	17
Unnamed	0.00	0	0.00	0	0.00	0
A58 Park Road	0.78	4	0.79	4	0.89	8
A6 (W)	0.96	14	0.94	11	1.03	34
A58 Snydale Way	1.13	143	1.15	169	1.35	358

Table 18. Chequerbent Roundabout Capacity Assessments – 2040 PM Peak Hour

Arm	2040 Reference Case RFC	2040 Reference Case Queue (PCU)	2040 Reference Case + Development Traffic RFC	2040 Reference Case + Development Traffic Queue (PCU)	2040 Full GMSF RFC	2040 Full GMSF Queue (PCU)
A6 (E)	0.95	11	0.97	12	1.00	15
Unnamed	0.00	0	0.00	0	0.00	0
A58 Park Road	0.62	2	0.62	2	0.60	2
A6 (W)	1.10	45	1.11	48	1.17	104
A58 Snydale Way	1.72	752	1.74	767	1.87	896

11.1.14 In summary, the traffic capacity assessments indicate:-

- 2025 AM Peak Hour
 - Junction operates within capacity
- 2025 PM Peak Hour
 - A58 Snydale Way and A6 West at capacity / over-capacity in all scenarios
 - Impacts of Chequerbent North allocation alone are limited and concluded not to be severe.
- 2040 AM Peak Hour
 - A58 Snydale Way over-capacity in all scenarios and both A6 arms approaching/at capacity.
 - Chequerbent North allocation has limited impact and is concluded not to be severe.
- 2040 PM Peak Hour
 - A58 Snydale Way and A6 West over-capacity in all scenarios and A6 East approaching / at capacity.

- Chequerbent North has a limited impact and this is again concluded not to be severe.

11.1.15 Overall, the assessments indicate that the Chequerbent roundabout will require improvement with the reference case traffic flows and the full GMSF development will require additional improvements.

11.1.16 The assessments of only the Chequerbent North allocation demonstrate that the allocation above does not have a severe impact at the junction. On this basis it is concluded that mitigation is not required specifically to accommodate only the Chequerbent North allocation. The timing of any mitigation works in relation to development at Chequerbent North will be determined in a Transport Assessment if a planning application is progressed.

Four Lane Ends

11.1.17 The junction has been modelled with LINSIG for the scenarios set out above with the results of the traffic modelling given in the tables below.

Table 19. Four Lane Ends Capacity Assessments – 2025 AM Peak Hour

Arm	2025 Ref Case DOS%	2025 Ref Case Queue (PCU)	2025 Ref Case + Development Traffic DOS%	2025 Ref Case + Development Traffic Queue (PCU)	2025 Full GMSF DOS%	2025 Full GMSF Queue (PCU)
A579 St Helens Road	69.5%	13	70.6%	13	70.9%	14
A6 Salford Road (E)	103.8%	22	106.3%	25	107.2%	30
A579 Newbrook Road (S)	105.7%	104	105.9%	105	109.6%	132
A6 Manchester Road	97.8%	21	99.1%	22	96.9%	21

Table 20. Four Lane Ends Capacity Assessments – 2025 PM Peak Hour

Arm	2025 Ref Case DOS%	2025 Ref Case Queue (PCU)	2025 Ref Case + Development Traffic DOS%	2025 Ref Case + Development Traffic Queue (PCU)	2025 Full GMSF DOS%	2025 Full GMSF Queue (PCU)
A579 St Helens Road	96.0%	18	96.6%	18	100.7%	13
A6 Salford Road (E)	100.6%	30	100.6%	30	105.2%	37
A579 Newbrook Road (S)	100.2%	48	100.2%	48	100.0%	47
A6 Manchester Road	48.6%	6	49.1%	7	104.8%	15

Table 21. Four Lane Ends Capacity Assessments – 2040 AM Peak Hour

Arm	2040 Ref Case DOS%	2040 Ref Case Queue (PCU)	2040 Ref Case + Development Traffic DOS%	2040 Ref Case + Development Traffic Queue (PCU)	2040 Full GMSF DOS%	2040 Full GMSF Queue (PCU)
A579 St Helens Road	77.5%	16	77.9%	16	80.3%	19
A6 Salford Road (E)	123.3%	69	125.2%	74	128.2%	83
A579 Newbrook Road (S)	124.2%	239	124.5%	241	130.3%	285
A6 Manchester Road	109.8%	48	111.0%	51	116.4%	67

Table 22. Four Lane Ends Capacity Assessments – 2040 PM Peak Hour

Arm	2040 Ref Case DOS%	2040 Ref Case Queue (PCU)	2040 Ref Case + Development Traffic DOS%	2040 Ref Case + Development Traffic Queue (PCU)	2040 Full GMSF DOS%	2040 Full GMSF Queue (PCU)
A579 St Helens Road	77.4%	24	77.4%	24	62.7%	17
A6 Salford Road (E)	116.7%	87	119.0%	93	136.7%	120
A579 Newbrook Road (S)	118.6%	142	118.8%	143	137.1%	267
A6 Manchester Road	62.1%	12	65.2%	13	109.7%	25

11.1.18 The results of the LINSIG traffic capacity assessments indicate:-

- 2025 AM Peak Hour
 - A6 Salford Road and A579 Newbrook Road arms operate above capacity in all scenarios.
 - GMSF development only has a modest impact.
 - Chequerbent North alone does not have a material impact.
- 2025 PM Peak Hour
 - Junction operates at capacity in all scenarios.
 - GMSF as a whole has a minor impact.
 - Chequerbent North alone has no material impact.
- 2040 AM Peak Hour
 - Junction operates at capacity in all scenarios.
 - GMSF as a whole has a minor impact.
 - Chequerbent North alone has no material impact.
- 2040 PM Peak Hour

- Junction operates above capacity for all scenarios.
- GMSF development has an impact which may require mitigation (subject to below).
- Chequerbent North alone has no material impact.

11.1.19 The GMSF development as a whole has modest impacts at the junction. The Chequerbent North allocation does not have a material or severe impact at the junction and mitigation is not required solely to accommodate the traffic flows generated by the allocation. An initial assessment of potential mitigation has been undertaken and has not identified a particular scheme, noting it may not be appropriate to provide additional capacity at this junction within the urban area given the land constraints and that the provision of additional capacity could encourage traffic to use the routes through the junction.

Transport Interventions Tested on the Local Road Network

12.1 Strategic Interventions

- 12.1.1 Policy GM Strat 8 'Wigan-Bolton Growth Corridor' notes that a new highway will connect Junction 26 of the M6 and Junction 5 of the M61 through the construction of the M58/A49 Link Roads as well as the implementation of the Wigan and Bolton new east-west road and public transport infrastructure.
- 12.1.2 Bolton Council has long-standing aspirations to deliver a Westhoughton Bypass, running from Chequerbent roundabout to Gibfield Park Way (in Wigan) crossing the railway line to the west of Platt Lane/North Road. The bypass could form part of the wider scheme between the M61J5 and M6J26, across Bolton and Wigan i.e. part of the 'East/West Housing Growth Corridor'.
- 12.1.3 Bolton Council along with Wigan Council and the Greater Manchester Combined Authority, submitted a bid for funding of the Housing Growth Corridor scheme via the Housing Infrastructure Fund (HIF); the bid was submitted in March 2019. The bid included the Westhoughton Bypass as a component part. Details of the bid are not publicly available but the Westhoughton Bypass included grade-separation at Chequerbent roundabout, providing significant enhancements in highway capacity.

12.1.4 Unfortunately, the Councils and GMCA have been advised recently that the HIF bid was unsuccessful, however delivery of this strategic infrastructure remains an aspiration and alternative funding streams are now being considered.

12.1.5 If a strategic intervention comprising a new road scheme between M61 and M6 is progressed then this will provide significant additional highway capacity along the A58 corridor including at Chequerbent roundabout (and M61J5). However, in the absence of a formally funded strategic scheme, local interventions have been assessed to accommodate the GMSF related growth in the corridor in the vicinity of the allocation, including the traffic flows generated by the allocation itself. On the local road network this is at Chequerbent roundabout.

12.2 Local Interventions

12.2.1 Two alternative improvements have been identified at Chequerbent roundabout. These comprise: either a new local road running southwards to Platt Lane; or the signalisation of the junction. These schemes demonstrate that there is a range of potential solutions at the junction and there may also be other options such as the introduction of a signalised cross-roads. The interventions identified are not expected to be the definitive solutions and are identified to demonstrate that the allocation has the potential to be implemented and also developed to enable costing. The final form of mitigation will be agreed at planning application stage.

12.2.2 Thus the interventions are:

Table 23. Approach to Mitigation

Junction	Mitigation Approach
Chequerbent Roundabout	New link road between the roundabout and Platt Lane Or Signalisation of the roundabout

Option 1: Chequerbent to Platt Lane Link Road

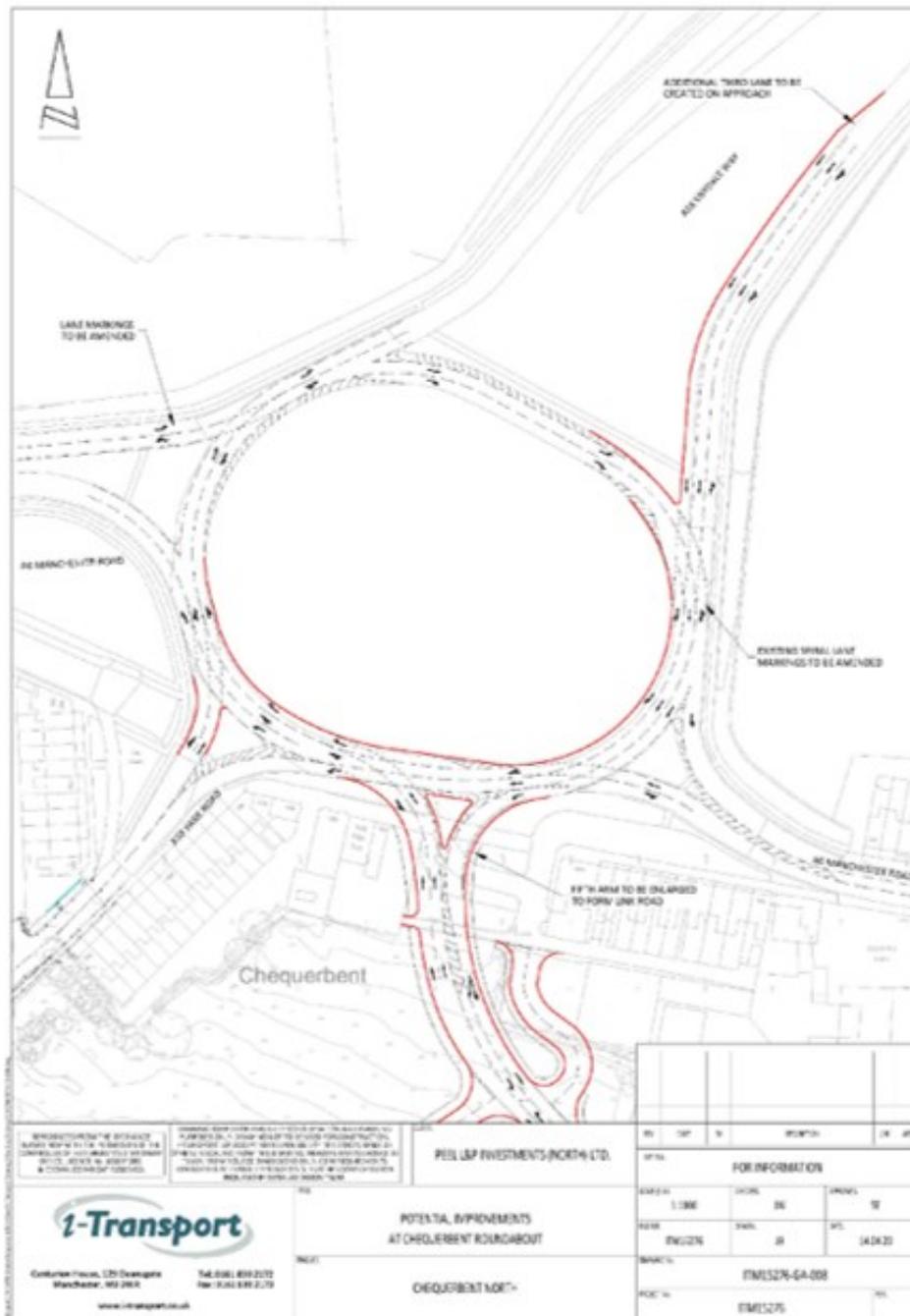
12.2.3 This scheme will involve the construction of a new single carriageway link road between the roundabout and Platt Lane along with associated improvements at the roundabout itself, as shown on drawings ITM15276-GA-007 and 008.

Figure 12. Illustrative Chequerbent to Platt Lane Link Road



© Crown Copyright Reserved. Reproduced from the Ordnance Survey map with the permission of the controller of Her Majesty's Stationary Office Licence No. 100044285

Figure 13. Illustrative Chequerbent Roundabout Improvements



© Crown Copyright Reserved. Reproduced from the Ordnance Survey map with the permission of the controller of Her Majesty's Stationary Office Licence No. 100044285

12.2.4 An alternative lower cost mitigation scheme has also been identified at Chequerbent roundabout. This comprises signalisation of the junction, also taking account of the effects of the proposed new road through the Lee Hall site which is committed (i.e. has planning consent). The Lee Hall development scheme is located immediately south of Chequerbent roundabout and will be accessed off the roundabout and Platt Lane, with a street through the site connecting the two

access points. This improvement/mitigation scheme will not have the same benefits as the above link road but will provide sufficient capacity to accommodate the GMSF development, including Chequerbent North. An indicative plan of the potential scheme is shown below.

Figure 14. Illustrative Chequerbent Signalisation



© Crown Copyright Reserved. Reproduced from the Ordnance Survey map with the permission of the controller of Her Majesty's Stationary Office Licence No. 100044285

12.2.5 It is stressed that the interventions are to accommodate all of the GMSF traffic flows including development and growth identified in the reference case and both deal with potential constraints on the highway network that will exist irrespective of the GMSF allocations.

12.2.6 Details of the link road scheme were provided to SYSTRA for inclusion in the GMVDM and traffic forecasts have been provided with the mitigation scheme included, along with many other interventions across Greater Manchester. The updated 'with mitigation' traffic forecasts have

been used to re-evaluate this mitigation scheme and the results are presented in the following section.

12.2.7 The signalisation scheme does not benefit from the link road and therefore as the link road has been included in the 'With Mitigation' GMVDM runs, the original GMSF traffic forecasts have been used to assess the impacts of the signalisation scheme. These are also set out in the next section.

12.2.8 As noted above, the need for mitigation at Four Lane Ends (A579/A6) has not been considered further in this Locality Assessment as the Chequerbent North allocation adds very little traffic to the junction; the latest GMSF with mitigation traffic forecasts identify the following levels of traffic at Four Lane Ends:-

Table 24. Chequerbent North Traffic at Four Lane Ends Junction (A6/A659)

Traffic Flow	AM Peak Hour	PM Peak Hour
Reference Case	3,597	3,396
Full GMSF (mitigation; high side)	3,945	3,971
Increase with GMSF	+348	+575
Chequerbent North (from high side SLA)	20	12

12.2.9 Thus any mitigation requirements at Four Lane Ends should be identified by others.

Impact of interventions on the Local Road Network

13.1 Introduction

13.1.1 Chequerbent roundabout, on the local road network, has been reassessed taking account of the two mitigation options described above: first, with the link road in place and using the 'with mitigation' traffic flows supplied from the GMVDM; and, secondly, for the scenario with the signalisation of Chequerbent and using the original GMVDM GMSF flows. The results are presented below for each junction on the local road network.

13.2 Option 1: with Link Road

13.2.1 The results of the re-assessment of the Chequerbent roundabout taking account of the ‘with mitigation’ traffic flows are given in the tables below for the constrained and high side scenarios.

Table 25. Chequerbent Roundabout – 2025 with Mitigation (Option 1) Assessments: AM Peak Hour

Movement	Reference Case ¹ Max RFC	Reference Case Max Queue	Constrained Max RFC	Constrained Max Queue	High Side Max RFC	High Side Max Queue
A6 East	0.27	0	0.30	0	0.33	1
Minor Road / Link Road	0.00	0	0.58	1	0.51	1
A58 Park Road	0.75	3	0.79	4	0.80	4
A6 West	0.31	0	0.396	1	0.40	1
A58 Snyderdale Way	0.76	3	0.50	1	0.41	1

¹No mitigation

Table 26. Chequerbent Roundabout – 2025 with Mitigation (Option 1) Assessments: PM Peak Hour

Movement	Reference Case ¹ Max RFC	Reference Case Max Queue	Constrained Max RFC	Constrained Max Queue	High Side Max RFC	High Side Max Queue
A6 East	0.99	14	0.61	2	0.61	2
Minor Road / Link Road	0.00	0	0.47	1	0.48	1
A58 Park Road	0.47	1	0.59	2	0.61	2
A6 West	1.11	42	0.59	1	0.56	1
A58 Snyderdale Way	1.55	592	0.63	2	0.63	2

¹No mitigation

Table 27. Chequerbent Roundabout – 2040 with Mitigation (Option 1) Assessments: AM Peak Hour

Movement	Reference Case ¹ Max RFC	Reference Case Max Queue	Constrained Max RFC	Constrained Max Queue	High Side Max RFC	High Side Max Queue
A6 East	0.93	10	0.56	1	0.62	2
Minor Road / Link Road	0.00	0	0.72	3	0.71	2
A58 Park Road	0.78	4	0.98	26	1.02	60
A6 West	0.96	14	0.67	2	0.68	2
A58 Snyderdale Way	1.13	143	0.75	3	0.93	5

¹No mitigation

Table 28. Chequerbent Roundabout – 2040 with Mitigation (Option 1) Assessments: PM Peak Hour

Movement	Reference Case ¹ Max RFC	Reference Case Max Queue	Constrained Max RFC	Constrained Max Queue	High Side Max RFC	High Side Max Queue
A6 East	0.95	11	0.83	5	0.57	1
Minor Road / Link Road	0.00	0	0.72	3	0.45	1
A58 Park Road	0.62	2	0.91	10	0.94	14
A6 West	1.10	45	0.62	2	0.56	1
A58 Snyderdale Way	1.72	752	0.96	18	0.96	17

¹No mitigation

13.2.2 The analysis confirms that the potential interventions will accommodate all of the GMSF related growth and the junction will operate better overall than the reference case scenario, providing significant benefits. At 2040 in the AM peak hour the maximum queue on Park Road increases but the overall queues and delays at the junction are lower than in the reference case. There are very significant improvements in the PM peak hour.

13.2.3 A summary of the results of the assessments is presented below, showing the maximum V/C ratio at the junction.

Table 29. Summary Results of Local Junction Capacity Analysis After Mitigation – 2025: Option 1

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
4. Chequerbent Roundabout	76%	155%	80%	63%	66	60

Table 30. Summary Results of Local Junction Capacity Analysis After Mitigation – 2040: Option 1

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
4. Chequerbent Roundabout	113%	172%	102%	96%	63	52

13.3 Option 2: With Chequerbent Signalisation

13.3.1 The results of the re-assessment of the Chequerbent roundabout with the traffic signal scheme in place and also taking account of the road through the Lee Hall site (as described above) are set out in the table below.

Table 31. Chequerbent Roundabout – 2025 with Traffic Signals: AM Peak Hour

Movement	Reference Case Max RFC	Reference Case Max Queue	GMSF Flows With Signals Max RFC	GMSF Flows With Signals Max Queue
A6 East	0.27	0	58.1%	5
Minor Road	0.12	0	32.7%	1
A58 Park Road	0.74	3	94.5%	23
A6 West	0.31	0	50.5%	5
A58 Snyderdale Way	0.67	2	66.6%	11

Table 32. Chequerbent Roundabout – 2025 with Traffic Signals: PM Peak Hour

Movement	Reference Case Max RFC	Reference Case Max Queue	GMSF Flows With Signals Max RFC	GMSF Flows With Signals Max Queue
A6 East	0.98	13	89.4%	9
Minor Road	0.08	0	21.6%	0
A58 Park Road	0.46	1	65.2%	5
A6 West	1.07	34	61.8%	7
A58 Snyderdale Way	1.35	372	110.5%	121

Table 33. Chequerbent Roundabout – 2040 with Traffic Signals: AM Peak Hour

Movement	Reference Case Max RFC	Reference Case Max Queue	GMSF Flows With Signals Max RFC	GMSF Flows With Signals Max Queue
A6 East	0.86	6	93.9%	13
Minor Road	0.14	0	49.3%	1
A58 Park Road	0.77	3	99.6%	40
A6 West	0.90	7	80.2%	8
A58 Snydale Way	1.04	50	94.4%	26

Table 34. Chequerbent Roundabout – 2040 with Traffic Signals: PM Peak

Movement	Reference Case Max RFC	Reference Case Max Queue	GMSF Flows With Signals Max RFC	GMSF Flows With Signals Max Queue
A6 East	0.85	5	83.5%	6
Minor Road	0.05	0	19.4%	0
A58 Park Road	0.61	2	77.1%	7
A6 West	0.97	17	70.3%	8
A58 Snydale Way	1.46	554	125.1%	236

13.3.2 The analysis confirms that at 2040 the introduction of the traffic signal scheme will achieve nil detriment at Chequerbent roundabout, taking account of the additional traffic flows generated by GMSF. At 2025, the signal scheme operates within capacity in the AM peak hour and achieves nil detriment in the PM peak hour. As discussed above, there may be alternative mitigation schemes

and the final interventions will be determined at planning application stage. It is concluded that the above analysis demonstrates that a mitigation scheme is deliverable.

13.3.3 A summary of the results of the assessments is presented below, showing the maximum V/C ration at the junction.

Table 35. Summary Results of Local Junction Capacity Analysis After Mitigation – 2025: Option 2

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
4. Chequerbent Roundabout	74%	135%	95%	111%	90	53

Table 36. Summary Results of Local Junction Capacity Analysis After Mitigation – 2040: Option 2

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
4. Chequerbent Roundabout	104%	146%	100%	125%	128	63

Impact and mitigation on Strategic Road Network

14.1 Overview

14.1.1 This chapter covers those impacts where traffic generated by the GMSF allocations meets the Strategic Road Network (SRN). Junctions at the interface between the Local Road Network (LRN) and the Strategic Road Network (SRN) have been assessed using a similar approach to that described in the preceding chapters. Wider issues relating to the SRN mainline are being assessed separately as described below.

14.1.2 SYSTRA is currently consulting with Highways England on behalf of TfGM and the Combined Authority in relation to the wider impacts of the GMSF allocations on the Strategic Road Network (SRN). This consultation is ongoing and it is expected that it will allow Highways England to gain a strategic understanding of where there is an interaction between network stress points and GMSF

allocation demand which will facilitate further discussion and transfer of information between TfGM and Highways England (yet to be defined) in reaching agreement and/or common ground relating to the acceptability of GMSF allocations in advance of Examination in Public (EiP).

14.2 Impact of the Allocation before Mitigation on the Strategic Road Network

14.2.1 The Chequerbent North allocation is located close to M61J5 and, as well as this junction, Systra initially noted that the traffic flows generated by the allocation at M61J4 should also be considered. Table 36 below summarises the flows at the motorway junctions and, from this, it was agreed that only M61J5 need be assessed. Highways England (HE) has noted that a cumulative assessment of impacts at M61J4 should be conducted. Chequerbent North only adds 3-14 pcs/hour to the junction and any assessment should therefore be undertaken by others.

Table 37. Predicted Proportional Impacts of Allocation and GMSF Traffic Flows

Junction	2040 Reference Case AM	2040 Reference Case PM	2040 With Total GMSF AM	2040 With Total GMSF PM	% Difference (GMSF/Ref) AM	% Difference (GMSF/Ref) PM	Chequerbent North AM	Chequerbent North PM	% Difference (Chequerbent North/Ref) AM	% Difference (Chequerbent North/Ref) PM
2. M61J4	3,816	4,302	3,892	4,409	2.0%	2.5%	3	14	0.1%	0.3%
5. M61J5	5,208	5,673	5,742	5,969	10.3%	5.2%	80	34	1.5%	0.6%

14.2.2 The maximum V/C ratios at M61J5 from the GMVDM for the 2040 assessment year are given in the table below.

Table 38. Results of Strategic Road Network Junction Capacity Analysis Before Mitigation (Source GMVDM)

Junction	Reference Case AM	Reference Case PM	GMSF AM	GMSF PM	Allocation Flows AM	Allocation Flows PM
5. M61J5	106%	107%	111%	107%	80	34

14.2.3 M61J5 has been modelled with ARCADY and a summary of the results of the traffic modelling is given below.

Table 39. M61J5 Capacity Assessments – 2025 AM Peak Hour

Arm	2025 Reference Case RFC	2025 Reference Case Queue (PCU)	2025 Reference Case + Development Traffic RFC	2025 Reference Case + Development Traffic Queue (PCU)	2025 Full GMSF RFC	2025 Full GMSF Queue (PCU)
M61 (WB)	0.45	1	0.45	1	0.44	1
A58 Snyderdale Way	1.08	54	1.09	58	1.11	62
M61 (EB)	0.44	1	0.44	1	0.45	1
A58 Wigan Road	1.18	85	1.21	97	1.22	88

Table 40. M61J5 Capacity Assessments – 2025 PM Peak Hour

Arm	2025 Reference Case RFC	2025 Reference Case Queue (PCU)	2025 Reference Case + Development Traffic RFC	2025 Reference Case + Development Traffic Queue (PCU)	2025 Full GMSF RFC	2025 Full GMSF Queue (PCU)
M61 (WB)	1.17	35	1.16	33	0.96	10
A58 Snyderdale Way	1.30	165	1.31	173	1.23	115
M61 (EB)	0.47	1	0.48	1	0.56	1
A58 Wigan Road	1.08	50	1.10	57	1.22	97

Table 41. M61J5 Capacity Assessments – 2040 AM Peak Hour

Arm	2040 Reference Case RFC	2040 Reference Case Queue (PCU)	2040 Reference Case + Development Traffic RFC	2040 Reference Case + Development Traffic Queue (PCU)	2040 Full GMSF RFC	2040 Full GMSF Queue (PCU)
M61 (WB)	0.70	2	0.71	2	0.72	3
A58 Snyderdale Way	1.14	75	1.16	82	1.46	255
M61 (EB)	0.51	1	0.51	1	0.53	1
A58 Wigan Road	1.23	105	1.26	120	1.11	52

Table 42. M61J5 Capacity Assessments – 2040 PM Peak Hour

Arm	2040 Reference Case RFC	2040 Reference Case Queue (PCU)	2040 Reference Case + Development Traffic RFC	2040 Reference Case + Development Traffic Queue (PCU)	2040 Full GMSF RFC	2040 Full GMSF Queue (PCU)
M61 (WB)	1.07	22	1.07	21	0.75	3
A58 Snydale Way	1.44	245	1.46	259	1.18	96
M61 (EB)	0.56	1	0.56	1	0.71	3
A58 Wigan Road	1.17	81	1.18	87	1.48	167

14.2.4 The following clarification is provided regarding the traffic capacity assessment results:

- 2025 PM Peak Hour: RFC and maximum queue on M61 westbound slip road are lower with GMSF than with the reference case traffic flows. The total flow on the slip road increases with GMSF but the increase is to the left-turn whereas the right-turn flow reduces. Only the right-turn gives way at the roundabout (the left-turn flow is in a free-flow lane). The flows are as supplied from GMVDM.
- 2040 AM Peak Hour: RFC and maximum queue on A58 Wigan Road are lower than the reference case (flows as supplied from GMVDM). Snydale Way has a significantly longer queue with GMSF and as a result it is likely that the traffic flow which Wigan Road has to give-way to is lower.
- 2040 PM Peak Hour: the RFCs and maximum queues on M61 westbound slip road and Snydale Way are lower with GMSF than with the reference case. Flows on the M61 slip road are lower with GMSF as supplied from the GMVDM. On Snydale Way, the analysis takes account of different lane usage and some traffic movements are lower with GMSF (flows supplied from GMVDM).

14.2.5 The ARCADY traffic capacity assessments indicate:

- 2025 AM Peak Hour
 - Both A58 arms predicted to be over-capacity in all scenarios.

- Full GMSF has a minimal impact.
- Chequerbent North alone has a minor impact on A58 Wigan Road.
- 2025 PM Peak Hour
 - Both A58 arms over-capacity in all scenarios. M61 Westbound off-slip over-capacity but improvement with full GMSF as a result of changes in traffic flows.
 - GMSF development as a whole and Chequerbent North alone do not have severe impacts.
- 2040 AM Peak Hour
 - Both A58 arms over-capacity in all scenarios.
 - GMSF development has detrimental impact on Snyderdale Way but positive impact on Wigan Road.
 - Chequerbent North alone t has limited impact.
- 2040 PM Peak Hour
 - All arms of the junction, other than M60 eastbound off-slip, are over-capacity.
 - Overall GMSF development has no material impact on the junction as a whole.
 - Chequerbent North alone has a minor impact.

14.2.6 Based on the modelled traffic flows provided, M61J5 will require improvement irrespective of whether the GMSF developments proceed. The full GMSF development and the Chequerbent North allocation do not have a severe impact.

14.3 Transport Interventions Tested on Strategic Road Network

14.3.1 A mitigation/improvement scheme has been identified at M61J5 which comprises widening of the A58 (Snyderdale Way and Wigan Road) approaches to the roundabout as given on drawing number ITM15276-GA-005A, shown below.

14.4 Impact of Interventions on the Strategic Road Network

14.4.1 An improvement scheme has been identified and is set out above. The results of the re-assessment of M61J5 taking account of the 'with mitigation' traffic flows are given in the tables below for the constrained and high side scenarios.

Table 43. M61J5 – 2025 with Mitigation Assessment Results – AM Peak Hour

Movement	Reference Case ¹ Max RFC	Reference Case ¹ Queue	Constrained Max RFC	Constrained Queue	High Side Max RFC	High Side Queue
M61 Westbound	0.45	1	0.52	1	0.57	1
A58 Snyderdale Way	1.08	54	0.79	4	0.78	4
M61 Eastbound	0.44	1	0.47	1	0.47	1
A58 Wigan Road	1.18	85	0.79	4	0.79	4

¹No mitigation

Table 44. M61J5 – 2025 with Mitigation Assessment Results: PM Peak Hour

Movement	Reference Case ¹ Max RFC	Reference Case ¹ Queue	Constrained Max RFC	Constrained Queue	High Side Max RFC	High Side Queue
M61 Westbound	1.17	35	0.23	0	0.25	0
A58 Snyderdale Way	1.30	165	0.74	3	0.74	3
M61 Eastbound	0.47	1	0.66	2	0.67	2
A58 Wigan Road	1.08	50	0.77	3	0.76	3

¹No mitigation

Table 45. M61J5 – 2040 with Mitigation Assessment Results: AM Peak Hour

Arm	Reference Case ¹ Max RFC	Reference Case ¹ Queue	Constrained Max RFC	Constrained Queue	High Side Max RFC	High Side Queue
M61 (WB)	0.70	2	0.89	6	0.90	7
A58 Snydale Way	1.14	75	0.90	9	0.92	11
M61 (EB)	0.51	1	0.57	1	0.60	2
A58 Wigan Road	1.23	105	0.93	11	0.94	12

¹No mitigation

Table 46. M61J5 – 2040 with Mitigation Assessment Results: PM Peak Hour

Arm	Reference Case ¹ Max RFC	Reference Case ¹ Queue	Constrained Max RFC	Constrained Queue	High Side Max RFC	High Side Queue
M61 (WB)	1.07	22	0.20	0	0.20	0
A58 Snydale Way	1.44	245	0.83	3	0.83	5
M61 (EB)	0.56	1	0.85	5	0.84	5
A58 Wigan Road	1.17	81	0.89	7	0.87	6

¹No mitigation

14.4.2 The analysis confirms that the potential intervention will accommodate all of the GMSF related growth and the junction will operate within capacity, providing significant benefits compared to the reference case scenario.

14.4.3 A summary of the results of the assessments is presented below, showing the maximum V/C ratio at the junction.

Table 47. Summary Results of Strategic Road Network Junction Capacity Analysis After Mitigation: 2025

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
4. Chequerbent Roundabout	118%	130%	79%	76%	112	65

Table 48. Summary Results of Strategic Road Network Junction Capacity Analysis After Mitigation: 2040

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
4. Chequerbent Roundabout	123%	144%	92%	87%	107	63

Final list of interventions

15.1.1 A summary of the interventions is set out in the table below:

Table 49. Final List of Interventions: Chequerbent North

Mitigation	Description
Allocation Access	
Access from A58 Snydale Way and A6 Manchester Road	As shown on: A58 Snydale Way – ITM15276-GA-006 A6 Manchester Road – IMT15276-GA-002A
Travel Plan	Development and implementation of a Travel Plan to encourage the use of sustainable travel modes.
Necessary Strategic interventions	

Mitigation	Description
Option 1: Link road between Chequerbent roundabout and Platt Lane + junction improvements Or	Drawings ITM15276-GA-007 and ITM15276-GA-008
Option 2: Signalisation of Chequerbent roundabout (& see 15.1.3 below)	Drawing ITM15276-GA-009
Supporting Strategic Interventions	
Any measures (highway connections and/or east-west public transport) delivered by policy GM Strat 8	Potentially delivered by Bolton and Wigan Councils
Train-tram improvements on the Wigan-Manchester railway line	See GM2040 Transport Strategy Delivery Plan
Necessary Local Mitigations	
Footway/cycleway connection to the allocation	Extension of the existing footway/cycleway that runs around Chequerbent roundabout into the south-west corner of the allocation, which is adjacent
Supporting Local Mitigations	
Bee Network	Implementation of the Westhoughton Bee Network scheme by GMCA/TfGM/Bolton Council
SRN Interventions	
Improvement at M61J5	Improvements at the existing roundabout as shown on drawing ITM15276-GA-005A

15.1.2 The following interventions will deliver the full GMSF development in the area:-

○ Option 1: with Link Road

- A new link road between Chequerbent roundabout and Platt Lane – drawing ITM15276-GA-007.
- Associated improvements at Chequerbent roundabout – drawing ITM15276-GA-008.
- Improvements at M61J5 – drawing ITM15276-GA-005A.

○ Option2: with Chequerbent Signalisation

- Signalisation of Chequerbent roundabout – drawing ITM15276-GA-009.
- Improvements at M61J5 – drawing ITM15276-GA-005A.

15.1.3 The schemes to mitigate impacts at Chequerbent roundabout demonstrate that there is a range of potential mitigation solutions at the junction. There may be other options such as the introduction of a signalised cross-roads. The interventions identified are not expected to be definitive solutions and are identified to demonstrate that the allocation has the potential to be implemented and also developed to enable costing. The final form of mitigation will be agreed at planning application stage.

15.1.4 The following local interventions will be necessary, specifically related to the Chequerbent North allocation:-

- Access connections to A58 Snydale Way (drawing ITM15276-GA-006) and A6 Manchester Road (drawing ITM15276-GA-002A).
- Extension of the footway/cycle route at Chequerbent roundabout / Snydale Way into the allocation.
- A Travel Plan to encourage the use of sustainable travel modes.

Strategic Context – GM Transport Strategy Interventions

16.1.1 The GMCA 2040 Delivery Plan sets out a comprehensive programme of work across all modes and in all Districts which are focused on ensuring the realisation of the 'Right Mix' vision. Many of these interventions support the GMSF Allocations directly, whilst others are intended to provide alternatives to private car travel more generally. The schemes demonstrate a clear plan for delivering strategic transport interventions for the first five years of the GMSF plan period, whilst

also laying the foundations for longer term investment in sustainable transport across the length of the plan period.

16.1.2 In addition to the allocation-specific interventions set out in this Locality Assessment, there are a number of other measures already planned by Bolton Council and Transport for Greater Manchester to support sustainable travel, and to contribute to the achievement of Greater Manchester's 'Right Mix' ambition.

- Network Rail has developed proposals, currently awaiting DfT approval, for the electrification of the line from Bolton via the Lostock spur to Wigan, which could result in increased capacity and reduced journey times. In addition, TfGM is conducting a study into the feasibility of opening a new rail station at Little Hulton which would provide the opportunity to improve linkages to Liverpool, the Regional Centre, and onwards across the Pennines.
- TfGM proposes to develop options for metro/tram-train services on the Atherton line which will also see increases in frequency.
- TfGM is also working on implementing Quality Bus Transit (QBT) on key bus corridors. QBT is typified by improvements to frequency and quality of the bus service as well as localised public realm enhancements. The Wigan – Bolton corridor route is a candidate for improvement.
- There is a proposal for a West of Westhoughton Bypass to alleviate congestion on Church Road, Westhoughton and the A6 corridor which would also support opportunities for improved sustainable and active travel where vehicle flow has been reassigned. Elements of this route could be delivered as part of GMSF Allocation GMA6.
- A Bee Network scheme for Westhoughton is subject to a successful Mayors Challenge Fund Bee Network Scheme for Active Neighbourhoods. This scheme is out for consultation at the time of writing in advance of detailed design, with implementation anticipated from Summer 2021. The scheme will promote active travel and provide links to key local attractors. This will be supported by the implementation of segregated cycle lanes along the A6 from Chequerbent Roundabout to the borough boundary with Salford.
- Additional measures output from the GM Walking and Cycling Investment Plan. Highways England is undertaking a feasibility exercise to provide a cycling, walking and possibly bus gated bridge over the M61 close to junction 5 following the old A58 Bolton Road. This will improve active travel movement across the M61 which is currently identified as a key barrier to cycling and walking.

Phasing Plan

17.1.1 All phasing plans information contained in this Locality Assessment is indicative only and has only been used to understand the likely intervention delivery timetable. Final trajectory information and the final allocation proposal is contained in the GMSF Allocation Topic Paper.

17.1.2 Given the size of the allocation and the proposed uses it is envisaged that the allocation could be delivered in a single phase before 2025, subject to planning. Thus the allocation phasing is:

Table 50. Allocation Phasing: Chequerbent North

Allocation Phasing	2020 2025	2025 2030	2030 2037	2038+	Total
All Allocation	25,000sqm B2/B8	-	-	-	25,000sqm B2/B8
Total	25,000sqm B2/B8	-	-	-	25,000sqm B2/B8

* GM modelling suite has a 2040 forecast year, as such it uses 2040 data as proxy for 2037 full build out, this will not materially impact on the analysis.

17.1.3 For the strategic interventions (capable of accommodating the whole of the GMSF development), the following timescales for delivery of the schemes are envisaged:-

- Link road and Chequerbent roundabout improvements or signalisation scheme. The detailed junction modelling indicates that the junction is significantly over-capacity in the PM peak hour at 2025 with the reference case traffic flows. The schemes should therefore be delivered around 2025.
- M61J5 improvements. The detailed junction modelling indicates that the junction is predicted to be over-capacity at 2025 but with GMSF not having a severe impact. By 2040, the junction requires mitigation to accommodate the full GMSF traffic. Therefore mitigation will likely be needed in the period 2025-2040.

17.1.4 The detailed extent and timing of any mitigation associated with the Chequerbent North allocation will be reconsidered at planning application stage.

17.1.5 In terms of the allocation specific local interventions summarised in Section 15, it is envisaged they will be delivered as follows:-

- Access: a minimum of one access before the development is occupied. The timing of the access points will be determined as masterplanning progresses as the allocation could be served from either Snyderdale Way or A6 Manchester Road.
- Pedestrian / Cycle connection to Snyderdale Way / Chequerbent roundabout: before development is occupied.
- Travel Plan: on first occupation.

17.1.6 The indicative intervention delivery timetable is as follows:

Table 51. Indicative Intervention Delivery Timetable

Mitigation	2020 2025	2025 2030	2030 2037	2038+
Allocation Access				
Access off A58 Snyderdale Way	✓			
Access off A6 Manchester Road	✓			
Necessary Strategic interventions				
Option1: Link Road		✓		
Option 2: Chequerbent Signalisation		✓		
Supporting Strategic Interventions				
GM Strat 8 Measures		✓	✓	
Tram-train Improvements		✓	✓	
Necessary Local Mitigations				
Footway/cycleway connection	✓			
Travel Plan	✓			
Supporting Local Mitigations				

Mitigation	2020 2025	2025 2030	2030 2037	2038+
Bee Network	✓	✓		
SRN Interventions				
Improvement at M61J5		✓		

Summary & Conclusion

Overview

- 18.1.1 The ten local planning authorities in Greater Manchester have agreed to prepare a joint Development Plan document to guide the development of land for housing and employment over the next 20 years. This is known as the Greater Manchester Spatial Framework (GMSF).
- 18.1.2 The authorities issued a Draft GMSF document for consultation in January 2019. The 2019 document notes that the overall spatial strategy of the GMSF seeks to take advantage of the opportunities for delivering high levels of economic growth. Policy GM-Strat 8 identifies that the Wigan-Bolton growth corridor will deliver a regionally-significant area of economic growth and residential development and proposes to allocate the allocation Chequerbent North as Policy GM Allocation 5.
- 18.1.3 This Locality Assessment report considers the key transport and highways implications of the Chequerbent North allocation.

Access

- 18.1.4 Access to the Chequerbent North allocation can be provided in two locations: from a new junction off A58 Snydale Way located between M61J5 and Chequerbent roundabout (the access will be in the form of a 'Left In Left Out' junction), and a priority T junction from A6 Manchester Road. Access is in accordance with the draft Policy.
- 18.1.5 Traffic capacity assessments demonstrate that the access junctions will operate comfortably within capacity and will provide safe and satisfactory access to the allocation.

18.1.6 Overall it is therefore concluded that access can be provided to the allocation in accordance with the NPPF

Accessibility

18.1.7 The allocation lies off A58 Snydale Way and A6 Manchester Road where there is a range of existing bus services including the 15-20 minute frequency 7 service which connects the allocation to Westhoughton, Bolton and Wigan. The allocation is therefore accessible by existing bus services. The existing bus services will also provide connections to Daisy Hill railway station providing sustainable access to a range of additional destinations including further afield in Manchester and Wigan accessed via train.

18.1.8 There are footways on the roads around the allocation and a combined footway/cycleway around Chequerbent roundabout and along Snydale Way. The Council is introducing significant improvements in the area as part of Greater Manchester's Bee Network. Pedestrians and cyclists can therefore readily access the allocation. A connection will be provided to existing routes.

18.1.9 It is therefore concluded that the allocation is sustainable and accessible by a range of travel modes and will therefore be in accordance with the NPPF.

Traffic Impacts

18.1.10 A traffic impact assessment of the GMSF allocation has been conducted. Traffic forecasts have been provided from the GMVDM.

18.1.11 The existing capacity of the highway network in the vicinity of the allocation has been reviewed. Chequerbent roundabout currently suffers from queues and delays in the evening peak hour.

18.1.12 The GMVDM calculates the levels of peak hour traffic arriving and departing from the allocation and these are typically 120-150 vehicles (two way) and 80-100 vehicles (two way) in the morning and evening peak hours respectively. Thus the Chequerbent North allocation alone generates relatively low traffic flows (c. two vehicles per minute) and analysis shows that its impact alone are not expected to be severe.

- 18.1.13 Following the derivation of traffic flows, the overall approach in this Locality Assessment is to identify mitigation that will accommodate the full GMSF traffic flows, where the Chequerbent North allocation has a potential impact. Various allocations and general growth contribute to impacts and some locations already experience capacity issues (e.g. at Chequerbent roundabout as described above). As such, any mitigation identified at this stage is not solely attributable to the Chequerbent North allocation.
- 18.1.14 Mitigation schemes were developed and tested to address the network congestion impacts at both the strategic and local road networks and also identify appropriate sustainable solutions. These schemes have only been developed in outline detail to inform viability and allocations policy.
- 18.1.15 Further detailed work will be necessary to identify the specific interventions required to ensure the network works effectively based on transport network conditions at the time of the planning application. All final design solutions should be consistent with Greater Manchester's best practice Streets for All highway design principles.
- 18.1.16 In summary, this assessment gives an initial indication that the allocation is deliverable, however, further work will be needed to verify and refine these findings, as the allocation moves through the planning process. The allocation will also be supported by continuing wider transport investment across GM.
- 18.1.17 The traffic flows indicate that mitigation will be required at Chequerbent roundabout and M61J5 to accommodate the full GMSF traffic flows and schemes have been identified and costed. It is understood the Councils and GMCA are investigating a scheme to deliver the east-west road infrastructure identified in Policy GM Strat 8; if a strategic intervention comprising a new road scheme between M61 and M6 is progressed then this will provide significant additional highway capacity along the A58 corridor including at Chequerbent roundabout and M61J5.
- 18.1.18 Further traffic assessments then confirm that the mitigation schemes will accommodate the full GMSF traffic flows, confirming there is no impediment to the delivery of GMSF allocations in the area, including the Chequerbent North allocation. It is stressed that the interventions are to accommodate all of the GMSF traffic flows including development and growth identified in the reference case and interventions deal with potential constraints on the highway network that will exist irrespective of the allocation.

18.1.19 It is envisaged Chequerbent North will make a proportionate contribution to the costs of the proposed interventions, also taking account that any schemes output from Policy GM Strat 8 may either 'replace' the interventions identified or will provide a source of public funding.

18.1.20 It is therefore concluded that the allocation will not result in severe traffic impacts and is therefore in accordance with the NPPF in this regard.

Conclusion

18.1.21 Overall it is concluded that the development of the Chequerbent North GMSF allocation for employment uses will be in accordance with the NPPF in transport terms and will enable the delivery of sustainable development in accordance with the policies in the Framework.

Greater Manchester Spatial Framework

Locality Assessment:

West of Wingates (GMA6)

Publication Version 1: Oct 2020

Identification Table	
Client	Bolton/TfGM
Allocation	West of Wingates
File name	GMA6 Bolton - West of Wingates LA 021020
Reference number	GMA6

Approval					
Version	Role	Name	Position	Date	Modifications
0	Author	R Murphy	Director (Mosodi)	01/07/20	Base report
	Checked by	H Williams	Associate (SYSTRA)	04/07/20	
	Approved by				
1	Author	R Clowes	TfGM	30/09/20	Consistency edits
	Checked by	G Langley	Bolton Council	02/10/20	
	Approved by	S Godley	Bolton Council	02/10/20	

Table of contents

1. Allocation Location & Overview	8
2. Justification for Allocation Selection	10
3. Key Issues from Consultation	10
4. Existing Network Conditions and Allocation Access	11
5. Multi-modal accessibility	19
6. Parking	33
7. Allocation Trip Generation and Distribution	34
8. Current Highway Capacity Review – baseline situation.	36
9. Treatment of Cumulative Impacts	41
10. Allocation Access Assessment	44
11. Impact of Allocation Before Mitigation on the Local Road Network	49
12. Transport Interventions Tested on the Local Road Network	51
13. Impact of interventions on the Local Road Network	54
14. Impact and mitigation on Strategic Road Network (Where applicable)	55
15. Final list of interventions	63
16. Strategic Context – GM Transport Strategy Interventions	66
17. Phasing Plan	67
18. Summary & Conclusion	69
Appendix 1 – Technical Note Without Link Road	72

List of figures

Figure 1. Allocation Location in relation to the surrounding road network: West of Wingates	9
Figure 2. Smaller Scale Allocation Location: West of Wingates	10
Figure 3. Accident Assessment Extent: West of Wingates	17
Figure 4. Bus Services and Bus Stops within the vicinity of the Allocation: West of Wingates	20
Figure 5. Bus Stop Accessibility	23
Figure 6. Rail Station Accessibility	25
Figure 7. Pedestrian Accessibility	27
Figure 8. Public Right of Way Extract: West of Wingates	28
Figure 9. Cycle Accessibility: West of Wingates	30

Figure 10. Cycle Network: West of Wingates	31
Figure 11. Beeline Proposals: West of Wingates	32
Figure 12. Location of Junctions: West of Wingates	37
Figure 13. GMSF Allocations: West of Wingates	42
Figure 14. Illustrative Improvements to Wimberry Hill Road/A6: West of Wingates	45

List of tables

Table 1. Personal Accident Analysis – Summary: West of Wingates	18
Table 2. Personal Accident Analysis – Severity by Year: West of Wingates	18
Table 3. Personal Accident Analysis – Vulnerable Road Users: West of Wingates	18
Table 4. Summary of Bus Services	20
Table 5. Westhoughton Weekday Trains Service Summary (Pre COVID - 19 timetable amendments): West of Wingates	24
Table 6. Accessibility by Foot	26
Table 7. Development Quantum: West of Wingates	34
Table 8. Allocation Traffic Generation: West of Wingates	34
Table 9. Allocation Traffic assignment for 2040 GMSF High-Side: West of Wingates	35
Table 10. Cross-boundary trip distribution at 2040: West of Wingates	36
Table 11. Current Highway Capacity Review: West of Wingates	38
Table 12. Wingates Impact	42
Table 13. Wimberry Hill Road Junction Summary Report: West of Wingates	46
Table 14. De Havilland Way Access Junction Summary: West of Wingates	48
Table 15. Results of Local Junction Capacity Analysis Before Mitigation: West of Wingates	50
Table 16. Approach to Mitigation on LRN: West of Wingates	54
Table 17. Results of Local Junction Capacity Analysis After Mitigation: West of Wingates	54
Table 18. SRN Future Traffic Flows: West of Wingates	56
Table 19. Results of SRN Capacity Analysis: West of Wingates	57
Table 20. Results of SRN Capacity Analysis Before Mitigation: West of Wingates	58
Table 21. M61 Junction 6, Merge Diverge Assessment: West of Wingates	58
Table 22. M61 Junction 5, Mainline Flows: West of Wingates	60
Table 23. M61 Junction 5, Merge Diverge Assessment: West of Wingates	61
Table 24. Results of Junction Capacity Analysis on SRN After Mitigation: West of Wingates	62
Table 25. Impact of West of Wingates on Snyderdale Way approach: West of Wingates	63

Table 26. Mitigation Assessment: West of Wingates	64
Table 27. Allocation Phasing: West of Wingates*	67
Table 28. Indicative intervention delivery timetable: West of Wingates	68

Allocation Data	
Allocation Reference No.	GMA6
Allocation Name	West of Wingates
Authority	Bolton
Ward	Westhoughton North and Chew Moor
Allocation Proposal	440,000 sqm B2/B8 Industrial Land and Warehousing
Allocation Timescale	0-5 years <input type="checkbox"/> ✓ 6-15 years ✓ 16 + years <input type="checkbox"/>

Glossary

“2025 GMSF Constrained” - is the 2025 forecast case in which the model adjusts the input demand based on how the cost of travel changes from the base year to the future. For example, for a shopping trip undertaken by car which becomes more congested in future, changes might be travel via a different route, mode, location or time of day.

“2040 GMSF Constrained” - as above, but for a 2040 forecast year.

“2025 GMSF High-Side” - is the 2025 forecast case in which the model does not adjust the input demand based on how the cost of travel changes. In this scenario congestion does not lead to a reassignment of traffic, and therefore road traffic flow will generally be higher.

“2040 GMSF High-Side” - as above, but for a 2040 forecast year

“2025 Reference Case” - is the Do Minimum scenario which includes delivery of all transport schemes already committed and assumed to be completed by 2025

“2040 Reference Case” - is the Do Minimum scenario which includes delivery of all transport schemes already committed and assumed to be completed by 2040

AADT - Annual average daily traffic, is a measure used in transportation planning to quantify how busy the road is

Bee Network - is a proposal for Greater Manchester to become the very first city-region in the UK to have a fully joined-up cycling and walking network: the most comprehensive in Britain covering 1,800 miles.

Bus Rapid Transit - is a bus-based public transport system designed to improve capacity and reliability relative to a conventional bus system. Typically, a BRT system includes roadways that are dedicated to buses, and gives priority to buses at junctions where buses may interact with other traffic

Existing Land Supply - these are sites across the county that have been identified by each local planning authority across Greater Manchester and are available for development

Greater Manchester Variable Demand Model (GMVDM) - the multi-modal transport model for Greater Manchester. This transport model provides estimates of future year transport demand as well as the estimates of travel behaviour changes and new patterns that the Plan is likely to produce. These include

changes in choices of routes, travel mode, time of travel and changes in journey destinations for some activities such as work and shopping.

“LRN” (Local Road Network) All other roads comprise the Local Road Network. The LRN is managed by the local highways authorities

National Trip End Model (NTEM) - is a Department for Transport forecast that ensures that measures of population, jobs and trips made by various mode are consistent across the whole of Great Britain.

Rapid transit services - refers to high frequency, high capacity metro style transport services including Metrolink and Bus Rapid Transit.

“SRN” (Strategic Road Network) The Strategic Road Network comprises motorways and trunk roads, the most significant ‘A’ roads. The SRN is managed by Highways England.

“TfGM” - Transport for Greater Manchester, the Passenger Transport Executive for Greater Manchester

Urban Traffic Control (UTC) - is a specialist form of traffic management that, by coordinating traffic signals in a centralised location, minimises the impact of stop times on the road user.

1. Allocation Location & Overview

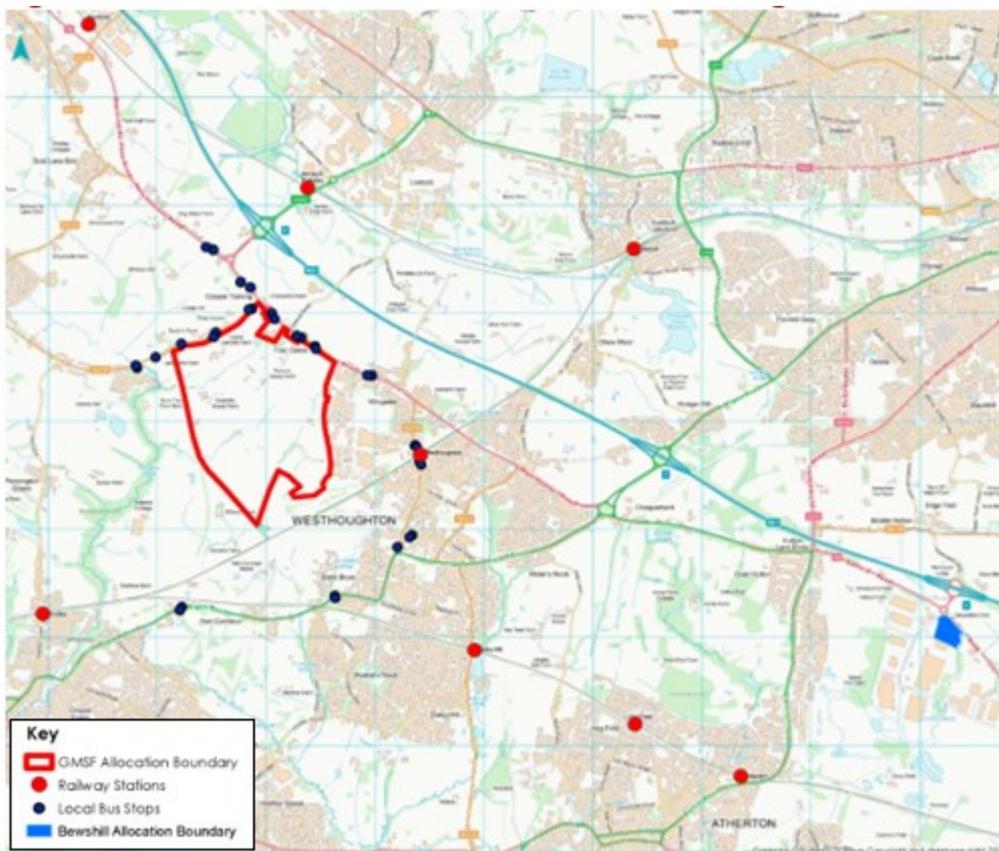
- 1.1.1. The West of Wingates allocation is located to the south of the A6 Chorley Road and is approximately 7.5km south west of Bolton and some 21km north west of Manchester Regional Centre as the crow flies. It lies to the south of the M61 and is located approximately 3.85km from Junction 5 of the M61 to the south east and 1.38km from Junction 6 of the M61 to the north west.
- 1.1.2. The West of Wingates allocation is for a total of 440,000sqm of employment land (B2/B8 industrial and warehousing use). The allocation is currently in the Green Belt (CG7AP) in the Bolton Council Local Plan (2014-2026). An outline planning application (REF:04766/18) for 100,000sqm of employment land within the north eastern section of the allocation has been approved by Bolton Council, but called in by the Secretary of State. An appeal is scheduled to take place in late 2020. At the request of Bolton Council, the improvements associated with this planning application have been assumed to have been implemented in the reference case, whilst the development impact is not included in the reference case flows or modelling. This represents a worst case scenario in terms of modelling the impact of the development.
- 1.1.3. For the purposes of the testing the impact of the allocation through the strategic model, a total of 440,000 sqm of employment floorspace have been assumed to be built out by 2040. The GM transport modelling suite has a 2040 forecast year, as such it uses 2040 trajectory data as proxy for 2037 full build-out, this is not considered to materially impact on the analysis or conclusions of this report.
- 1.1.4. All phasing plans information contained in this Locality Assessment is indicative only and has only been used to understand the likely intervention delivery timetable. Final trajectory information and the final allocation proposal is contained in the GMSF Allocation Topic Paper.
- 1.1.5. It should be noted at the outset that Mosodi are instructed by the land promoter Harworth. Harworth support the allocation for the stated uses. Notwithstanding this, Harworth have instructed their retained design team to review the allocation boundary as proposed (see Figure 1 below) to identify if there are more efficient ways to deliver the 440,000sqm of B2/B8 industrial or warehousing use commercial floorspace.
- 1.1.6. This locality assessment undertakes a detailed evaluation of the current drafted allocation boundary with the inclusion of a link road that routes through Wimberry Hill Road and also

provides a direct connection to the A6027 De Havilland Way. Thereby reducing traffic on the A6 Chorley Road between the A6027 De Havilland Way and the A58 Park Road.

1.1.7. The majority of the Locality Assessment will remain the same for the with Link Road and without Link Road scenarios. Where the highways implications differ, Appendix 1 contains a Technical Note detailing the modelling in the without Link Road scenario only.

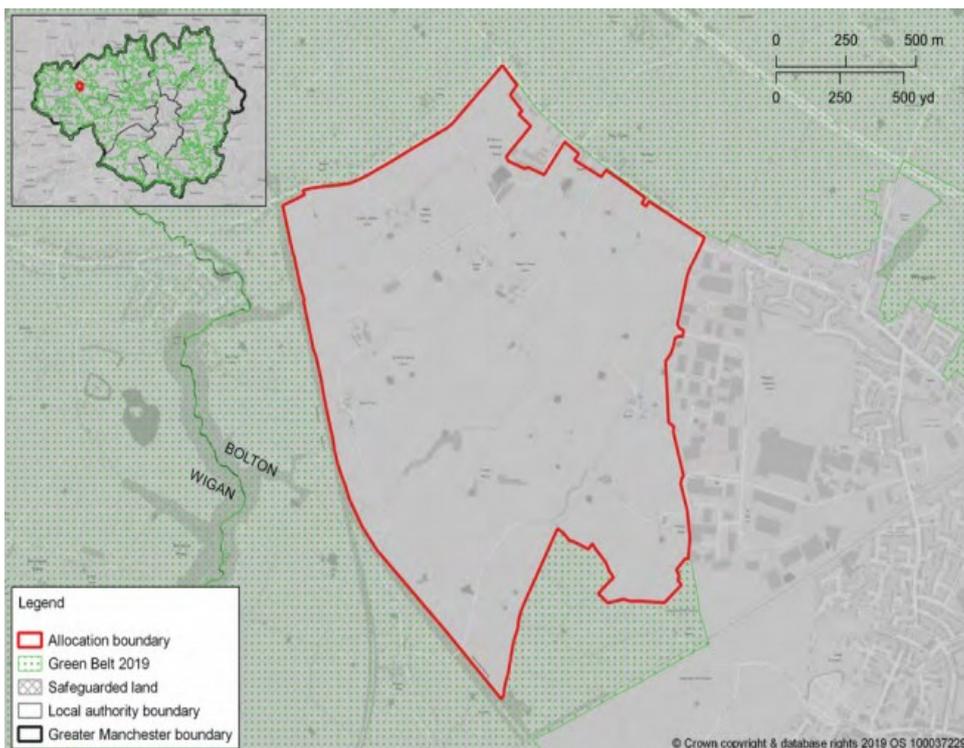
1.1.8. Figure 1 below shows the allocation location in relation to the surrounding highway network showing the location of the other allocations within the area and strategic infrastructures. Figure 2 shows a smaller scale map showing the proposed allocation boundary.

Figure 1. Allocation Location in relation to the surrounding road network: West of Wingates



Note: All boundaries shown were correct at time of writing – for definitive boundary information refer to the GMSF allocation maps.

Figure 2. Smaller Scale Allocation Location: West of Wingates



Note: All boundaries shown were correct at time of writing – for definitive boundary information refer to the GMSF allocation maps.

2. Justification for Allocation Selection

- 2.1.1. The area offers a strategic opportunity for a substantial employment development within the Wigan-Bolton Growth Corridor and could provide a supply of land for warehousing and distribution. The allocation's location on the A6 Chorley Road provides access to the nearby strategic road network, including the M61. There are no significant physical constraints preventing the development of the allocation. The large size of the allocation would enable it to contribute to improved access and public transport in the area to the west of Westhoughton.
- 2.1.2. The allocation would have a strong role to play in creating a thriving and productive economy and in reducing inequalities and improving prosperity.

3. Key Issues from Consultation

- 3.1.1. In relation to the proposed allocation the following transport issues have been raised, as reported in the [GMSF Consultation Summary Report \(October 2019\)](#). Please note the below are summaries

of the consultation responses received by Greater Manchester Combined Authority (GMCA) and their inclusion in this report does not indicate agreement to the statements by Mosodi and/or TfGM:

- Concerns over increased traffic congestion due to increased workforce;
- Dicconson Lane is in desperate need of repair, mainly driven from the constant movement of large vehicles in and out of Wigan;
- Concern over the addition of new road from Hilton House towards the town centre which means Wingates will be sandwiched between three roads and will increase congestion;
- There are poor transport links with the M6;
- Development of a new link road does not solve the problem of crossing the A6 to get to the M61;
- Impacts the use of the area for walking, cycling and horse riding; and
- Concern over the proposal to construct a new bypass that connects to the Bowlands Hey residential development and therefore implies it will be constructed on the Golf Club's property. Development planned on the surrounding areas will affect the Golf Club especially with this area not being allocated for Green Belt.

3.1.2. In addition to the highway specific issues that have been raised through the consultation it is also key that any allocation and associated infrastructure considers related issues such as air quality. The Consultation Summary Report included the following comments:

- Increased poor air quality will affect residents with asthma, particularly children. This will be made worse by traffic queueing on the M6; and
- Significant scientific evidence to indicate that Nitrogen Oxide emitted by diesel is responsible for as much as one in ten cases of Alzheimer's in people living near busy roads.

3.1.3. The above responses have been taken into account and have assisted in forming the mitigation measures outlined in the following chapters.

4. Existing Network Conditions and Allocation Access

4.1.1. This section provides a detailed commentary of the existing highway network between the allocation and the strategic road network.

A6 Chorley Road / Lostock Lane

- 4.1.2. Located approximately 500m to the north west of the Wimberry Hill Road junction, Lostock Lane connects to the A6 Chorley Road via a ghost island priority junction. The kerb to kerb width as Chorley Road routes through this junction is circa 10.2m. The ghost island right turn lane measures 3.0m and the through lanes are each 3.1m wide.
- 4.1.3. The ghost island right turn lane is 100m long and provides enough stacking space for approximately 17 cars.
- 4.1.4. Lostock Lane has a wide exit bellmouth with the radius on the left turn from the junction measuring 13m. The entry radius from the north west is 6.5m.
- 4.1.5. A central refuge is provided to assist people crossing Lostock Lane. Dropped crossings are also provided.
- 4.1.6. Footways are provided on both sides of Chorley Road and Lostock Lane in the vicinity of the junction. The footways all measure a minimum of 2.0m.

A6 Chorley Road / B5236 Church Street

- 4.1.7. Located approximately 800m to the south east of the Wimberry Hill Road junction, the B5236 Church Street connects to the A6 Chorley Road via a signalised T junction. The kerb to kerb width as the A6 Chorley Road routes through this junction is circa 10m.
- 4.1.8. As the A6 Chorley Road approaches from the north west the carriageway accommodates a single lane of traffic before forming an ahead lane and a right turn only lane at the signals. The lanes are formalised 20m from the stop line. There is an advanced cycle stop line to afford cyclists priority.
- 4.1.9. Approaching from the south east traffic travelling through the junction has a single lane approach. Immediately south east of the junction there is a priority junction allowing movements to and from Dixon Street. To prevent right turning traffic into Dixon Street from blocking ahead traffic travelling through the junction a ghost island right turn is provided, which measures 2.5m. There is an advanced cycle stop line ahead of the vehicle stop line.
- 4.1.10. A pedestrian refuge is provided across the A6 Chorley Road to ease north to south pedestrian movements.

- 4.1.11. The width of the B5236 Church Street bell mouth is wide enabling larger vehicles to enter and leave without having to cross the centre lines of the road they are turning in to.
- 4.1.12. From the B5236 Church Street both left and right turning traffic use a single lane.
- 4.1.13. An advanced cycle stop line is provided for people travelling by bicycle along the southern flank of the A6 Chorley Road.
- 4.1.14. A pedestrian refuge is provided across the B5236 Church Street to ease movements. Footways are provided on all arms of the junction each measuring at least 2.0m.
- 4.1.15. Pedestrians wishing to cross Church Street and Chorley Road are able to use push button crossing facilities.

A6 Chorley Road / B5239 Dicconson Lane

- 4.1.16. Located approximately 900m to the west of Wimberry Hill Road is a traffic signal junction that connects the A6 Chorley Road to the B5239 Dicconson Lane. It connects to Aspull and Haigh and also Wigan further to the south and is subject to a 40mph speed limit.
- 4.1.17. Travelling north westbound along the A6 Chorley Road there is an ahead lane and a left turn only lane segregated by a cycle lane that leads to an advanced cycle stop line. The left only lane generates 30m back from the vehicle stop line at the junction. In addition, there is a right turn ghost island that provides access to 2 No. access points to some small commercial properties and residential properties. This ghost island facility is not controlled by the signals and vehicles turning right into these access points must give way to traffic travelling from the B5239 Dicconson Lane and the A6 Chorley Road (west of the junction).
- 4.1.18. The advanced cycle stop line positions cyclists such that they can continue westbound to connect with the short section of cycle lane located to the west of the B5239 Dicconson Lane.
- 4.1.19. On the eastern flank adjacent to the B5239 Dicconson Lane there is a footway that measures circa 2.0m and is set behind a guard rail. As the footway travels east, it widens to circa 2.5m.
- 4.1.20. On the western flank of the A6 Chorley Road to the south east of the B5239 Dicconson Lane the footway measures 2.5m. In the immediate vicinity of the junction (149m south east of the stop line) the footway is set behind a wide verge of circa 8.0m.

- 4.1.21. On the western arm approaching the junction from the A6027 De Havilland Way traffic travels in a single running lane before this flares into two lanes, the nearside lane for ahead movements and the offside lane for right turners to the B5239 Dicconson Lane.
- 4.1.22. To the north west of the B5239 Dicconson Lane the footway on the eastern flank of the carriageway measures between 1.8m and 2.5m and continues all of the way to the A6027 De Havilland Way. The footway on the western flank continues behind the wide grass verge as it crosses over the B5239 Dicconson Lane. As the footway travels north west the verge tapers down until the footway abuts the carriageway. The footway here measures circa 2.0m for the entire length until it meets the A6027 De Havilland Way.
- 4.1.23. Approaching the junction from the north west there is a cycle lane located between the kerb line and the nearside lane that leads to an advanced cycle stop line that provides right turning cyclist's priority. Cyclists continuing along the A6 Chorley Road to the east can connect to the advisory cycle route to the southeast of the B5239 Dicconson Lane.
- 4.1.24. Travelling northbound along the B5239 Dicconson Lane there is a left turn only lane and a right turn only lane. Once these lanes become formalised through white lining, they measure 3m each as minimum before flaring on the approach to the stop line.
- 4.1.25. There are advisory cycle lanes, both northbound and southbound, from the junction at the A6 Chorley Road continuing for approximately a kilometre.
- 4.1.26. There are lit footways on both sides of the B5239 Dicconson Lane each measuring circa 2.0m in width.

A6 Chorley Road / A6027 De Havilland Way

- 4.1.27. The A6 Chorley Road connects to the A6027 De Havilland Way via a roundabout with an Inscribed Circle Diameter (ICD) of 71m. It is located 430m to the north west of the junction between the A6 Chorley Road and the B5239 Dicconson Lane.
- 4.1.28. The footway that travels from south east to north west along the southern flank of the A6 Chorley is segregated from the carriageway as it passes the roundabout providing a more direct route for pedestrians. The route in this location is circa 2.5m wide.

- 4.1.29. A footway is provided around the eastern edge of the roundabout before connecting to a dropped crossing point across the northern arm of the roundabout. The footway measures circa 1.8m and is set behind a verge measuring approximately 1.0m in width, tactile paving is not provided.
- 4.1.30. The aforementioned dropped crossing then ties into the footway on the western side of the A6027 De Havilland Way around the western edge of the roundabout.
- 4.1.31. The footway measures circa 1.8m and is set behind a verge measuring approximately 1.0m in width. The footway continues west to the A6 Chorley Road behind the verge, as the footway reaches the A6 there is a level change, i.e. the verge is slightly raised with a small retaining structure.
- 4.1.32. To the north of the roundabout the footway on the western flank of the A6027 De Havilland Way continues until it changes to the segregated cycleway/footway that guides people across the grade separated Junction 6 of the M61.
- 4.1.33. There is a section of verge on the eastern flank of the A6027 De Havilland Way that does not have pedestrian and cycle provision. However, the crossing points to the north and south of the A6027 De Havilland Way/A6 Chorley Road roundabout facilitate movement across the A6027 De Havilland Way thereby facilitating movements to the north and south

B5235 Bolton Road/A6 Manchester Road

- 4.1.34. Located approximately 1,200m to the south east of the Wimberry Hill Road junction, the A6 Manchester Road connects to the B5235 Bolton Road via a signalised crossroads.
- 4.1.35. The kerb to kerb width as the A6 Manchester Road routes through this junction is circa 10m.
- 4.1.36. As the A6 Manchester Road approaches from the north west the carriageway accommodates a single lane of traffic before forming an ahead / left lane and a right turn only lane at the signals. The lanes are formalised 45m from the stop line.
- 4.1.37. Approaching from the south east traffic travelling through the junction has a single lane approach before forming an ahead / left lane and a right turn only lane at the signals. The lanes are formalised 51m from the stop line.

4.1.38. Footways are provided on all arms of the junction each measuring at least 2.0m except for the footway on the A6 Manchester Road adjacent to The White Horse public house where the route measures approximately 1.2m.

4.1.39. Pedestrians wishing to cross at this junction are able to use push button crossing facilities.

Existing Allocation Access

A6 Chorley Road / Wimberry Hill Road

4.1.40. The A6 Chorley Road meets Wimberry Hill Road at a traffic signal-controlled T – junction. It is an adopted, single carriageway road which is subject to a 40mph speed limit as it passes the allocation frontage.

4.1.41. Travelling westbound along A6 Chorley Road there is an ahead lane and a left turn only lane segregated by a cycle lane that leads to an advanced cycle stop line. The advanced cycle stop line positions cyclists such that they can continue westbound to connect with the cycle lane that is located on carriageway to the west of Wimberry Hill Road.

4.1.42. On the northern flank adjacent to Wimberry Hill Road there is a footway that measures between 2.2m and 2.5m. As the footway travels east, it moves behind a grass verge that is 2.5m wide. On the southern flank of the A6 Chorley Road to the east of Wimberry Hill Road there is a raised footway that measures 2.2m in width, a guardrail prevents people from stepping from the raised level into the carriageway.

4.1.43. Travelling eastbound along the A6 Chorley Road on the approach to the junction vehicles can either travel straight ahead from the nearside lane or turn right to Wimberry Hill Road from the offside lane.

4.1.44. Approaching the junction from the west there is a cycle lane located between the kerb line and the nearside lane that leads to an advanced cycle stop line that provides right turning cyclist's priority. Cyclists continuing along the A6 Chorley Road to the east can connect to the advisory cycle route to the east of Wimberry Hill Road.

4.1.45. Travelling northbound along Wimberry Hill Road there is a left turn only lane and a right turn only lane. Each of the running lanes measure 3.6m.

4.1.46. There is a dedicated cycle lane that splits the nearside and offside vehicle lanes leading to advanced cycle stop lines at the junction entry.

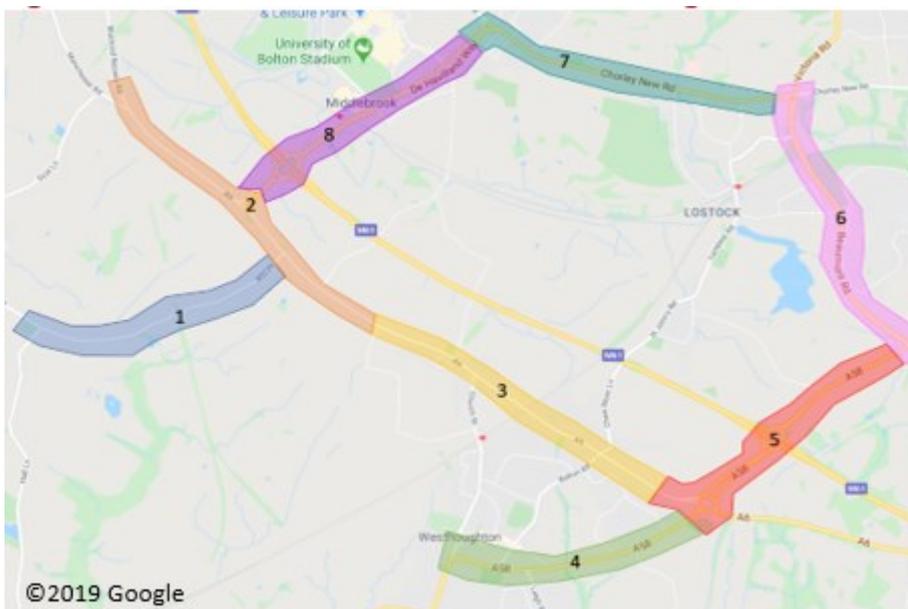
4.1.47. The footway travelling in from the A6 Chorley Road west is only in place around the radius of the junction bell mouth. However, people wanting to walk on the eastern flank of Wimberry Hill Road, which is the desire line, are able to cross at the signalised crossing point. The footway on the eastern flank of Wimberry Hill Road measures 2.0m in width and is set behind a verge of 4.0m.

4.1.48. Tactile paving and push button crossing points are provided across all arms of the junction.

Incident Data

4.1.49. Personal injury accident data has been obtained for the highway network in the vicinity of the Allocation for the most recently available five-year period between 1st September 2014 and 31st August 2019 inclusive. The accident data has been supplied by TfGM for the key areas in and around the key junctions on the network as shown in the figure below.

Figure 3. Accident Assessment Extent: West of Wingates



4.1.50. The study area includes areas of the A6 Chorley Road, the A6 Manchester Road, the A6027 De Havilland Way, the A58 Park Road and the A673 Chorley New Road.

4.1.51. For the 5 year period, there have been a total of 173 accidents, of which 2 were classified as fatal, 29 Serious and 142 slight accidents within the study area. A comprehensive analysis of the

accidents can be found in Table 1 and 2 below, Table 3 shows the accident that occurred with vulnerable road users.

Table 1. Personal Accident Analysis – Summary: West of Wingates

Severity	Number of Accidents	Percentage
Slight	142	82%
Serious	29	17%
Fatal	2	1%
Total	173	100%

Table 2. Personal Accident Analysis – Severity by Year: West of Wingates

Severity	2014	2015	2016	2017	2018	2019	Total
Slight	12	25	22	35	32	16	142
Serious	0	7	9	6	5	2	29
Fatal	0	0	2	0	0	0	2
Total	12	32	33	41	37	18	173

Table 3. Personal Accident Analysis – Vulnerable Road Users: West of Wingates

Vulnerable Road Users	Number of Accidents	Percentage
Pedestrians	17	10%
Cyclists	20	12%
Motorcycle	24	14%

4.1.52. The conclusions below can be made from the above accident data following analysis:

- Total of 173 accidents over 5 years for the extended study area;
- Average of 28 accidents per year over the extended study area;
- 142 slight accidents (82%), 29 serious accidents (17%) and 2 fatal accident (1%);

- An accident cluster has been identified within area 5 at both the M61 J5 and Chequerbent Roundabout, however this averages out at 5.6 accidents per year between the two junctions, with 37% of accidents being rear ended shunts which is considered normal for roundabouts of this scale;
- No accidents have been recorded at the A6 Chorley Road/Wimberry Hill Road; and
- No accident trends have been identified.

4.1.53. Whilst any accident is regrettable, having reviewed the accidents in detail there is no evidence to suggest that the proposed allocation will proportionally increase the occurrence of accidents.

4.1.54. It should be noted two fatal accidents occurred within the study area, one on the A6 Chorley Road, when a pedestrian entered the carriageway and was hit by an oncoming vehicle. This accident occurred within the immediate vicinity of the allocation.

4.1.55. The other fatal accident occurred on the A6 Manchester Road when a pedestrian entered the carriageway and was hit by an oncoming vehicle. Whilst the location of this accident is separated from the immediate network it does lie within the vicinity of the allocation.

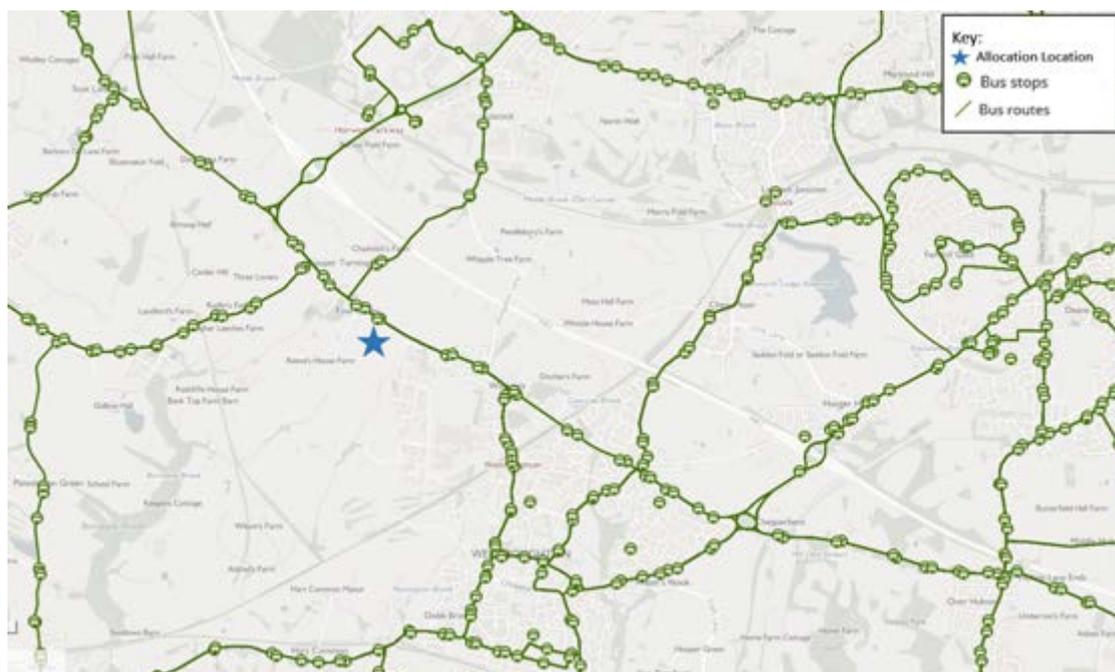
5. Multi-modal accessibility

Public Transport

Current

5.1.1. There are a number of bus services operating within the vicinity of the proposed allocation, with the most accessible stops being located on the allocation frontage on the A6 Chorley Road and B5239 Dicconson Lane, these are shown in Figure 4, with a summary of the services available shown in Table 4.

Figure 4. Bus Services and Bus Stops within the vicinity of the Allocation: West of Wingates



Contains Ordnance Survey Data © Crown Copyright 2019. All rights reserved. Copywrite © 2020 Transport for Greater Manchester All rights reserved.

5.1.2. Please note that all services listed below are those which were in operation prior to service reductions associated with COVID - 19. The pre-COVID situation represents a more appropriate baseline.

Table 4. Summary of Bus Services

Service	Route	Day of Operation	One Way Service Frequency*	Comments
516	Horwich to Leigh	Weekday	07:47 and hourly from 18:45 to 22:45	The 516 is the out of peak service in place of 517
		Saturday	07:47 and hourly from 18:45 to 22:45	
		Sunday	10:45 then hourly until 17:45	
516	Leigh to Horwich	Weekday	07:05 and 8:06 and hourly from 19:07 to 22:07	The 516 is the out of peak service in place of 517
		Saturday	Hourly from 19:07 to 22:07	
		Sunday	10:05 then hourly to 18:05	

Service	Route	Day of Operation	One Way Service Frequency*	Comments
517	Horwich to Leigh	Weekday	08:37 then half hourly to 17:47	This service is a continuation of 516 through the daytime
		Saturday	08:38 then half hourly to 17:37	
		Sunday	No Service	
517	Leigh to Horwich	Weekday	07:58 then half hourly to 17:24	This service is a continuation of 516 through the daytime
		Saturday	08:23 then half hourly to 17:14	
		Sunday	No Service	
521	Little Lever to Blackrod	Weekday	09:39 then hourly to 17:59	
		Saturday	09:39 then hourly to 16:39	
		Sunday	No Service	
521	Blackrod to Little Lever	Weekday	09:58 then hourly to 17:08	
		Saturday	09:58 then hourly to 15:58	
		Sunday	No Service	
715	Wigan to Bolton	Weekday	07:06, 07:54 then hourly from 09:27 to 16:34, then hourly from 18:09 to 23:09	Generally Hourly
		Saturday	09:28 then hourly to 16:34 then hourly from 18:14 to 23:10	
		Sunday	11:08 then hourly to 22:08	
715	Bolton to Wigan	Weekday	09:36 then hourly to 14:36, then 15:43 and 16:43 before hourly from 18:16 to 22:16	Generally Hourly
		Saturday	09:36 then hourly to 16:36 then hourly from 18:16 to 22:16	
		Sunday	10:16 then hourly to 21:16	

Service	Route	Day of Operation	One Way Service Frequency*	Comments
Total		Weekday	4 per hour	
		Saturday	4 per hour	
		Sunday	2 per hour	

5.1.3. During the weekday and Saturday, the services set out above combine to provide an overall hourly frequency of 4 buses in each direction i.e. 8 bus services per hour two-way within a short walk from the allocation. These services operate for the vast majority of the day commencing between 05:00 to 07:00 and running through until 22:00 to 00:00. On a Sunday the services combine to provide an overall hourly frequency of 2 buses in each direction i.e. 4 bus services per hour two-way.

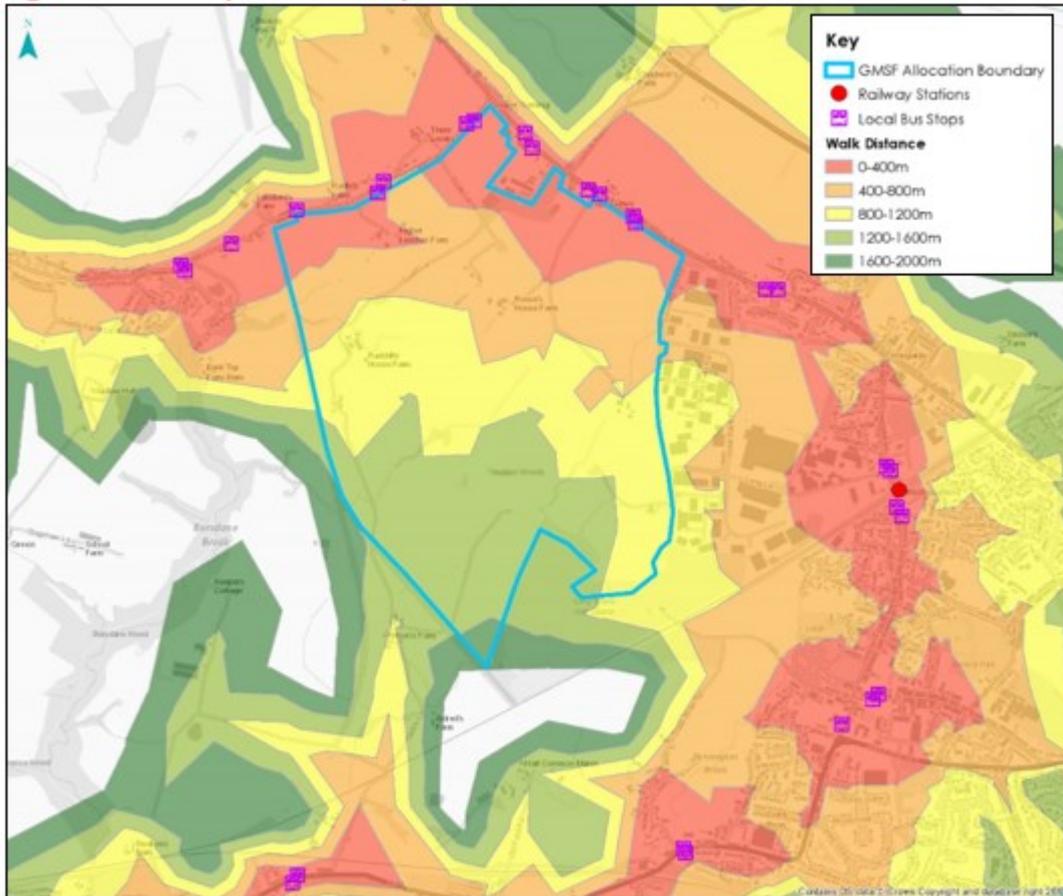
5.1.4. It is considered that the frequency available from the services on the A6 Chorley Road offer excellent connectivity for a development where many of the employees will work to fixed shift patterns. The nearest bus stops on the A6 Chorley Road provide access to the allocation from the following destinations:

- Horwich Rail Station – seven minutes journey every 30 minutes;
- Blackrod – 18 minutes journey every hour or 40 minute journey every 30 minutes;
- Westhoughton Rail Station – five minute journey every 15 minutes;
- Lostock – 21 minute journey every hour;
- Aspall – 11 minute journey every hour;
- Chew Moor – 12 minute journey every hour;
- Middlebrook – 10 minute journey every 30 minutes;
- Deane – 22 minute journey every hour;
- Bolton Interchange – 40 minute journey every hour;
- Walkden – 42 minute journey time on average every hour; and
- Wigan – 26 minute journey every hour.

5.1.5. In addition to the services on the A6, service number 715 also routes along the B5239 Dicconson Lane. At the time of writing this document the service was running a reduced COVID-19 service. Prior to the COVID-19 crisis the 715 service operated a one-way frequency of 1 per hour.

5.1.6. Figure 5 below shows the position of bus stops in the locality. This demonstrates that circa 50% of the allocation is within a 10 minute (800m) walk of a bus stop and the vast majority of the allocation is within a 20 minute (1600m) walk of an existing bus stop.

Figure 5. Bus Stop Accessibility



5.1.7. The nearest train station to the allocation is situated at Westhoughton on the Southport - Wigan Line. It is located approximately 1.6km from the centre of the Allocation as shown on Figure 6. Trains from Westhoughton serve destinations including Bolton, Salford Crescent, Manchester Victoria, Wigan, Stalybridge and Alderley Edge among others. Westhoughton Station benefits from seating, shelters and timetable information. A summary of the available services is contained in Table 5 below.

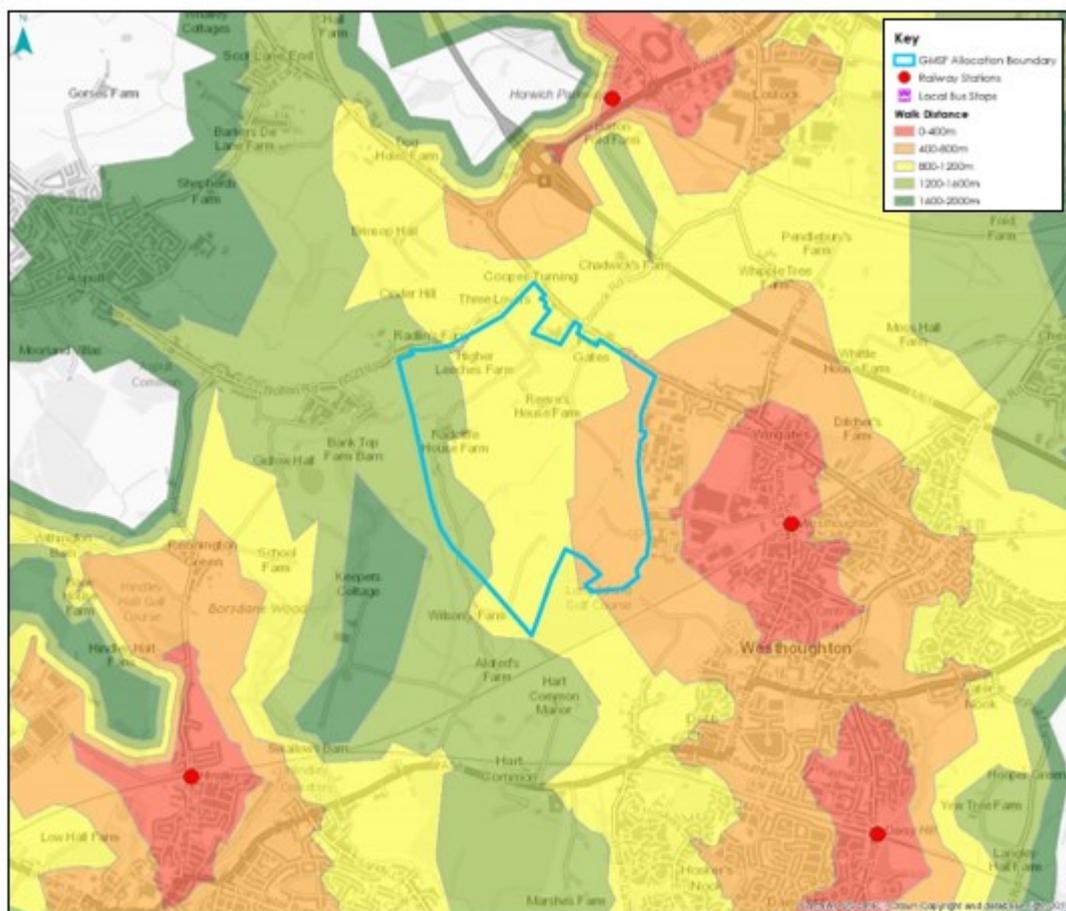
Table 5. Westhoughton Weekday Trains Service Summary (Pre COVID - 19 timetable amendments):

West of Wingates

Origin/ Destination	First Arrival	Last Departure	Journey Time (Minutes)	Frequency (Minutes)
Bolton	06:41	23:10	7	30
Salford Crescent	06:18	23:10	26	30
Manchester Victoria	06:41	21:56	35	30
Wigan	06:00	23:20	10	30

5.1.8. Figure 6 shows the existing rail station accessibility and also demonstrates that the allocation is within a 2km walk of the train services from Horwich. This station provides 6 additional services per hour on a weekday (3 in each direction) to Manchester Victoria via Bolton eastbound and to Blackpool and Preston westbound. Access to Horwich Parkway involves the crossing of the M61 Junction 6 roundabout, there are however pedestrian footways and whilst crossings are available, they are no signalised crossings.

Figure 6. Rail Station Accessibility



Proposed

5.1.9. To improve access to the public transport network, a number of measures will be introduced.

The exact measures will be subject to a full transport assessment and review at the time of the planning application, but the following shows the level of provision that could be delivered as part of the allocation.

- Signalled crossing facilities at the junction of the A6 Chorley Road/ A6027 De Havilland Way as part of the link road provision;
- Cycleway provision along the link road with appropriate crossing facilities at the B5239 Dicconson Lane junction;
- Pedestrian refuge islands on Wimberry Hill Road;
- Pedestrian refuge islands on the A6 Chorley Road;
- Improved cycle provision on the approach to the allocation and within the internal layout of the allocation;

- Upgrading of Public Right of Way Network where this provides a route through or to the allocation;
- Extension of the Logistics North Local Link Service including pump priming during the build out of the employment allocation; and
- Improvement of the walking/cycling route to Westhoughton Station.

Pedestrian Accessibility

Current

5.1.10. It is generally considered that an acceptable walking distance from home to a place of work is 2km. The IHT document Guideline for Providing for Journeys on Foot recommends various thresholds for desired, acceptable and preferred maximum distances to various services as shown in Table 6.

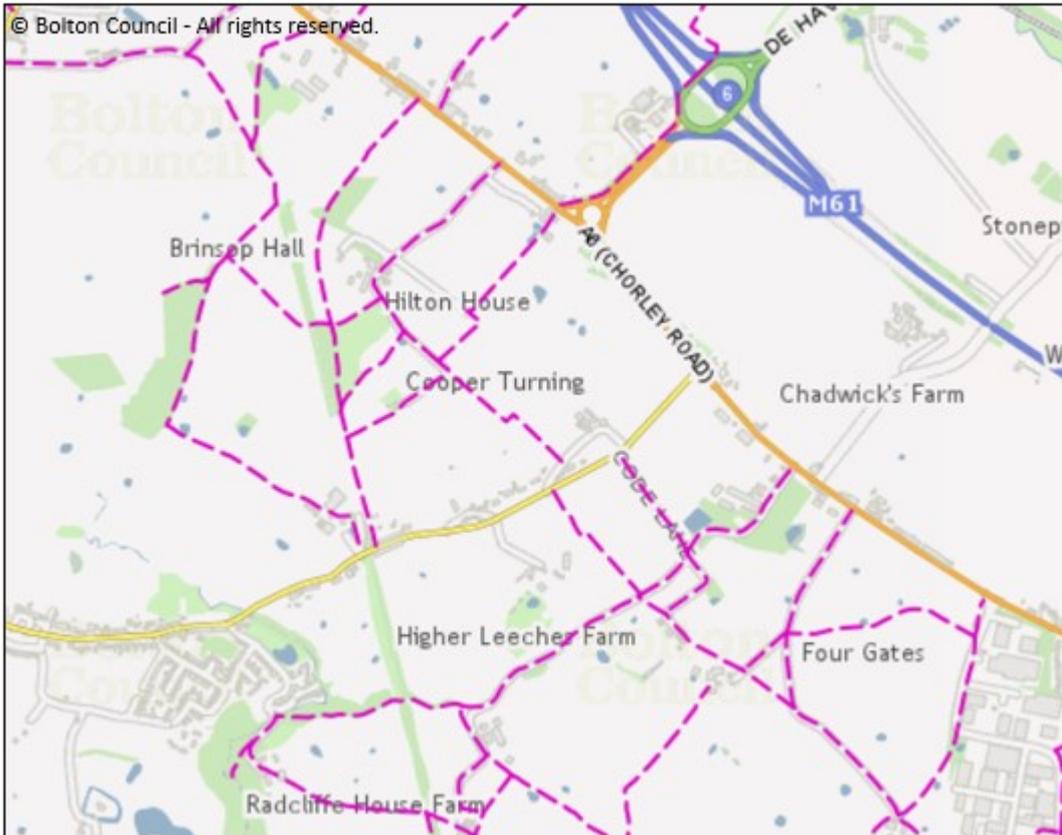
Table 6. Accessibility by Foot

	Town Centre (m)	School/Work (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1000	800
Preferred Maximum	800	2000	1200

Note - Source Table 3.2 in 'Guidelines for Providing for Journeys on Foot' published by IHT

5.1.11. Using GIS software typical walk times (up to 30 mins/2,400m) from the proposed allocation centre are shown on Figure 7.

Figure 8. Public Right of Way Extract: West of Wingates



5.1.14. Where possible the design team have sought to ensure that the public rights of way can be accommodated without the need to amend their alignment. However, the proposals if approved will require diversion of some of the public rights of way that cross the allocation.

Proposed

5.1.15. In order to improve access to the allocation via walking and cycling, a number of measures will be introduced. The exact measures will be subject to a full transport assessment and review at the time of the planning application, but the following shows the level of provision that could be delivered as part of the allocation.

- Signalised crossing facilities at the junction of the A6 Chorley Road/ A6027 De Havilland Way as part of the link road provision;
- Cycleway provision along the link road with appropriate crossing facilities at the B5239 Dicconson Lane junction;
- Pedestrian refuge islands on Wimberry Hill Road;
- Pedestrian refuge islands on the A6 Chorley Road;

- Improved cycle provision on the approach to the allocation and within the internal layout of the allocation;
- Upgrading of Public Right of Way Network where this provides a route through or to the allocation;
- Showering and locker storage provision within employment units; and
- Improvement of the walking/cycling route to Westhoughton Station.

5.1.16. Also, as part of the allocation several ancillary uses would be delivered potentially including cafes, restaurants, hot food takeaways. These uses will help reduce car trips and encourage walking /cycling trips during the working day of individuals e.g. people are more likely to stay on-site during their lunch time if the food offer on-site is varied, good quality and easily accessible.

5.1.17. Also, as part of the allocation the proposed pedestrian crossing points as detailed above would be installed as part of the access improvements which would help encourage trips by foot from the existing Wingates Industrial Estate to any ancillary uses that are brought forward.

5.1.18. Furthermore, the travel planning measures proposed in an associated travel plan will have a positive influence on the sustainable travel choices made by employees of the allocation.

5.1.19. It is therefore concluded that the allocation is accessible from the local residential areas of Wingates and Westhoughton on foot.

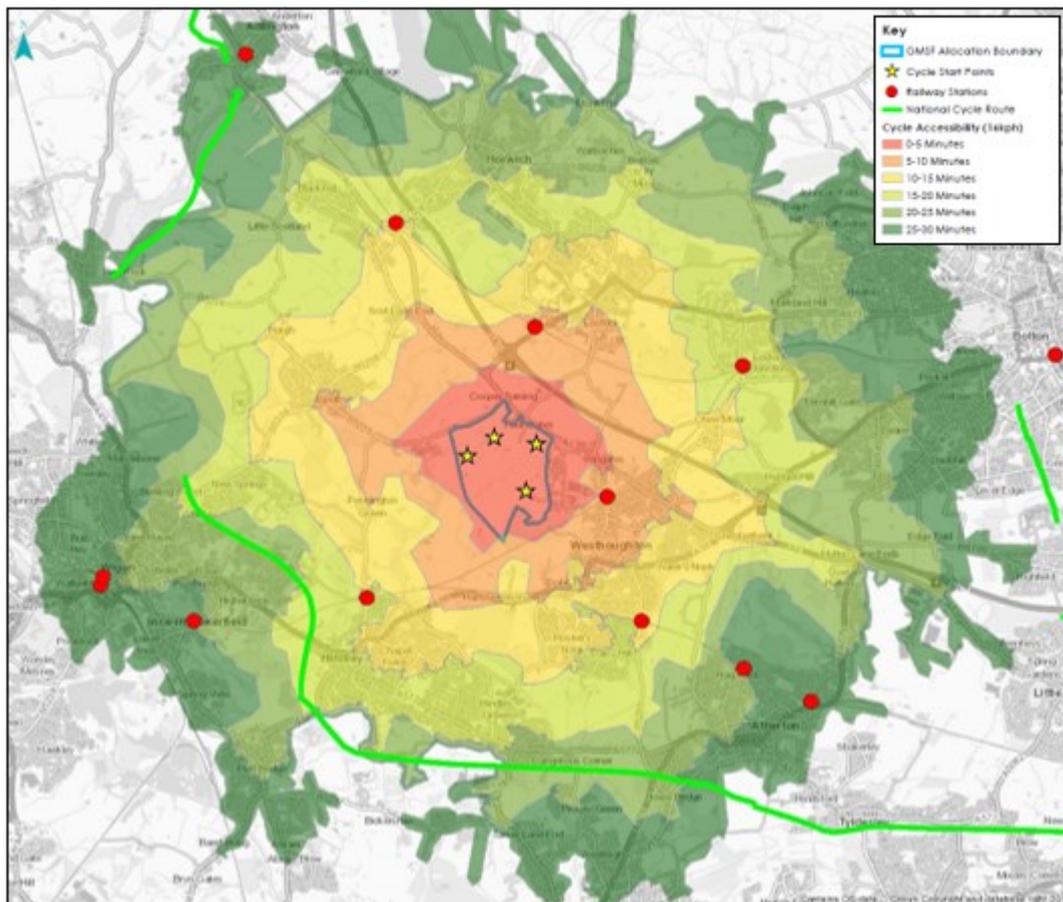
5.1.20. It is also considered that the more active employees will choose to walk further than this guideline distance.

Accessibility by Cycle

Current

5.1.21. An acceptable and comfortable distance for general cycling trips is considered to be up to 5 kilometres as referred to in Local Transport Note 2/08 (published by the Department for Transport (DfT)). However, the same guidance also refers to commuting cycle trips up to 8km. Using GIS Network Analyst software typical cycle times (with 20 minutes approximating to just over a 5km distance and 8km relating to a 30 minute journey) from the Allocation are shown on Figure 9

Figure 9. Cycle Accessibility: West of Wingates



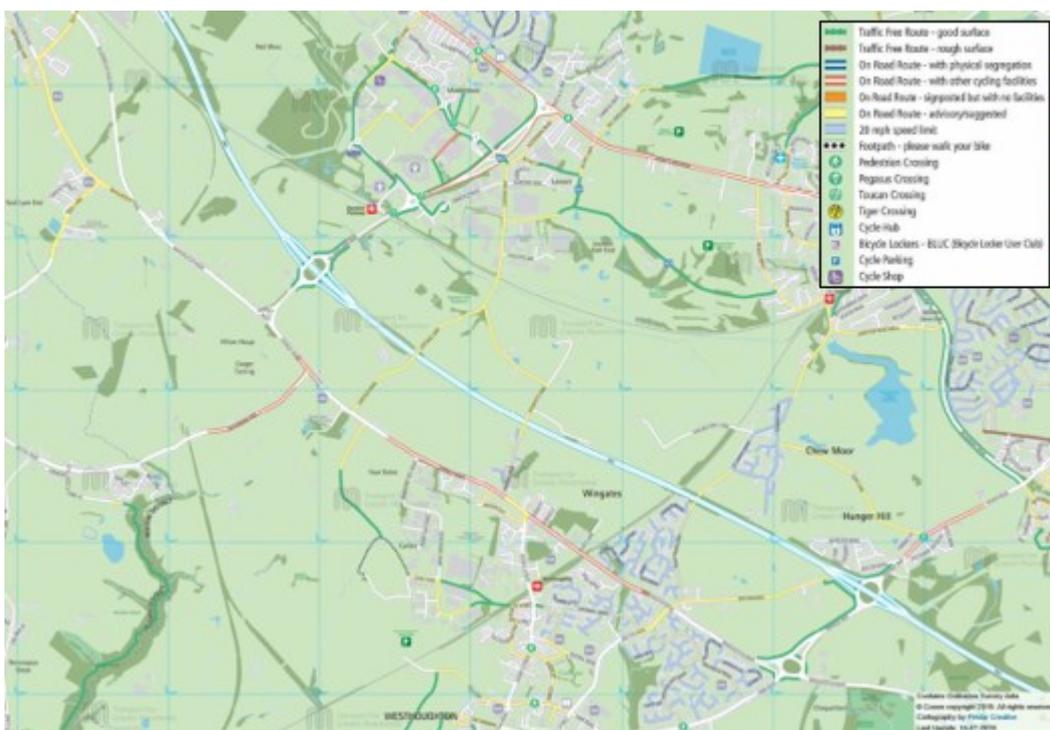
5.1.22. This figure shows that:

- The allocation is accessible from the residential areas of Wingates and Westhoughton are within a 10 minute cycle ride;
- The residential areas of Lostock, Aspull, Chew Moor, Blackrod, Middlebrook, Daisy Hill, parts of Over Hulton and parts of Horwich can be reached within a 20 minute cycle ride;
- The further residential areas of Atherton, Hindley, Horwich and parts of Bolton and Wigan can be reached within a commutable time of 30 minutes;
- Bolton Town Centre, with numerous facilities, is accessible within a 30 minute cycle of the Allocation;
- The nearest rail station at Westhoughton can be reached in a 5 minute cycle ride with Horwich station being reached in a 10 minute cycle; and
- A further 6 stations are within a 30 minute cycle of the Allocation.

5.1.23. It is also considered that the more active employees will choose to cycle further than this guideline distance.

5.1.24. Figure 10 demonstrates the existing cycle network in the vicinity of the Allocation. As can be seen the Allocation is surrounded by several recognised cycle routes, including a number of car-free routes. It should however be noted, that whilst there are crossing points on the A6027 De Havilland Way, these are not signalised. As part of the Link Road proposals, signalised crossing points for pedestrians and cyclists will be provided.

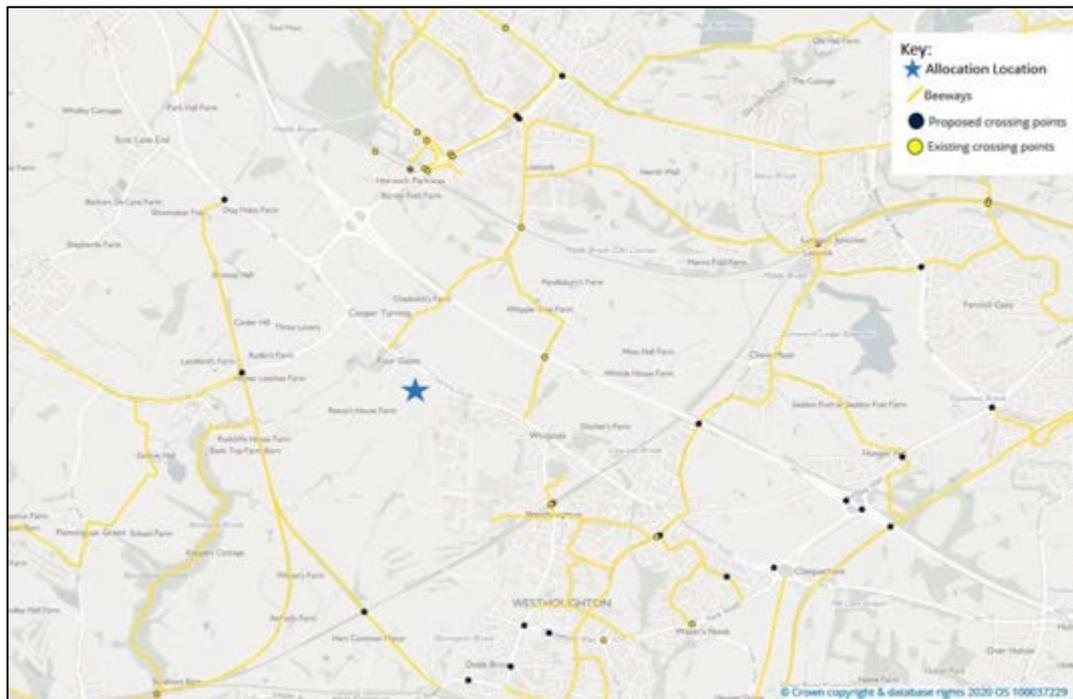
Figure 10. Cycle Network: West of Wingates



Proposed

5.1.25. Transport for Greater Manchester have recently unveiled a new plan to create joined up cycle and walking network than will cover the entire Greater Manchester City Region. These proposals are currently at consultation stage but given the potential importance of the Beelines in securing sustainable infrastructure for the future consideration has been given to the proposals as part of this Locality Assessment. Figure 11 highlights the Beelines proposals within the vicinity of the Allocation.

Figure 11. Beeline Proposals: West of Wingates



5.1.26. Developments are currently in place for a proposed Bee Network Scheme in Westhoughton which will be centred around a segregated north-south spine through Westhoughton to address the lack of dedicated and safe access for people to increase the number of cycle trips undertaken in the area.

5.1.27. As part of the allocation several cycle routes and crossing points would be proposed which will help encourage trips by cycle as detailed below:

- Signalised crossing facilities at the junction of the A6 Chorley Road/ A6027 De Havilland Way as part of the link road provision;
- Cycleway provision along the link road with appropriate crossing facilities at the B5239 Dicconson Lane junction;
- Improved cycle provision on the approach to the allocation and within the internal layout of the allocation;
- Upgrading of Public Right of Way Network where this provides a route through or to the allocation;
- Showering and locker storage provision within employment units; and
- Improvement of the walking/cycling route to Westhoughton Station.

5.1.28. Several cycle measures will be provided internally within the allocation and cycling will be further promoted through travel plan initiatives.

Pedestrian/Cycle Connectivity to External Network

5.1.29. Pedestrian and cycle access to the allocation will take place from the proposed vehicular access junction onto the A6 Chorley Road and via the spine road as discussed in detail above.

5.1.30. In addition to primary vehicular access points and in order to ensure that pedestrians and cyclists are afforded the most direct and convenient routes to/from the Allocation, several additional non-vehicular access points / connections would be provided to the A6 Chorley Road, Wimberry Hill Road, Dicconson Lane and Dodd Lane to the south.

5.1.31. The proposed allocation benefits from connectivity to the highway on all sides. Therefore, the most convenient routes can be provided as part of any development because there are no land restrictions between the proposed boundary and the highway.

5.1.32. The scale of the allocation presents a unique opportunity to provide a large section of traffic free cycle infrastructure (flanking the spine road infrastructure) to be provided that would facilitate movements between the A6 and south of Westhoughton through the allocation as described above.

6. Parking

6.1.1. The following information has been taken from the Bolton Core Strategy.

Car Parking

- B2 - General Industry. 1 space per 60sqm (max standard).
- B8 - Storage/ Distribution. 1 space per 100sqm (max standard).

Cycle Parking

- B2 - General Industry. 1 cycle space per 700sqm.
- B8 - Storage/ Distribution. 1 cycle space per 850sqm

Electric Vehicle Parking

- Provided in accordance with prevailing standards at the time of development

7. Allocation Trip Generation and Distribution

7.1.1. Future trip generation to/from the allocation (i.e. how many people and vehicles will enter or leave the allocation) was estimated by applying a set of GM-wide trip rates to the agreed development quantum for each allocation. The distribution of trips (i.e. where they are going to or coming from) was derived by selecting nearby zones with similar land use characteristics as a proxy and using the existing distribution in the model.

Table 7. Development Quantum: West of Wingates

Use	Use Sub Category	Development Quantum 2025	Development Quantum 2040
Industrial	B2/B8	132,000 sqm	440,000 sqm
Total		132,000 sqm	440,000 sqm

Table 8. Allocation Traffic Generation: West of Wingates

Year	AM Peak Hour Departures	AM Peak Hour Arrivals	PM Peak Hour Departures	PM Peak Hour Arrivals
2025 GMSF Constrained	459	799	696	247
2025 GMSF High-Side	580	965	696	311
2040 GMSF Constrained	742	1272	1150	399
2040 GMSF High-Side	1021	1696	1150	548

Units are in PCU (passenger car units/hr)

Table 9. Allocation Traffic assignment for 2040 GMSF High-Side: West of Wingates

Route	AM Peak Hour	PM Peak Hour
1. Blackrod Road, Manchester Road	63	46
2. De Havilland Way, Chorley Road	1908	992
3. Chorley Road, Dicconson Lane	120	249
4. Lostock Lane, Chorley Road	99	134
5. Wimberry Hill Road, A6	245	298
6. Church Street, Manchester Road	225	285
7. Manchester Road, Bolton Road	120	196
8. Chequerbent Roundabout	94	145
9. M61 Junction 5	133	101
10. M61 Junction 6	1881	986
11. Burden Way, De Haviland Way Roundabout	273	165
12. Mansell Way, De Haviland Way	293	200
13. Beehive Roundabout	252	159
14. Chorley New Road, Victoria Road	193	136
15. Wigan Road, Beaumont Road	96	69
16. The Fairway, A58	6	14
17. Hall Lane, Bolton Road	503	330
18. Leigh Road, A58	33	42
19. Beaumont Road, Glengarth Road	7	10
20. Mill Street, A58	22	36

7.1.2. The trips which cross onto neighbouring authorities are shown in Table 10.

Table 10. Cross-boundary trip distribution at 2040: West of Wingates

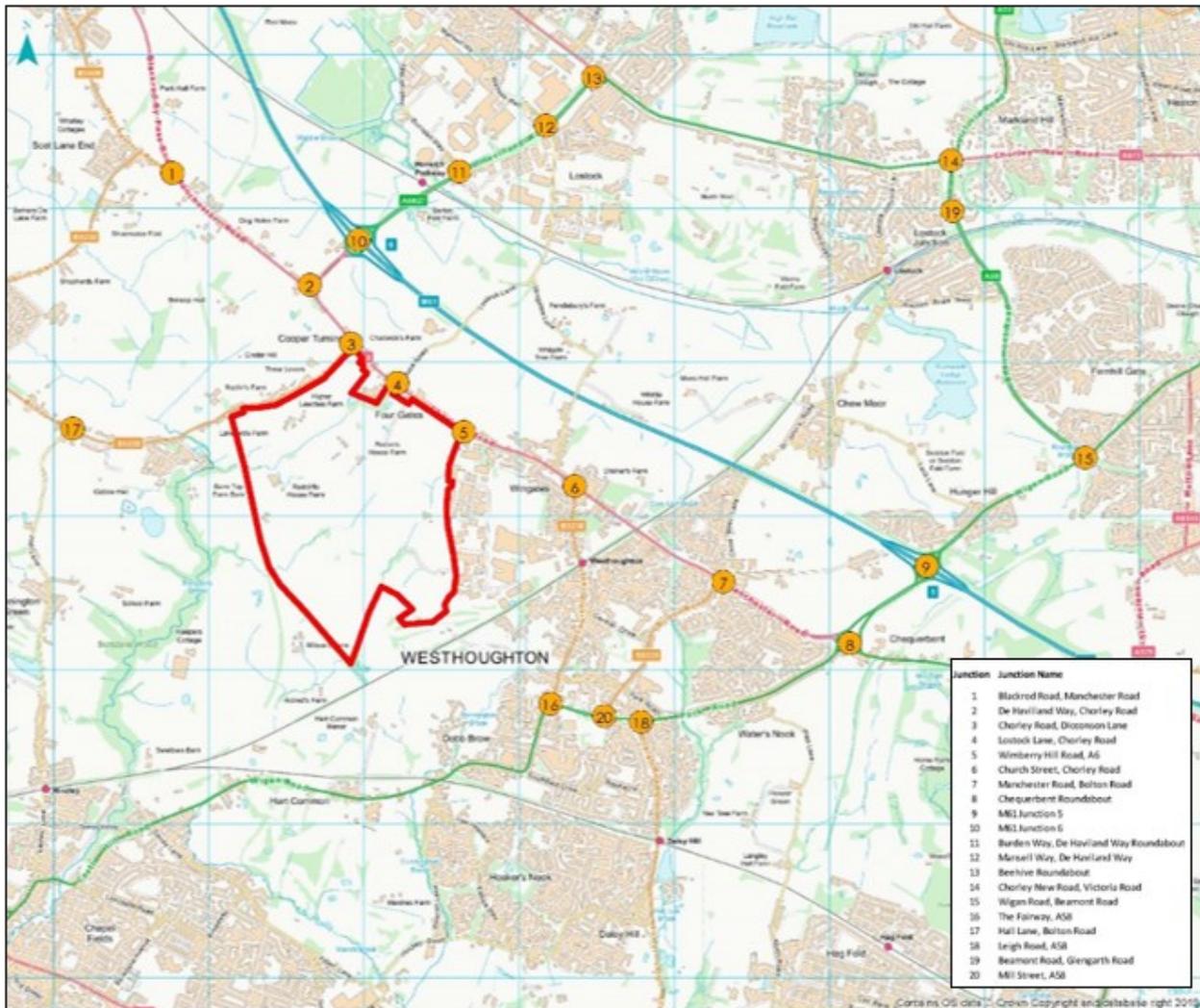
Route	Share AM Peak Hour	Share PM Peak Hour	2 Way Flow AM Peak Hour	2 Way Flow PM Peak Hour
Lancashire (All)	0%	0%	11	4
M58 (West)	0%	0%	11	4
A49 Warrington Road	0%	1%	7	14

Units are in PCU (passenger car units/hr)

8. Current Highway Capacity Review – baseline situation.

- 8.1.1. An assessment of the highway network under existing neutral traffic conditions has been completed in Table 11. This includes 20 junctions identified by TfGM in the near vicinity of the Allocation. Due to changes in traffic since Covid 19, an assessment of highway capacity in neutral conditions has not been able to be completed in 2020.
- 8.1.2. In order to provide an assessment of highway capacity, the Wingates Phase 1 Transport Assessment has been interrogated for the agreed and validated existing models for the junctions in close proximity to the Allocation and the results are detailed in Table 12. The location of the junctions in relation to the West of Wingates Allocation are shown on Figure 12. Where the junction was not included in the Transport Assessment for Phase 1 Wingates, the assessment for the 2025 reference case has been used to establish existing highway capacity and operation. It should be noted that the 2025 scenario will represent a robust assessment of the existing capacity. Comments have been provided for each junction to confirm what assumptions are included within the current highway capacity review.

Figure 12. Location of Junctions: West of Wingates



8.1.3. Table 11 shows that the majority of junctions operate within capacity, with two junctions (Bolton Road / A6 Signals and A6 / De Havilland Way Roundabout) operating above unity.

Table 11. Current Highway Capacity Review: West of Wingates

Junction	Reference Case AM	Reference Case PM	2018 Count AM	2018 Count PM	Notes
1. Blackrod Road, Manchester Road	88.3	90.8			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.
2. De Havilland Way, Chorley Road			72	124	2018 Count scenario taken from Modelling completed in agreed Wingates Phase 1 TA. Traffic assumed at similar level in 2018 as per 2020
3. Chorley Road, Dicconson Lane			76.3	89.3	2018 Count scenario taken from Modelling completed for Wingates TA. Traffic assumed at similar level in 2018 as per 2020
4. Lostock Lane, Chorley Road			0.39	0.61	2018 Count scenario taken from Modelling completed in agreed Wingates Phase 1 TA. Traffic assumed at similar level in 2018 as per 2020
5. Wimberry Hill Road, A6			54.8	49.0	2018 Count scenario taken from Modelling completed in agreed Wingates Phase 1 TA. Traffic assumed at similar level in 2018 as per 2020

Junction	Reference Case AM	Reference Case PM	2018 Count AM	2018 Count PM	Notes
6. Church Street, Manchester Road			88.7	83.6	2018 Count scenario taken from Modelling completed in agreed Wingates Phase 1 TA. Traffic assumed at similar level in 2018 as per 2020
7. Manchester Road, Bolton Road			84.6	126.3	2018 Count scenario taken from Modelling completed in agreed Wingates Phase 1 TA. Traffic assumed at similar level in 2018 as per 2020
8. Chequerbent Roundabout	0.87	0.77			Modelling completed with consented improvement and 2025 Reference case flows
9. M61 Junction 5	0.90	0.87			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.
10. M61 Junction 6			84	89	2018 Count scenario taken from Modelling completed in agreed Wingates Phase 1 TA. Traffic assumed at similar level in 2018 as per 2020
11. Burden Way, De Haviland Way Roundabout	0.82	0.74			Operates within capacity in 2025 reference case therefore will

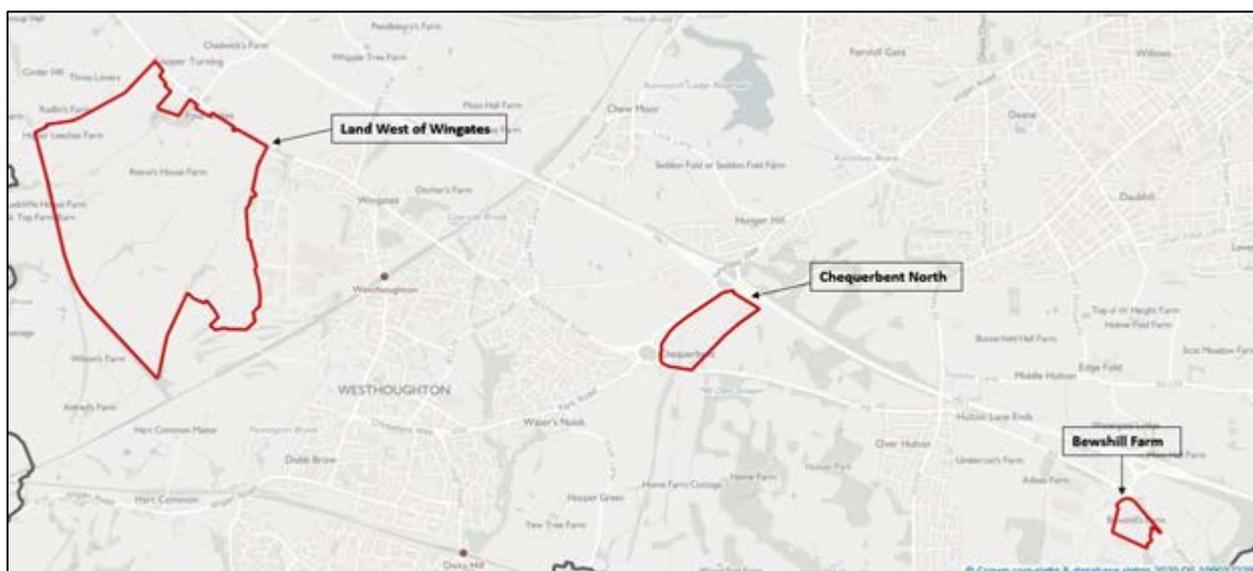
Junction	Reference Case AM	Reference Case PM	2018 Count AM	2018 Count PM	Notes
					operate within capacity in existing 2020.
12. Mansell Way, De Haviland Way	82.8	77.8			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.
13. Beehive Roundabout	0.41	0.57			Modelling completed with consented improvement and 2025 Reference case flows
14. Chorley New Road, Victoria Road	77.2	77.9			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.
15. Wigan Road, Beaumont Road	75.0	85.5			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.
16. The Fairway, A58	37.1	32.7			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.
17. Hall Lane, Bolton Road	0.76	0.77			Operates within capacity in 2025 reference case therefore will

Junction	Reference Case AM	Reference Case PM	2018 Count AM	2018 Count PM	Notes
					operate within capacity in existing 2020.
18. Leigh Road, A58	63.8	53.9			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.
19. Beaumont Road, Glengarth Road	48.9	43.0			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.
20. Mill Street, A58	31.8	27.9			Operates within capacity in 2025 reference case therefore will operate within capacity in existing 2020.

9. Treatment of Cumulative Impacts

9.1.1. The transport impacts of the allocation need to be considered cumulatively with those of nearby GMSF allocations. The total trips from the GMSF allocations at each junction have been provided by Systra, alongside the Base Trips and the associated trips with the Wingates allocation. Figure 13 shows the GMSF Land West of Wingates in relation to the other nearby GMSF draft allocations.

Figure 13. GMSF Allocations: West of Wingates



9.1.2. As the Land West of Wingates, Chequerbent North and Bewshill Farm allocations are all located directly south of the A6 it is likely that the trips generated from each will utilise some of the same highway networks. To address this, the High Side model that has been assessed in the upcoming chapters takes into account traffic associated with all GMSF allocations (i.e. those across the combined authority and not just those in the immediate locality) in order to provide a fully comprehensive overview of the cumulative impacts.

9.1.3. The percentage of the Wingates allocation traffic as a proportion of the total GMSF High Flows is shown in Table 12.

Table 12. Wingates Impact

Junction	2040 AM High Scenario Wingates	2040 PM High Scenario Wingates	2040 AM GMSF High Scenario Total	2040 PM GMSF High Scenario Total	Wingates AM Peak % Impact	Wingates PM Peak % Impact
1. Blackrod Road, Manchester Road	63	46	3066	3574	2.05%	1.29%
2. De Havilland Way, Chorley Road	1908	992	4997	6305	38.18%	15.73%

3. Chorley Road, Dicconson Lane	120	249	1934	2375	6.20%	10.48%
4. Lostock Lane, Chorley Road	99	134	1949	2599	5.08%	5.16%
5. Wimberry Hill Road, A6	245	298	2575	3128	9.51%	9.53%
6. Church Street, Manchester Road	225	285	2092	1983	10.76%	14.37%
7. Manchester Road, Bolton Road	120	196	2431	1898	4.94%	10.33%
8. Chequerbent Roundabout	94	145	3995	3942	2.35%	3.68%
9. M61 Junction 5	133	101	6002	5610	2.22%	1.80%
10. M61 Junction 6	1881	986	8862	9137	21.23%	10.79%
11. Burden Way, De Haviland Way Roundabout	273	165	4196	4391	6.51%	3.76%
12. Mansell Way, De Haviland Way	293	200	4515	5092	6.49%	3.93%
13. Beehive Roundabout	252	159	4005	4609	6.29%	3.45%
14. Chorley New Road, Victoria Road	193	136	4530	4662	4.26%	2.92%
15. Wigan Road, Beaumont Road	96	69	2601	2710	3.69%	2.55%
16. The Fairway, A58	6	14	759	1309	0.79%	1.07%
17. Hall Lane, Bolton Road	503	330	3286	3385	15.31%	9.75%

18. Leigh Road, A58	33	42	1921	2164	1.72%	1.94%
19. Beaumont Road, Glengarth Road	7	10	1800	1672	0.39%	0.60%
20. Mill Street, A58	22	36	663	1085	3.32%	3.32%

10. Allocation Access Assessment

10.1.1. The access associated with the inclusion of the Link Road through the allocation includes the existing access from Wimberry Hill Road and a new proposed access via the A6027 De Havilland Way / A6 Chorley Road Roundabout.

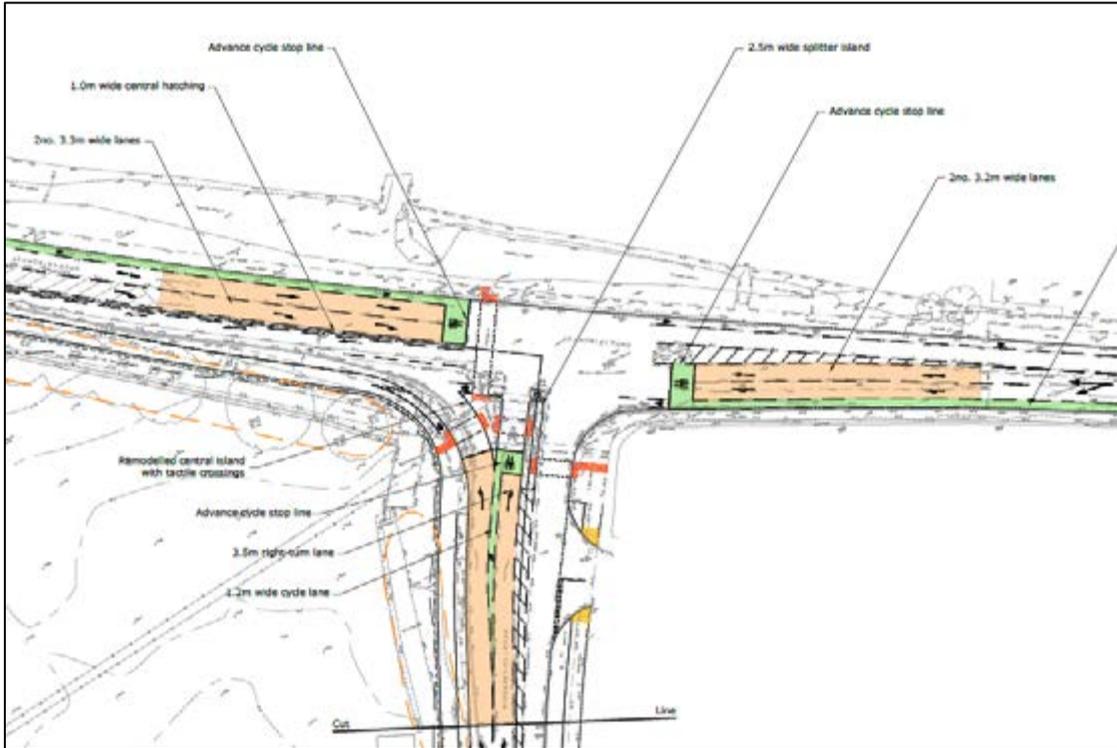
Wimberry Hill Access

10.1.2. An early phase of the proposed allocation has previously been subject to an outline (except for access) planning application

10.1.3. The proposed improvements at the A6 Chorley Road/Wimberry Hill Road junction are shown in Figure 14 and described below (although are subject to change through improved cycle facilities at the junction) and avoid the need to impact on the existing electricity substation:

- Provide secondary westbound ahead lane for vehicles and continue cycle lane through the junction – this amendment provides cyclists with less weaving manoeuvres as they route through the junction – currently cyclists are required to move to the centre of the approach between the left only lane and the ahead lane. There is still an advanced cycle stop line that enables cyclists to gain priority when the signals are red.
- Remove cyclists from the main carriageway during the proposed A6 merge to the west of the junction; and
- Provide off carriageway cycle lanes to connect to the provision either side of Wimberry Hill Road.

Figure 14. Illustrative Improvements to Wimberry Hill Road/A6: West of Wingates



10.1.4. Travelling south from the A6, improvements are proposed to the existing infrastructure to a point approximately 350m to the south of the junction where Wimberry Hill Road turns 90 degrees and becomes Great Bank Road. The upgrade proposals include the following:

- Widening on the western flank of Wimberry Hill Road in order to provide shared 3.0m (minimum) cycleway/footways on either flank of the carriageway;
- The widening allows 2.0m (minimum) verge provision separating the carriageway and the cycleway / footways to either flank;
- Widening to the west of the carriageway to allow the formation of a ghost island right turn junction into the proposed development from Wimberry Hill Road;
- A ghost island right turn lane ensuring blocking does not occur if in the unlikely event of a vehicle having to wait to turn right into the Allocation at this location;
- A new pedestrian refuge to the south of the ghost island priority junction allowing assisting movements to and from the west from existing Wingates Industrial Staff through the proposed allocation to access the A6 affording them a quieter route away from the A6 to bus shelters;
- Carriageway a minimum of 7.3m i.e. standard industrial access provision; and
- To the south of the ghost island the footway / cycleway provision is maintained until Wimberry Hill Road turns to Great Bank Road.

10.1.5. Based on the design outlined above, this junction has been modelled in the 2040 Reference and 2040 Design Allocation Boundary with Link Road. The results of which are shown in Table 13 below.

10.1.6. Systra have provided the West of Wingates allocation flows in the scenario with and without the link road and have provided link flows on the A6 to the west of Wimberry Hill Road for the 2040 Reference and 2040 without link road and a turning diagram for the 2040 with link road diagram. From this information Mosodi have had to calculate the turning flows at the junction based on existing turning flows from the count in 2018 and the link flows to the west of the junction in the absence of the detailed provision of flows. The only scenario where turning flows have been provided is in the 2040 with link road scenario where the number of flows associated with the existing industrial estate on Wimberry Hill Road has increased by 1,134 (216%) in the AM peak hour (from 525 to 1659) and 1,198 (199%) in the PM peak hour (from 601 to 1799). Given that this is a cul de sac it is unclear where these additional 1000 plus flows could have originated and therefore have been discounted in the modelling with the same methodology applied to the 2040 reference and 2040 High with no link road scenarios.

10.1.7. It should be noted that the traffic flows at this junction have been calculated by applying the 2018 turning counts into and out of Wimberry Hill Road, plus any development traffic identified by Systra and then applying a factor to the remaining flows in order to tie them into the turning flows at the Lostock Lane/A6 Chorley Road junction.

Table 13. Wimberry Hill Road Junction Summary Report: West of Wingates

Scenario	Lane	AM Peak Hour DOS (%)	AM Peak Hour MMQ	PM Peak Hour DOS (%)	PM Peak Hour MMQ
2040 Reference Case	A6 Chorley Road (SE)	31.3%	3.2	40.9%	4.4
2040 Reference Case	A6 Chorley Road (NW) Ahead Right	37.3%	3.8	67.6%	12.6
2040 Reference Case	Wimberry Hill Road Right Left	20.0%	1.6	63.1%	7.0

Scenario	Lane	AM Peak Hour DOS (%)	AM Peak Hour MMQ	PM Peak Hour DOS (%)	PM Peak Hour MMQ
2040 GMSF High Side	A6 Chorley Road (SE)	51.8%	6.2	53.7%	6.7
2040 GMSF High Side	A6 Chorley Road (NW) Ahead Right	45.6%	5.4	87.1%	24.7
2040 GMSF High Side	Wimberry Hill Road Right Left	52.2%	3.6	84.8%	11.3

Colour Coding:

Green = within target capacity*

Amber = between target capacity* and unity (absolute capacity)

Red = Over Unity i.e. over 100% Capacity

*Industry Standard Target Capacity is 90% for Traffic Signal Junctions

10.1.8. As Table 13 shows, the proposed improvements to Wimberry Hill Road result in the junction operating within the target capacity in both the 2040 Reference and Allocation design with Link Road. All modelling has been provided on the approved Wingates Phase 1 layout as requested by Systra. This layout has been approved by TfGM and Bolton Council through a planning application, however there is scope for alterations to the layout subject to the final internal layout and access arrangements.

A6 Chorley Road / A6027 De Havilland Way Roundabout – M61 J6

10.1.9. In order to provide a direct link to the M61 J6 and thereby reduce the traffic on the A6 corridor, a fourth arm is proposed on the south western extent of the A6 Chorley Road / A6027 De Havilland Way Roundabout.

10.1.10. The proposals are for a 4th arm on the existing roundabout to provide access directly to the allocation through the provision of a link road. Due to the close proximity of the M61 J6 and the

existing queuing interaction between the two junctions, the assessment models the two junctions as one using the TRANSYT modelling software.

10.1.11. The following highways works are proposed:

- New 3 lane access from proposed link road with 2 lane exit;
- Signalisation of A6 Chorley Road / A6027 De Havilland Way roundabout;
- ICD of A6 Chorley Road / A6027 De Havilland Way roundabout increased from 72m to 88m;
- Provision of toucan crossings at the entries to the A6 roundabout and across the circulatory stop lines;
- Signalisation of remaining arms of J6 of M61;
- Widening of the circulatory carriageway of J6 of M61 to accommodate 3 circulatory lanes;
- Remove the segregated left turn from the A6027 De Havilland Way (northern arm) to the M61 southeast bound merge slip and replace with a two lane exit onto the slip road and increase the number of lanes on the southbound A6027 De Havilland Way from 3 to 4; and
- Increase the merge length on the A6 Chorley Road Northwest bound from 45m existing to 275m (part of this merge is proposed to be implemented as part of phase 1).

10.1.12. Based on the design outlined above, this junction has been modelled in the 2025 GMSF High with Link Road. and the 2040 GMSF High with Link Road. A summary of the results is shown in Table 14.

Table 14. De Havilland Way Access Junction Summary: West of Wingates

Junction	2025 GMSF	2025 GMSF	2040 GMSF	2040 GMSF
	High AM	High PM	High AM	High PM
A6027 De Havilland Way Proposed Allocation Access	76%	73%	90%	99%

10.1.13. As shown in Table 12, the existing junction operates well over capacity in the PM Peak in the 2018 existing count scenario and the proposed improvements show a vastly improved operation of the junction in the scenario with the 2040 GMSF High.

11. Impact of Allocation Before Mitigation on the Local Road Network

- 11.1.1. In order to understand a worst case impact of the GMSF, the 'high side' runs from the GMVDM were used to derive with GMSF development flows for 2040. These flows were then entered into junction based models for the junctions identified in section 8. Flows from a 2040 reference case scenario (including approved Local Plan development from the respective districts) were also extracted to provide a comparison between the operation of those junctions in the 2040 reference case and the 2040 with GMSF development scenarios.
- 11.1.2. The 'with GMSF' scenario has been assessed against a Reference Case which assumes background growth and includes the housing and employment commitments from the districts.
- 11.1.3. These assessments were then used to identify the junctions where there was considered to be a substantial impact, relative to the operation of the junction in the 2040 reference case, and hence where mitigation was considered to be required. Where mitigation is required, it should mitigate the impacts back to the reference case scenario. It should be noted that mitigating back to this level of impact may not mean that the junction operates within capacity by 2040.
- 11.1.4. This section looks at the impact on the network at the junctions highlighted in section 9. Signalised junctions were assessed in detail using industry-standard modelling software LINSIG or TRANSYT. Where possible, traffic signal information was requested from TfGM in order to ensure that the local junction models reflected (as far as possible), the operation of the junctions on the ground. Junctions 9 software was used to assess priority and roundabout junctions. Table 15 below provides a comparison between the operation of the in scope junctions in the 2040 reference case and the 2040 'high side' scenarios, as well as the allocation flows through each respective junction. The table shows a comparison between the ratio of flow to capacity on the worst case arm at each junction as well as the total development flows through the junction.
- 11.1.5. It should be noted that at the request of Systra/TfGM/Bolton the consented junction improvements associated with the Phase 1 Wingates have been included in the modelling for the 2040 reference case and as such show an unrealistically optimistic scenario. This is because these improvements are highly unlikely to be implemented without the phase 1 development coming forward and the reference flow scenarios do not include the Wingates Phase 1 development flows (these are added as part of the high flow scenario).

Table 15. Results of Local Junction Capacity Analysis Before Mitigation: West of Wingates

Junction	2040 Reference Case AM	2040 Reference Case PM	2040 GMSF High AM	2040 GMSF High PM	Allocation Flows AM	Allocation Flows PM
1. Blackrod Road, Manchester Road	95.7%	102.0%	95.0%	97.2%	63	46
2. A6027 De Havilland Way, A6 Chorley Road & M61 J6#	139%	126%	90%	99%	1908	992
3. Chorley Road, Dicconson Lane#	72.7%	97.5%	80.8%	93.3%	120	249
4. Lostock Lane, Chorley Road	0.59	0.48	0.63	0.92	99	134
5. Wimberry Hill Road, A6*	37.3%	67.7%	52.2%	87.1%	245	298
6. Church Street, Manchester Road#	72.3%	94.5%	92.8%	94.7%	225	285
7. Manchester Road, Bolton Road#	76.5%	102.1%	84.6%	89.1%	120	196
8. Chequerbent Roundabout	0.85	0.83	0.81	0.72	94	145
11. Burden Way, De Havilland Way Roundabout	0.86	0.80	0.80	0.77	273	165
12. Mansell Way, De Havilland Way	88.9%	83.0%	101.9%	101.1%	293	200
13. Beehive Roundabout	0.60	0.71	0.72	0.82	252	159

Junction	2040 Reference Case AM	2040 Reference Case PM	2040 GMSF High AM	2040 GMSF High PM	Allocation Flows AM	Allocation Flows PM
14. Chorley New Road, Victoria Road	85.7%	82.7%	98.3%	92.0%	193	136
15. Wigan Road, Beaumont Road	79.4%	89.4%	84.6%	85.3%	96	69
16. The Fairway, A58	38.1%	50.4%	40.4%	59.0%	6	14
17. Hall Lane, Bolton Road	1.24%	1.03%	1.62%	1.19%	503	330
18. Leigh Road, A58	67.4%	67.7%	81.1%	77.9%	33	42
19. Beaumont Road, Glengarth Road	52.9%	44.1%	52.0%	43.8%	7	10
20. Mill Street, A58	32.1%	46.6%	22.0%	59.6%	22	36

(* includes current proposed improvements as shown in Chapter 10, and the amended traffic flows)

(# includes proposed improvements from Phase 1 Wingates)

11.1.6. It should be noted that the flows at Hall Lane / Bolton Road junction in the 2040 High Scenario have been calculated by adding the West of Wingates development flows onto the 2040 Reference case.

12. Transport Interventions Tested on the Local Road Network

Strategic Interventions

12.1.1. GMSF Policy GM Strat 8 'Wigan-Bolton Growth Corridor' notes that a new highway will connect Junction 26 of the M6 and Junction 5 of the M61 through the construction of the M58/A49 Link

Roads as well as the implementation of the Wigan and Bolton new east-west road and public transport infrastructure.

12.1.2. Bolton Council has long-standing aspirations to deliver a Westhoughton Bypass, running from Junction 5 M61/ Chequerbent roundabout to Gibfield Park Way (in Wigan) crossing the railway line to the west of Platt Lane/North Road. The bypass could form part of the wider scheme between the M61J5 and M6J26, across Bolton and Wigan i.e. part of the 'East/West Housing Growth Corridor'.

12.1.3. Bolton Council along with Wigan Council and the Greater Manchester Combined Authority, submitted a bid for funding of the Housing Growth Corridor scheme via the Housing Infrastructure Fund (HIF); the bid was submitted in March 2019. The bid included the Westhoughton Bypass as a component part. Details of the bid are not publicly available, but the Westhoughton Bypass included grade-separation at Chequerbent roundabout, providing significant enhancements in highway capacity.

12.1.4. Unfortunately, the Councils and GMCA have been advised recently that the HIF bid was unsuccessful, however delivery of this strategic infrastructure remains an aspiration and alternative funding streams are now being considered.

12.1.5. Whilst the allocation is located close to Junction 6 of the M61 the strategic modelling allocated a proportion of traffic generation to the A6, Chequerbent Roundabout, Snydale Way to Junction 5 of the M61. If a strategic intervention comprising a new road scheme between M61 and M6 is progressed, then this will provide significant additional highway capacity along the A58 corridor including at Chequerbent roundabout (and M61J5). However, in the absence of a formally funded strategic scheme, local interventions have been assessed to accommodate the GMSF related growth in the corridor in the vicinity of the allocation, including the traffic flows generated by the allocation itself.

Local Interventions

12.1.6. As Table 15 shows the following junctions operate above capacity in the 2040 GMSF High Scenario whilst the majority also operate above capacity in the 2040 reference:

- Mansell Way, De Haviland Way; and
- Hall Lane, Bolton Road.

12.1.7. Potential mitigation measures have been examined to demonstrate indicative designs and improvements to the above junctions. The following sections include descriptions of the proposed mitigation measures. In addition to the above junctions, improvements are proposed at M61 J6 / A6027 De Havilland Way / A6 junction in order to accommodate the traffic and new arm of the link road which is described in detail in the previous chapters.

Mansell Way/De Havilland Way

12.1.8. Mansell Way/De Havilland Way junction operates above unity in the 2040 GMSF High Scenario, as such to mitigate this the signal cycle times have been extended to 100s to improve capacity. Other than the extension of cycle time, no further mitigation is required or proposed.

Hall Lane / Bolton Road

12.1.9. Hall Lane / Bolton Road operates above capacity in the Base and GMSF High scenarios, as such the following mitigation measures would be required to increase capacity. The following bullets detail a scheme that could be implemented to mitigate the impact of GMSF and background traffic growth:

- Hall Lane entry width increased to 7m to accommodate two approach lanes with a flare of 32m;
- Bolton Road (east) entry width increased to 6m with a 20m flare;
- Bolton Road (west) entry width increased to 5m with a flare of 5m; and
- Mini roundabout size increased to improve visibility on the approach and the distance between arms.

12.1.10. A summary of the proposed Mitigation is provided in Table 16.

Table 16. Approach to Mitigation on LRN: West of Wingates

Junction	Mitigation Approach
2. A6027 De Havilland Way, A6 Chorley Road & J6 M61	Signalisation and enlarging of the A6027 De Havilland Way /A6 Roundabout with fourth arm added and extension of the A6 Chorley Road (west) exit lanes. Controlled pedestrian and cycle facilities added. Signalisation of J6 of M61 with circulatory carriageway increased to 3 lanes and De Havilland Way southbound entry increased to 4 lanes with bypass removed.
12. Mansell Way/De Havilland Way	Extension of signalling time
17. Hall Lane, Bolton Road	Widening of Hall Lane and the B5239 Bolton Road East approach roads.

13. Impact of interventions on the Local Road Network

13.1.1. A summary of the highway capacity following mitigation is provided in Table 17 and is compared against the 2040 reference case scenario.

Table 17. Results of Local Junction Capacity Analysis After Mitigation: West of Wingates

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
2. De Havilland Way, Chorley Road	139%	126%	97%	98%	755	384
12. Mansell Way/De Havilland Way	88.9%	83.0%	92.8%	94.1%	293	200
17. Hall Lane, Bolton Road	1.24	1.03	0.99	0.99	460	227

13.1.2. Table 17 shows the operation of the highway network improves with the introduction of the mitigation measures proposed by the GMSF and the development proposals with all junctions operating within unity within the 2040 GMSF High Scenario. A summary of the impact at each

junction is set out below, however it is clear that the impact of the proposed allocation is not severe and will result in less delays and queuing across the network as a whole.

13.1.3. It is also noted that at the Mansell Way/De Havilland Way junction the mitigation measures do not return the impact back to the reference case.

13.1.4. However, the operation is only marginally above the desired capacity threshold and is within unity. Furthermore, the assessments have been undertaken using the 2040 high scenario flows and therefore provide a robust assessment of the highway network.

De Havilland Way/Chorley Road

13.1.5. The mitigation measures combined with the GMSF developments result in an improved operation in both the AM and PM peak hours. The junction is now predicted to operate within unity in both peak hour periods - an improvement against both the 2040 base and the existing operation. This junction causes queuing back onto J6 of the M61 resulting in both junctions operating above capacity in the existing and reference case scenarios with excess queuing in the peak hours. The mitigation measures proposed resolve an existing issue on the highway network.

13.1.6. It should be noted, this junction has been modelled using TRANSYT and has used the inbuilt JUNCTIONS extension and has modelled all relevant approaches as priority junctions but allows the impact of the signals to be assessed alongside the priority intersections. It also allows exit blocking to be assessed through CTM.

Hall Lane / Bolton Road

13.1.7. The mitigation measures combined with the GMSF developments result in an improved operation in both the AM and PM peak hours with the junction now operating within unity.

14. Impact and mitigation on Strategic Road Network (Where applicable)

Overview

14.1.1. This chapter covers those impacts where traffic generated by the GMSF allocations meets the Strategic Road Network (SRN). Junctions at the interface between the Local Road Network (LRN) and the Strategic Road Network (SRN) have been assessed using a similar approach to that described in the preceding chapters.

14.1.2. SYSTRA is currently consulting with Highways England on behalf of TfGM and the Combined Authority in relation to the wider impacts of the GMSF allocations on the Strategic Road Network (SRN). This consultation is ongoing and it is expected that it will allow Highways England to gain a strategic understanding of where there is an interaction between network stress points and GMSF allocation demand which will facilitate further discussion and transfer of information between TfGM and Highways England (yet to be defined) in reaching agreement and/or common ground relating to the acceptability of GMSF allocations in advance of Examination in Public (EiP).

Impact of the Allocation before Mitigation on the Strategic Road Network

14.1.3. A comparison of the future traffic flows at junction 5 and 6 is shown in Table 18, alongside the predicted development flows.

Table 18. SRN Future Traffic Flows: West of Wingates

Junction	2040 Reference Case AM	2040 Reference Case PM	2040 GMSF High AM	2040 GMSF High PM	Allocation Flows AM	Allocation Flows PM
M61 Junction 5	5208	5673	6002	5610	133	101
M61 Junction 6	7298	8037	8862	9137	1881	986

14.1.4. Table 19 provides a comparison between the operation of the junctions in the 2040 reference case and the 2040 'high side' scenarios. The table shows a comparison between the ratio of flow to capacity on the worst case arm at each junction.

14.1.5. At junction 6 the proposed improvements as detailed in section 10 and associated with the new link road have been included in the 2040 GMSF High modelling.

Table 19. Results of SRN Capacity Analysis: West of Wingates

Junction	2040 Reference Case AM	2040 Reference Case PM	2040 GMSF High AM	2040 GMSF High PM
M61 Junction 5	0.99	0.97	1.17	1.07
M61 Junction 6	97%	142%	90%	99%

14.1.6. To assess the merge/diverge provision reference has been made to the Design Manual for Roads and Bridges (DMRB) CD122 and more specifically Figures 3.12b and 3.26.

14.1.7. It should be noted that the mainline flows have been growthed to 2022 the predicted year of opening, this is so the assessment accords with DfT circular 02/2013 paragraph 27 which states:

14.1.8. “Where the overall forecast demand at the time of opening of the development can be accommodated by the existing infrastructure, further capacity mitigation will not be sought.”

14.1.9. Therefore, the mainline flows used in all assessments summarised in the table below are 2022 flows. The flows entering and exiting the motorway have been increased based on the Systra “high” turning counts for 2025 and 2040.

14.1.10. In order to calculate the merge/diverge requirements it is necessary to establish the mainline design flow and the flow that it is either joining or leaving the motorway at the slip road. The mainline flow to be used for the calculation is:

- Upstream of the slip road for merges; and
- Downstream of the slip road for diverges.

M61 Junction 6

14.1.11. The flow information for the location in the centre of the junction was available from Highways England’s Webtris website for 10th May 2018, which has then been growthed to 2022.

14.1.12. Table 20 below shows the Junction 6 Mainline Flows Internal to Junction (no development flows will be present at this position).

Table 20. Results of SRN Capacity Analysis Before Mitigation: West of Wingates

AM	2022	PM	2022
Southbound	2371	S/B	2683
Northbound	2695	N/B	2789

14.1.13. The mainline flow has then been added to the appropriate assessment graph along with either the merging or diverging flow.

14.1.14. The existing provision at the merges and diverges of this junction are all the parallel variety or “Type B” as described in TD CD122 with the exception of the southbound off slip which is a taper “Type A” diverge.

14.1.15. Table 21 shows the existing provision at the junction in comparison with provision that CD122 suggests should be in place in the future count, base and design scenarios.

Table 21. M61 Junction 6, Merge Diverge Assessment: West of Wingates

	Existing Provision	2025 AM Reference	2025 AM GMSF High	2025 PM Reference	2025 PM GMSF High	2040 AM Reference	2040 AM GMSF High	2040 PM Reference	2040 PM GMSF High
N/B Merge	B	A	A	B	B	A	B	D	B
N/B Diverge	B	D	D	D	E	D	E	E	E
S/B Merge	B	E	E	E	E	E	E	E	E
S/B Diverge	A	A	A	C	C	C	D	C	C

14.1.16. Comments on the summary table shown above are as follows:

Northbound Merge

14.1.17. The existing provision is a Type B Merge. This is the requirement in all flow scenarios based on the flows provided.

Northbound Diverge

14.1.18. The existing diverge provision is Type B. It can be seen that in the PM reference case that the required diverge is a Type E. This leads to the conclusion that it is not the West of Wingates allocation or the wider GMSF allocations that necessitate the need for an upgrade of the diverge provision but the existing traffic and background traffic growth.

Southbound Merge

14.1.19. The existing merge provision is a Type B. It can be seen from the table above that CD122 suggests that a Type E merge is required. This leads to the conclusion that it is not the West of Wingates allocation or the wider GMSF allocations that necessitate the need for an upgrade of the merge provision but the existing traffic and background traffic growth.

Southbound Diverge

14.1.20. The existing diverge provision is a Type A. The only change in flow scenarios where the addition of the West of Wingates allocation traffic plus the wider GMSF allocations suggests an upgrade is required is 2040 AM where the reference case suggests a Type C and the High scenario suggesting Type D.

14.1.21. It should be noted that the addition of the GMSF traffic results in Type D only just being required. The merge flow is predicted by Systra to be 1,412 with the threshold being 1,350. According to CD 122 a Type D diverge with the same mainline flow can accommodate up to 3,000 diverging flows in the peak hour. Furthermore, the Type D provision that CD 122 is suggesting is required is a 3 to 2 lane, lane drop arrangement.

14.1.22. It is therefore considered that the existing provision does not meet the requirements set out in CD 122 and that when tested at the application stage that the impact of the allocation at this junction would not be severe.

14.1.23. It should also be noted that:

- We are modelling a traffic flow scenario where the 2040 reference case flows are unconstrained i.e. not allowing for the fact that travel habits are changing and the fact that constrained networks will result in peak spreading;
- The difference in diverge flows in the AM peak between the reference and high scenarios is just 152 which would barely be noticeable between day to day fluctuations.

14.1.24. Therefore, mitigation costs at this diverge should not be considered as part of the allocation justification.

M61 Junction 5

14.1.25. The flow information for the location in the centre of the junction was available from Highways England’s Webtris website for 10th May 2018, which has then been growthed to 2022.

14.1.26. Table 22 shows the Junction 5 Mainline Flows Internal to Junction (no development flows will be present at this position).

Table 22. M61 Junction 5, Mainline Flows: West of Wingates

AM 2022	Mainline Flows	PM 2022	Mainline Flows
E/B	2852	E/B	3338
W/B	3425	W/B	3936

14.1.27. The mainline flow has then been added to the appropriate assessment graph along with either the merging or diverging flow.

14.1.28. The existing provision at the merges and diverges of this junction are all the parallel variety or “Type B” as described in CD122 with the exception of the southbound off slip which is a taper “Type A” diverge.

14.1.29. Table 23 shows the existing provision at the junction in comparison with provision that CD122 suggests should be in place in the future count, base and design scenarios.

Table 23. M61 Junction 5, Merge Diverge Assessment: West of Wingates

	Existing Provision	2025 AM Reference	2025 AM GMSF High	2025 PM Reference	2025 PM GMSF High	2040 AM Reference	2040 AM GMSF High	2040 PM Reference	2040 PM GMSF High
E/B Merge	A	D	E	D	D	E	E	D	E
E/B Diverge	A	A	A	C	C	A	C	C	C
W/B Merge	A	D	D	B	B	D	D	B	B
W/B Diverge	A	C	C	A	A	C	D	B	A

14.1.30. It can be seen from the table above that there are two instances where the addition of development traffic leads to a change in the suggested provision.

14.1.31. At the eastbound merge it is suggested that a lane gain with island from 2 to 3 lanes is provided. However, because three through lanes are provided and the mainline flow can comfortably be accommodated in the middle and offside lane it is concluded that the existing provision is appropriate. It is also noted that the existing provision does not meet the benchmarks set out in DMRB CD122.

14.1.32. At the westbound diverge the addition of development flows suggests a change from Type C (lane drop) to Type D (Aux lane drop or ghost drop). The through flow can comfortably be accommodated in two lanes and so the ahead flow does not need to be mixed with the diverging traffic. It should also be noted that the existing provision does not meet the suggestions in DMRB and a final point is that the flows only just take the suggested requirement to D.

14.1.33. It is therefore concluded that the proposed allocation does not necessitate a change in the merge/diverge provision at Junction 5 of M61. No mitigation is proposed.

Transport Interventions tested on the Strategic Road Network

14.1.34. The modelling at J6 of the M61 with the proposed interventions proposed as part of the West of Wingates Allocation, results in the junctions operating within unity and at an improved operation in comparison with the 2040 reference scenario. As is shown in Table 19, J5 of the M61 is predicted to operate above unity in the 2040 GMSF High Scenario and as such the following mitigation measures are proposed:

M61 Junction 5

14.1.35. The M61 Junction 5 currently operates above capacity in the GMSF High scenario, to mitigate this the following improvements are proposed:

- Widening of the A58 Syndale Way to 12m to accommodate a 3rd approach lane.
- Widening of the circulatory carriageway on the south western and north eastern sections to allow 3 lane approaches on the A58; and
- Widening of the A58 Wigan Road to 12m to accommodate a 3rd approach lane.

Impact of Interventions tested on the Strategic Road Network

14.1.36. A summary of the highway capacity following mitigation is provided in Table 23 and is compared against the 2040 reference case scenario.

Table 24. Results of Junction Capacity Analysis on SRN After Mitigation: West of Wingates

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
9. M61 Junction 5	0.99	0.97	0.87	0.90	133	101

14.1.37. Table 24 shows the operation of the highway network improves with the introduction of the mitigation measures proposed by the GMSF and the development proposals with J5 operating within the desired capacity within the 2040 GMSF High Scenario.

14.1.38. As shown in Table 24, the impact of the allocation at this junction is relatively minor (133 and 101) and the main causal factor is associated with the redistribution effect of traffic at the junction associated with the whole GMSF as demonstrated by the fact the total number of flows reduces in the 2040 High scenario against the 2040 Reference scenario in the PM peak but the worst case arm (A58 Snydale Way) worsens due to an increase in flows on this approach. In order to assess the impact from the allocation on the worsening operation of the junction an assessment of the increase in flows on the A58 Snydale Way is shown in Table 25.

Table 25. Impact of West of Wingates on Snydale Way approach: West of Wingates

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
Snydale Way	1934	1842	2271	2688	13	73

14.1.39. Table 25 shows that the increase in flows on Snydale Way in the GMSF High scenario is 337 (13 allocation flows) in the AM and 846 (73 allocation flows) in the PM peak. The allocation impact on this approach to the junction is 7.3% of the additional traffic when combining the peaks. The allocation would therefore be applicable to providing this proportion of the costs for this improvement.

15. Final list of interventions

15.1.1. The table below sets out the full list of interventions that are expected would be required to mitigate the impact of the allocation.

15.1.2. It should be noted that the traffic flows that have been modelled on the highway network are the “High” flows which are unconstrained i.e. there is not allowance for any influences restricted traffic growth as would be the case in actuality. As an example traffic growth has been applied to 2040 based on historic patterns in traffic growth, there is no allowance for the change in car ownership aspirations of the young, no allowance for the change in attitudes to the car brought about by the climate emergency, no allowance for the huge investment in cycle infrastructure in the Greater Manchester area.

15.1.3. Therefore, the interventions set out below are considered to be the worst case and should be subject to on-going review. It should also be noted that the GMSF covers a plan period to 2037

and therefore the impacts, interventions and costs should also be confirmed through the planning process which is a much more detailed assessment.

15.1.4. Further detail of the mitigation measures is provided in Section 12.

15.1.5. All mitigation discussed within this report relates to impacts associated with the currently drafted allocation boundary with the inclusion of the Link Road.

Table 26. Mitigation Assessment: West of Wingates

Mitigation	Description
Allocation Access	
Wimberry Hill/ Chorley Road and Spine Road	Increased flaring and signal timing changes at existing signalised junction and provision of off carriageway cycle facilities.
Implementation of Travel Plan	
Necessary Strategic interventions	
Public Transport Contribution	Establish a Local Link service or potentially increase bus service frequencies in area
Supporting Strategic Interventions	
Any measures (highway connections and/or east-west public transport) delivered by policy GM Strat 8	Potentially delivered by Bolton and Wigan Councils
Necessary Local Mitigations	
Blackrod Road/Manchester Road	Amendment to signals timings at signal controlled junction

Mitigation	Description
A6 De Havilland Way / A6 Chorley Road,	Signalisation and provision of fourth arm on roundabout to provide link road connection with associated widening of the circulatory and signalisation at J6 of the M61. Provision of pedestrian/cycle crossing points
Link Road and Dicconson Lane Roundabout	Provision of new link road and connection to Dicconson Lane via a new roundabout
Hall Lane/Bolton Road	Increased entry widths and flaring at approach to mini roundabout
M61 Junction 6*	See above comments associated with the works at the A6 De Havilland Way/A6 Chorley Road junction
Mansell Way, De Havilland Way	Amended Signal Timings
Contribution towards cycle and pedestrian enhancement away from the Allocation.	
Supporting Local Mitigations	
N/A	
SRN Interventions	
M61 Junction 5	Contribution towards widening scheme at Snydale Road approach

16. Strategic Context – GM Transport Strategy Interventions

- 16.1.1. The GMCA 2040 Transport Strategy Delivery Plan sets out a comprehensive programme of work across all modes and in all Districts, which are focused on ensuring the realisation of the 'Right Mix' vision. Many of these interventions support the GMSF Allocations directly, whilst others are intended to provide alternatives to private car travel more generally. The schemes demonstrate a clear plan for delivering strategic transport interventions for the first five years of the GMSF plan period, whilst also laying the foundations for longer term investment in sustainable transport across the length of the plan period.
- 16.1.2. Greater Manchester also has ambitious plans to develop the Bee Network - the UK's largest cycling and walking network as a key element to delivering on the "Right Mix" vision, and the Combined Authority has allocated £160m between 2018-2022 to fund the first phase of the Bee Network. The network has at its core a programme of new and upgraded pedestrian and cycling crossing points of major roads and other sources of severance, connected by a network of signed cycling and walking routes – known as Beeways – on existing quiet streets. These will be complemented by a number of routes on busier roads where Dutch style cycle lanes protected from motor traffic will be constructed.
- 16.1.3. Bolton Council is working with the Bolton Active Travel Forum to progress the Bee Network routes across the Bolton area and has recently secured funding via Tranche 6 for the Westhoughton Bee Network to the south-east of the West of Wingates allocation.
- 16.1.4. The Council will continue to work with TfGM and Harworth to promote a local link bus service with the long term intension to become commercially viable. The Council will also work with and support private bus operators choosing to service the West of Wingates allocation ensuring economically deprived areas of the borough are connected to employment opportunities.
- 16.1.5. Longer term the Council will work with TfGM on implementing Quality Bus Transit (QBT) on key bus corridors. QBT is typified by improvements to frequency and quality of the bus service as well as localised public realm enhancements. The Wigan – Bolton corridor route is a candidate for improvement.
- 16.1.6. Network Rail has developed proposals, currently awaiting DfT approval, for the electrification of the line from Bolton via the Lostock spur to Wigan, which could result in increased capacity and

reduced journey times. In addition, TfGM is considering longer term options for potential new rail stations including Dobb Brow on the Wigan – Atherton – Manchester line alongside options for converting this line to metro/tram-train services which would see increases in frequency and improved linkages the Regional Centre.

17. Phasing Plan

Table 27. Allocation Phasing: West of Wingates*

Allocation Phasing	2020 2025	2025 2030	2030 2037*	2038+	Total
Parcel 1	30%	30%-80%	80%-100%		100%
Parcel 2					
Total	30%	30%-80%	80%-100%		100%

*Build out based on rates achieved at Logistics North i.e. 10 year delivery programme. All phasing plans information contained in this Locality Assessment is indicative only and has only been used to understand the likely intervention delivery timetable. Final trajectory information is contained in the GMSF Allocation Topic Paper.

Table 28. Indicative intervention delivery timetable: West of Wingates

Mitigation	2020	2025	2030	2038+
	2025	2030	2037*	
Allocation Access				
Wimberry Hill/ Chorley Road and Spine Road	✓			
Implementation of Travel Plan	✓			
Necessary Strategic interventions				
Public Transport Contribution	✓			
Supporting Strategic Interventions				
Any measures (highway connections and/or east-west public transport) delivered by policy GM Strat 8		✓	✓	
Necessary Local Mitigations				
Blackrod Road/Manchester Road	✓			
A6 De Havilland Way / A6 Chorley Road,	✓			
Link Road and Dicconson Lane Roundabout	✓			
Hall Lane/Bolton Road.	✓			
M61 Junction 6	✓			
Mansell Way, De Havilland Way	✓			

Mitigation	2020	2025	2030	2038+
	2025	2030	2037*	
Contribution towards cycle and pedestrian enhancement away from the Allocation.	✓			
SRN Interventions				
M61 Junction 5	✓			

17.1.1. All highway capacity mitigation measures highlighted above are expected to be required at the year of opening.

17.1.2. This is based on the robust “High” traffic flow scenario and the assumption that the existing highway network will not be amended prior to first occupation.

17.1.3. The infrastructure improvements will be required due to the existing highway network operating in excess of desired capacity indicators.

17.1.4. It should be recognised that the contribution towards the mitigation would be determined at the time of a planning application.

17.1.5. It must also be noted that the mitigation set out in this document accommodates traffic generated by the wider GMSF and also background traffic growth. Therefore, the actual contribution proportionate to the overall number of trips on the highway network must be calculated. Please refer to Table 10 above.

18. Summary & Conclusion

18.1.1. Mitigation schemes were developed and tested to address the network congestion impacts at both the strategic and local road networks and also identify appropriate sustainable solutions. These schemes have only been developed in outline detail to inform viability and allocations policy.

18.1.2. Further detailed work will be necessary to identify the specific interventions required to ensure the network works effectively based on transport network conditions at the time of the planning application. All final design solutions should be consistent with Greater Manchester's best practice Streets for All highway design principles.

18.1.3. In summary, this assessment gives an initial indication that the allocation is deliverable, however, significant further work will be needed to verify and refine these findings, particularly in relation to connections to the SRN, as the allocation moves through the planning process. The allocation will also need to be supported by continuing wider transport investment across GM.

18.1.4. The allocation of West of Wingates (GM6) is adjacent to the existing Wimberry Hill Road /Great Bank Road Industrial Park and will effectively extend the existing employment uses to the west. The latest proposals include providing a link road between the Allocation (including the existing industrial park) and the A6027 De Havilland Way /A6 Chorley Road roundabout. This link will also connect with Dicconson Lane and the Wimberry Hill Road/A6 Manchester Road signalised junction will become a secondary access into the allocation.

18.1.5. The proposed land use matches the existing industrial park. Consultation responses in terms of transportation focused on the addition of traffic, in particular HGVs onto the local network, contributing to congestion and the requirement for accessible, sustainable transport options for the allocation. These comments have been reviewed and integrated into the proposals demonstrated in this assessment.

18.1.6. The proposed allocation will provide some 440,000sqm of employment use and as such leads to additional traffic on the highway network. Through discussions with the local highway authorities and TfGM suitable mitigation measures have been agreed in order to alleviate against the allocation impact and the existing congestion on the highway network.

18.1.7. The key highway infrastructure proposed to mitigate against the impact of the allocation is set out below:

- Link Road connecting the existing industrial park and the allocation directly onto the A6027 De Havilland Way/A6 Chorley Road roundabout via the B5239 Dicconson Lane;
- Signalisation and widening of the A6027 De Havilland Way/A6 Chorley Road roundabout including controlled crossing facilities for pedestrians and cyclists.;

- Signalisation and widening of J6 of the M61;
- Contribution to the widening of the approaches to J5 of M61; and
- Widening of the approaches on the Hall Lane/ B5239 Bolton Road mini-roundabout.

18.1.8. The link road and associated proposals set out above will assist in reducing the existing congestion on the A6 corridor through improving existing pinch points on the network, whilst also providing additional space for other road users including pedestrians and cyclists and assisting to reduce the severance effect of the A6 between De Havilland Way and Chequerbent Roundabout. It will also serve to improve the air quality along this corridor.

18.1.9. When the mitigation measures are taken into account alongside the development trips, the impact on the network is considered to be negligible as the trips can be accommodated onto the highway network.

18.1.10. Based on the information contained within this report, it is concluded that the traffic impacts of the allocation can be accommodated. Whilst the modelling work does indicate that junctions may experience capacity issues, they are not significantly worse than those experienced in the 2040 reference case and in some cases provide betterment.

18.1.11. At this stage, the modelling work is considered an 'absolute worst case' scenario as it does not take full account of the extensive opportunities for active travel and public transport improvements in the local area. On this basis, it is considered that the allocation is deliverable from a transport perspective.

18.1.12. Further detailed work will be necessary to identify the specific interventions required to ensure the network works effectively based on transport network conditions at the time of the planning application. All final design solutions should be consistent with Greater Manchester's best practice Streets for All highway design principles.

18.1.13. It is concluded that there are no highways or transportation reasons that should prevent the allocation from being included in the Greater Manchester Spatial Framework.

Appendix 1 – Technical Note Without Link Road

Highways Implications of the Allocation without Link Road

This Technical Note should be read in conjunction with the West of Wingates Locality Assessment. It has been prepared to establish the impact of the Allocation from a highway's perspective without the inclusion of a Link Road.

Distribution

Table 1 summarises the distribution of the allocation traffic as provided by Systra.

Table 1. Allocation Traffic Distribution, 2040 GMSF High-Side (Origin/Destination Combined): West of Wingates

Route	AM Peak Hour	PM Peak Hour
B5239 Bolton Road (West)	18%	18%
A6 Manchester Road (North)	2%	3%
M61 (North)	10%	9%
A6027 De Havilland Way	10%	9%
Lostock Lane	3%	6%
M61 (South)	49%	40%
A61 Chorley Road	8%	16%

Table 2 shows the development trips assigned to the network based on the quickest route.

Table 2. Allocation Traffic assignment for 2040 GMSF High-Side: West of Wingates

Route	AM Peak Hour	PM Peak Hour
1. Blackrod Road, Manchester Road	85	49
2. De Havilland Way, Chorley Road	755	384
3. Chorley Road, Dicconson Lane	1215	612
4. Lostock Lane, Chorley Road	1290	681

Route	AM Peak Hour	PM Peak Hour
5. Wimberry Hill Road, A6	2710	1625
6. Church Street, Manchester Road	1302	854
7. Manchester Road, Bolton Road	1142	703
8. Chequerbent Roundabout	983	604
9. M61 Junction 5	821	478
10. M61 Junction 6	726	380
11. Burden Way, De Haviland Way Roundabout	125	60
12. Mansell Way, De Haviland Way	234	158
13. Beehive Roundabout	166	105
14. Chorley New Road, Victoria Road	195	118
15. Wigan Road, Beaumont Road	106	99
16. The Fairway, A58	34	64
17. Hall Lane, Bolton Road	460	227
18. Leigh Road, A58	90	70
19. Beaumont Road, Glengarth Road	55	46
20. Mill Street, A58	62	59

Impact of the Allocation of the Local Road Network

Table 3 summarises the modelling outputs on the Local Road Network before mitigation measures have been implemented.

Table 3. Results of Local Junction Capacity Analysis Before Mitigation: West of Wingates

Junction	2040 Reference Case AM	2040 Reference Case PM	2040 GMSF High AM	2040 GMSF High PM	Allocation Flows AM	Allocation Flows PM
1. Blackrod Road, Manchester Road	95.7%	102.0%	102.1%	101.3%	85	49
2. De Havilland Way, Chorley Road	139%	126%	94%	143%	755	384
3. Chorley Road, Dicconson Lane	72.7%	97.5%	106.4%	96.5%	1215	612
4. Lostock Lane, Chorley Road	0.59	0.48	1.02	0.61	1290	681
5. Wimberry Hill Road, A6*	37.3%	67.7%	176.6%	127.6%	2710	1625
6. Church Street, Manchester Road	72.3%	94.5%	91.7%	100.5%	1302	854
7. Manchester Road, Bolton Road	76.5%	102.1%	100.8%	125.7%	1142	703

8. Chequerbent Roundabout	0.85	0.83	0.99	0.90	983	604
11. Burden Way, De Haviland Way Roundabout	0.86	0.80	0.85	0.80	125	60
12. Mansell Way, De Haviland Way	88.9%	83.0%	90.7%	92.2%	234	158
13. Beehive Roundabout	0.60	0.71	0.63	0.74	166	105
14. Chorley New Road, Victoria Road	85.7%	82.7%	85.4%	85.1%	195	118
15. Wigan Road, Beaumont Road	79.4%	89.4%	80.2%	87.3%	106	99
16. The Fairway, A58	38.1%	50.4%	34.3%	45.0%	34	64
17. Hall Lane, Bolton Road	1.24%	1.03%	1.32%	1.19%	460	227
18. Leigh Road, A58	67.4%	67.7%	67.1%	66.3%	90	70
19. Beaumont Road, Glengarth Road	52.9%	44.1%	49.0%	38.9%	55	46
20. Mill Street, A58	32.1%	46.6%	22.6%	43.9%	62	59

(* includes current proposed improvements as shown in the Locality Assessment, and the amended traffic flows).

Table 4 summarises the anticipated mitigation measures.

Table 4. Approach to Mitigation on LRN: West of Wingates

Junction	Mitigation Approach
1. Blackrod Road, Manchester Road	Extension of signalling cycle time.
2. De Havilland Way, Chorley Road	Signalisation of the A6027 De Havilland Way approach, Signalisation of the A6 Chorley Road (east) approach and increased flaring and widening on approach and widening of the eastbound circulatory from 1 to 2 lanes. Extension of the A6 Chorley Road (west) exit lanes.
3. Chorley Road, Dicconson Lane	Widening of B5239 Dicconson Lane approach and A6 Chorley Road Northwest approach lanes.
4. Lostock Lane, Chorley Road	Widening of Lostock Lane approach to create 2 lanes.
5. Wimberry Hill Road, A6	Addition of a third lane on Wimberry Hill Road approach and Chorley Road North West approach. Addition of a second exit lane on Wimberry Hill Road and Chorley Road South East, and the reduction to one exit lane on Chorley Road North West exit.
6. Church Street, Manchester Road	Provision of additional pedestrian islands which allows the pedestrian phases to run concurrently with vehicular stages.
7. Manchester Road, Bolton Road	Provision of additional pedestrian islands which allows the pedestrian phases to run concurrently with vehicular stages and widening of the B5235 Bolton Road (south) and A6 Manchester Road (west) approaches.
17. Hall Lane, Bolton Road	Widening of Hall Lane and the B5239 Bolton Road East approach roads.

A summary of the highway capacity following the above mitigation measures is provided in Table 5.

Table 5. Results of Local Junction Capacity Analysis After Mitigation: West of Wingates

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
1. Blackrod Road, Manchester Road	95.7%	102.0%	92.5%	92.5%	85	49
2. De Havilland Way, Chorley Road	139%	126%	97%	98%	755	384
3. Chorley Road, Dicconson Lane	72.7%	97.5%	99.0%	94.4%	1215	612
4. Lostock Lane, Chorley Road	0.59	0.48	0.91	0.65	1290	681
5. Wimberry Hill Road, A6	37.3%	67.7%	93.3%	79.8%	2710	1625
6. Church Street, Manchester Road	72.3%	94.5%	96.2%	99.3%	1302	854
7. Manchester Road, Bolton Road	76.5%	102.1%	88.4%	99.3%	1142	703
17. Hall Lane, Bolton Road	1.24	1.03	0.86	0.85	460	227

Impact of the Allocation on the Strategic Road Network

Table 6 provides a summary of the Strategic Road Network before mitigation measures.

Table 6. Results of SRN Capacity Analysis Before Mitigation: West of Wingates

Junction	2040 Reference Case AM	2040 Reference Case PM	2040 GMSF High AM	2040 GMSF High PM	Allocation Flows AM	Allocation Flows PM
M61 Junction 5	0.99	0.97	1.17	1.07	133	101
M61 Junction 6	97%	142%	111%	131%	1881	986

Table 7 shows the M61 Junction 6 Mainline Flows Internal to Junction (no development flows will be present at this position), and Table 8 shows a summary of the Merge Diverge Assessment.

Table 7. M61 J6, Mainline Flows: West of Wingates

AM	2022	PM	2022
Southbound	2371	S/B	2683
Northbound	2695	N/B	2789

Table 8. M61 Junction 6, Merge Diverge Assessment: West of Wingates

	Existing Provision	2025 AM Reference	2025 AM GMSF High	2025 PM Reference	2025 PM GMSF High	2040 AM Reference	2040 AM GMSF High	2040 PM Reference	2040 PM GMSF High
N/B Merge	B	A	A	B	B	B	B	D	D
N/B Diverge	B	D	D	D	D	E	E	E	E
S/B Merge	B	E	E	E	E	E	E	E	E
S/B Diverge	A	A	A	A	A	A/C	A/C	C	C

It can be seen from the table above that there are no instances where the addition of the allocation traffic increases the merge/diverge provision requirement, as such no Mitigation is proposed.

Table 9 shows the M61 Junction 6 Mainline Flows Internal to Junction (no development flows will be present at this position), and Table 10 shows a summary of the Merge Diverge Assessment.

Table 9. M61 Junction 5, Mainline Flows: West of Wingates

AM 2022	Mainline Flows	PM 2022	Mainline Flows
E/B	2852	E/B	3338
W/B	3425	W/B	3936

Table 10. M61 Junction 6, Merge Diverge Assessment: West of Wingates

	Existing Provision	2025 AM Ref Case	2025 AM GMSF High	2025 PM Ref Case	2025 PM GMSF High	2040 AM Ref Case	2040 AM GMSF High	2040 PM Ref Case	2040 PM GMSF High
E/B Merge	A	D	E	D	D	E	E	D	D
E/B Diverge	A	A	A	C	C	C	C	C	C
W/B Merge	A	D	D	B	B	D	D	B	B
W/B Diverge	A	C	C	A	A	C	D	B	B

Table 11 shows the anticipated mitigation measures for the Strategic Road Network.

Table 11. Approach to Mitigation on SRN: West of Wingates

Junction	Mitigation Approach
9. M61 Junction 5	<p>Widening of the A58 Syndale Way and A58 Wigan Road Approach.</p> <p>Widening of the circulatory carriageway on the south western and north western sections.</p>
10. M61 Junction 6	<p>The improvement of the A6 / De Havilland Way Junction (as mentioned above) to operate within Unity reduces the queueing back and allows J6 of the M61 to operate within capacity in the GMSF High scenario</p>

A summary of the highway capacity following mitigation is provided in Table 12.

Table 12. Results of Junction Capacity Analysis on SRN After Mitigation: West of Wingates

Junction	Reference Case AM	Reference Case PM	GMSF High AM	GMSF High PM	Allocation Flows AM	Allocation Flows PM
9. M61 Junction 5	0.99	0.97	0.80	0.73	821	478
10. M61 Junction 6	97%	142%	88%	96%	726	380