

Infinity Garden Village (Wragley Way)

ENVIRONMENTAL STATEMENT

Volume 3

Appendices and Figures to the Main Technical Studies

June 2019



**Hallam Land
Management**

INFINITY GARDEN VILLAGE, WRAGLEY WAY, DERBY

Framework Travel Plan

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1 INTRODUCTION

- 1.1 This Framework Residential Travel Plan has been prepared by RPS Transport on behalf of Hallam Land Management (HLM) Ltd. to support their outline planning application for the proposed Infinity Garden Village development on Land south of Wragley Way and west of Stenson Road, Derby which forms part of the South Derby Growth Zone.
- 1.2 The proposed development will include up to 1,850 dwellings a 2 form entry Primary School, Local Centre, drive through restaurant, Public House, Petrol Filling Station and employment as well as providing part of the South Derby Integrated Transport Link (SDITL). The site is identified as Housing Policy site ref 15 within South Derbyshire Local Plan.
- 1.3 A site location plan is provided in **Appendix A**, illustrating the sites location and local transport network.
- 1.4 The implementation of measures set out within this Framework Travel Plan and the targets within it will assist in minimising the number of vehicle trips generated by the site.
- 1.5 This Framework Travel Plan sets out the objectives and suggests a package of measures to promote and provide for the use of sustainable modes of travel. A strategy for implementation, target setting and monitoring is also covered. The Travel Plan is divided into nine further sections:

Section 2: Policy – specific focus on identifying relevant transport targets;

Section 3: South Derby Growth Zone – Identifying the extent of the strategic development area and South Derby Integrated Transport Link;

Section 4: Context / Site Assessment – site accessibility appraisal by all modes of transport;

Section 5: Travel Survey / Trip Generation – calculation of the anticipated modal split and trip generation at the proposed development;

Section 6: Objectives – objectives of the Travel Plan;

Section 7: Targets – anticipated modal split based on the site assessment and travel survey behaviour;

Section 8: Package of Measures – ‘hard’ and ‘soft’ measures to achieve the targets;

Section 9: Travel Plan Management – details of Travel Plan Co-ordinator (TPC) and identification of other partners; and

Section 10: Monitoring and Action Plan – post-occupational practice to promote sustainable travel and programme for delivering the measures.

2 POLICY

Introduction

- 2.1 This section of the report evaluates the development proposal against the appropriate national, regional and local transport policies.

National Policy

National Planning Policy Framework (NPPF)

- 2.2 National policy in relation to the transport planning of developments is set out in the National Planning Policy Framework (NPPF) (February 2019). Section 9 'Providing Sustainable Transport – considering development proposals' states the following:
- 2.3 Paragraph 108 states that:
- “In assessing site that may be allocated for development in plans, or specific applications for development, it should be ensures that:*
- a) Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
 - b) Safe and suitable access to the site can be achieved for all users; and*
 - c) 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.”*
- 2.4 Paragraph 109 states that:
- “Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety or residual cumulative impacts on the road network would be severe.”*
- 2.5 Paragraph 111states that:
- “All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement of transport assessment so that the likely impacts of the proposal can be assessed.”*
- 2.6 With regard to parking, Paragraph 105 of the NPPF states that:
- “If setting local parking standards for residential and non-residential development, policies should take into account:*
- a. The accessibility of the development;*
 - b. The type, mix and use of the development;*
 - c. The availability of and opportunities for Public Transport;*
 - d. Low car ownership levels; and*

- e. *the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.”*

2.7 Paragraph 106 states that:

“Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport (in accordance with Chapter 11 of this Framework). In town centres, local authorities should seek to improve the quality of parking so that it is convenient, safe and secure, alongside measures to promote accessibility for pedestrians and cyclists.”

Local Planning Policy

2.8 As stated earlier in this report, the site sits within South Derbyshire District, however adjoins Derby City. Below are the relevant planning policies for both Derby City Local Plan and South Derbyshire District Council.

Derby City Local Plan

- o The Derby City Local Plan – Part 1 Core Strategy was adopted by the Council on Wednesday 25th January 2017. It is the key planning document for the City setting out a long term strategy for the spatial development of Derby to 2028.
- o In respect of Transport, the Local Plan states;

CP23 – Delivering a Sustainable Transport Network;

A) The council will support proposals that;
Promote greater travel choice and equality of opportunity for all through the delivery and promotion of high quality and accessible walking, cycling and public transport networks, which maintaining appropriate access for car users and the movements of goods.
Include initiatives to manage down traffic impacts, promote sustainable transport and the development of accessible sites
Contribute to better safety, security and health for all by improving road and rail safety, improving security on transport networks and promoting active travel.
Contribute to tackling climate change by developing low-carbon travel and lifestyle choices, including the provision of infrastructure to support the use of low carbon vehicles, active travel and reducing the need to travel through the provision of improved IT infrastructure.
Support growth and economic competitiveness by delivering reliable and efficient transport networks that will enhance connectivity to, from and within the City.
Ensure that investment in transport contributes to the enhancement of the urban and natural environment.

B) actively manage the pattern of development to ensure that new development:

Is located in accessible locations that are well served by frequent high quality bus service and which help to facilitate walking and cycling.

Connects residents to jobs, shopping, leisure, open space, health and educational opportunities

Implements, and/ or contributes to, appropriate on-site and offsite measures to mitigate the impact of development

Contributes to improving public transport cycle and pedestrian infrastructure and public transport services.

Includes proportionate Transport Assessments and Travel Plans for all major applications and any proposal where transport issues are likely. Developers will be expected to agree appropriate transport modelling for use in their evidence with the Council.

Is not permitted where it would cause, or exacerbate, severe transport problems, including unacceptable impacts on congestion, road or rail safety, the rail network, access and air quality – including any cumulative impacts on Air Quality Management Areas (AQMA).

Is not permitted where it would sever or prejudice the re-use of the routes of former railway lines and canals which have the potential to function as a pedestrian footpath, cycleway or bridleway or where the need has been identified for a new public transport facility, freight connection or extension to an existing network has been identified or possible introduction in the future.

Is not permitted where it would sever Public Rights of Way or prejudice access to these routes, unless an alternative route or routes can be secured which are of equal or better quality.

Provides appropriate levels of parking for cars, motor cycles and bicycles, having regard to the standards set out in Appendix C. In highly accessible locations, a lower level of parking will be encouraged. In all cases, the individual circumstances of each proposal will be taken into account, including the realistic requirements of the user(s), the accessibility of the area by different transport modes and the possible impact of the parking on the transport network.

Policy CP24 - Transport Infrastructure

Initiatives will include;

- a) Supporting the implementation of Highways England's A38 Derby Junctions Grade Separation Scheme;***
- b) Implementation of 'T12' and the 'South Derby Integrated Transport Link' Phases 1 and 2***

- c) *Implementation of improvements to the A52 between Raynesway and Pentagon island, including improved access to Park & Ride*
- d) *Implementation of improvements at the A50 junctions with the A514 and A38*
- e) *Supporting the implementation of the Boulton Moor Park and Ride site in South Derbyshire*
- f) *Implementation of the Park & Ride at Royal Derby Hospital*
- g) *Implementation of the Statement of Actions in the Rights of Way Improvement Plan*
- h) *Implementation of a strategic cycle network*
- i) *Supporting the implementation of Network Rails Electrification of the Midland Mainline*
- j) *Implementing the restoration of the Derby Canal*
- k) *Ensuring connectivity to HS2*

2.9 The site is identified in the Local Plan as Policy AC18, the policy states that the council will work with South Derbyshire District Council to ensure that;

- b) *new highway infrastructure is provided to help mitigate the impact of the development on the local and strategic road networks. This will include the development of, or contributions towards, the construction of the South Derby Integrated Transport Link. The potential for a new junction onto the A50 to be delivered in the future should not be prejudiced. Contributions may also be required towards improvements to the Strategic Road Network as necessary.*
- c) *Appropriate primary school provision is made to serve the wider development as a whole*
- d) *Secondary school needs are met through the extension of existing facilities and / or the provision of a new secondary school;*
- e) *New on-site local shopping and community facilities are provided to meet the needs arising from the new development*
- f) *Appropriate flood mitigation and drainage measures are implemented*
- g) *Appropriate landscaping / buffering is provided between new homes and the proposed employment site south of Wilmore Road (Infinity Park), the Derby to Birmingham railway line west of Stenson Road, the Local Wildlife Site/ Local Nature Reserve at Sinfin Moor Lane Meadows and between new homes and the A50 trunk road.*
- h) *A mix of new green infrastructure is provided to meet the needs of residents. Green infrastructure should be integrated to create a cross boundary network of green spaces.*
- i) *Improvements to the Green Wedge at Sinfin Moor. The boundaries of the Green Wedge should also be strengthened.*

- j) Cycleway and pedestrian links are provided and/or improved across and around the site including links to Infinity Park, the local District Centre at Sinfyn and to the open countryside and wider rights of way network.*

Within the City, the City Council will require development;

- k) To be designed to integrate fully with the larger element if the development in South Derbyshire, particularly in terms of scale, design and road, cycle and pedestrian links*
- l) Where appropriate, to contribute the provision of supporting infrastructure which will be required as a result of the development. Supporting infrastructure will be carefully planned and co-ordinated between the two authorities and may be required within the City and/ or South Derbyshire.*

South Derbyshire Local Plan

2.10 The Local Plan for South Derbyshire has been prepared in two parts. Part 1 was adopted by Full Council on June 13, 2016. The local Plan Part 2 was adopted by Full Council on November 2, 2017.

2.11 The site is identified as an allocated development under Policy H15 which states:

A. Residential development on land at Wragley Way will provide for around 1,950 dwellings within South Derbyshire.

B. The Council will require the below listed site specifics and accordance with other Local Plan policies:

- i. New highway infrastructure to mitigate the transport impact on the local and strategic road networks of the whole site. This will include the provision of and/or contributions to the construction of the South Derby Integrated Transport Link;*
- ii. Developer contributions are to be made towards improvements to the A50/A514 and A50/ A38 junctions to safeguard the operation of the Strategic Road Network;*
- iii. Any development should not prejudice the construction of a potential junction connecting the site to the A50, which may potentially be needed following the completion of the South Derby Integrated Transport Link;*
- iv. The provision of sufficient new primary school provision on site for the development as a whole;*
- v. High quality pedestrian and cycle links should be provided across the site and to the nearby residential, retail and employment developments together with recreational areas;*

- vi. *The number of homes to be occupied before completion of the South Derby Integrated Transport Link shall be agreed with the Council;*
- vii. *A new on-site local shopping centre shall be provided which should be commensurate in size to the needs of the community, taking into account the surrounding retail provision available. The location of the centre should be the focal point at the heart of the new community;*
- viii. *The east, south and west of the site will require a green buffer and landscaping from the railway line and the A50 and enhancements to a defensible boundary along Sinfin Moor; and*
- ix. *Improvements to existing green infrastructure shall be made, along with the provision of new green infrastructure on site.”*

2.12 Policy INF2 Sustainable Transport states:

- “A:**
- i. *Planning permission will be granted for development where:*
 - a) *Travel generated by the development, including goods vehicle movement, should have no undue detrimental impact upon local amenity, the environment, highway safety, the efficiency of transport infrastructure and the efficiency and availability of public transport services;*
 - b) *Appropriate provision is made for safe and convenient access to and within the development for pedestrians, cyclists, public transport users and the private car; and*
 - c) *Car travel generated by the development is minimised relative to the needs of the development.*
 - ii. *In order to achieve this, the Council will secure, through negotiation, the provision by developers of contributions towards off-site works where needed;*
 - iii. *In implementing this policy account will be taken of the fact that in more remote rural areas there is often less scope to minimise journey lengths and for the use of non-car modes;*
 - iv. *Planning applications for development with significant transport implications should be accompanied by a Transport Assessment and Travel Plan identifying the transport impacts of the proposal and measures needed to meet the criteria set out in Part 1 of this policy. Travel Plan measures should be funded by developer contributions appropriate for the impacts on the transport network caused by the development. For development that is expected to have less significant transport*

implications, planning applications shall be accompanied by a Transport Statement.

B. Walking and Cycling

- i. The Council will work in partnership with County Councils, neighbouring local authorities, the National Forest Company, charitable organisations, landowners and developers to secure the expansion, improvement and protection of walking and cycling networks, including public rights of way, cycle routes, greenways and supporting infrastructure. Routes should be coherent, direct, continuous, safe, secure and attractive and should contribute to the wider green infrastructure network wherever possible;*
- ii. Where a need is identified in Part 1 of this policy, the council will seek to negotiate the provision by developers of contributions toward new, or the enhancement of existing, walking and cycling routes and supporting infrastructure;*
- iii. Development that is likely to prejudice the use of disused railway lines or canals for walking, cycling or horse riding will only be permitted, where it can be demonstrated that there would be no practical prospect of implementation in the future;*
- iv. Cycling and greenway network proposals will be identified in Supplementary Planning Documents.*

C. Public Transport

- i. The Council will work in partnership with County Councils, neighbouring local authorities, public transport operators and community transport operators to improve public transport services, infrastructure and information provision in the district;*
- ii. Development should be designed and laid out in such a way as to ensure that, wherever possible, public transport services are within convenient walking distance of all site residents, staff and visitors;*
- iii. Where a need is identified under Part 1 of this policy, the Council will seek to negotiate the provision by developers of measures to encourage the use of public transport. These may include:*
 - a) Bus shelters and laybys;*
 - b) Railway stations and public transport interchanges; and*
 - c) Initial financial contributions towards the cost of running public transport services.*

E. Parking

Development should include appropriate car parking provision having regard to:

- a) Parking standards to be published as a Supplementary Planning Document;*

- b) The need to ensure that development would not have an undue detrimental impact on pedestrian and cyclist movement and highway safety;
- c) The need to encourage travel on foot, by cycle and by public transport in preference to the private car by minimising parking provision;
- d) The need to provide sufficient conveniently located spaces to meet the needs of people with impaired mobility;
- e) The conclusions of and Transport Assessment undertaken in accordance with Part 2 of this policy;
- f) The need to encourage the use of low emission vehicles.”

Derbyshire Local Transport Plan 2011 to 2026

- 2.13 The Derbyshire Local Transport Plan (LTP) is a relevant consideration, because it covers land adjacent to the development site, and west along Wragley Way. The junctions studied for this report include a number that are covered by this LTP.

The five transport goals are:

- *“Supporting a resilient local economy.*
- *Tackling climate change.*
- *Contributing to better safety, security and health.*
- *Promoting equality of opportunity.*
- *Improving quality of life and promoting a healthy natural environment.*

The plan puts emphasis on supporting a resilient local economy, contributing to better safety, security and health, and improving quality of life and promoting a healthy natural environment.

It aims to achieve longer term benefits for climate change and measures to help people under the equality of opportunity goal.”

Policy Summary

- 2.14 In summary it is considered that the development proposal conforms to the above policies as follows:
- 2.15 **NPPF** – The principles of the NPPF are to promote sustainable development in terms of its economic role, social role and environmental role. The presumption in favour of sustainable development is in place, subject to any adverse effects arising from a development outweighing the benefits.
- 2.16 This report identifies that the site is situated adjacent to an existing residential district and is within easy walking/cycling distance of the facilities that are available within Sinfin including schools, healthcare facilities, food stores and commercial properties. In addition, the assessment in terms of traffic generation identified in this TA demonstrates that the impact of

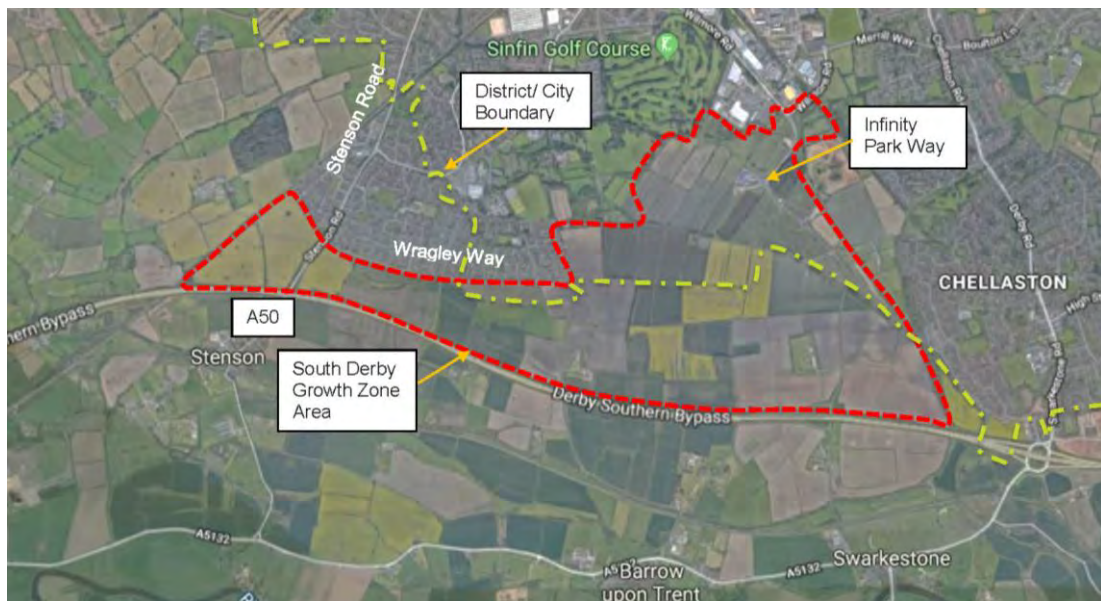
the development on the local highway network can be suitably mitigated. In addition, the development is accessible by modes other than the private car. On this basis it is considered that the site conforms to the transport related policies set out in the NPPF.

- 2.17 **Derby City Council Local Plan Part 1: Core Strategy Submission** – The Core Principles of the Core strategy include Place making, assessing the developments impact on the local highway network, this TA provides a review of the local road network. CP23 Delivering a Sustainable Transport Network by allowing residents to have access to alternative modes of transport, this TA demonstrates the site accessibility to alternative modes of transport and the measures that will be provided to encourage non-car modes including the provision of a framework Travel Plan. This development includes a strategic network of footways and cycleways encouraging the use of non-car modes. It is considered that this development proposal accords with the aims of the core principals set out in the Core strategy submission.
- 2.18 **South Derbyshire Local Plan** – Policy INF2. This TA demonstrates that the impact of the development proposal on the local highway network can be suitably mitigated and that the development will not have a ‘severe’ impact. Measures are also proposed to ensure the site is accessible to modes other than the private car.
- 2.19 **Derbyshire Local Transport Plan** – In terms of improving the choice of travel mode, the application includes improving the local footway network and the site already has access to regular bus routes although proposals will also include the provision of a new local bus service. The development proposal accords with the aims of the LTP.
- 2.20 On the basis of the above, it is considered that the development proposal meets the objectives and conforms to the policies of the local authorities in terms of highways and transportation.

3 SOUTH DERBY GROWTH ZONE

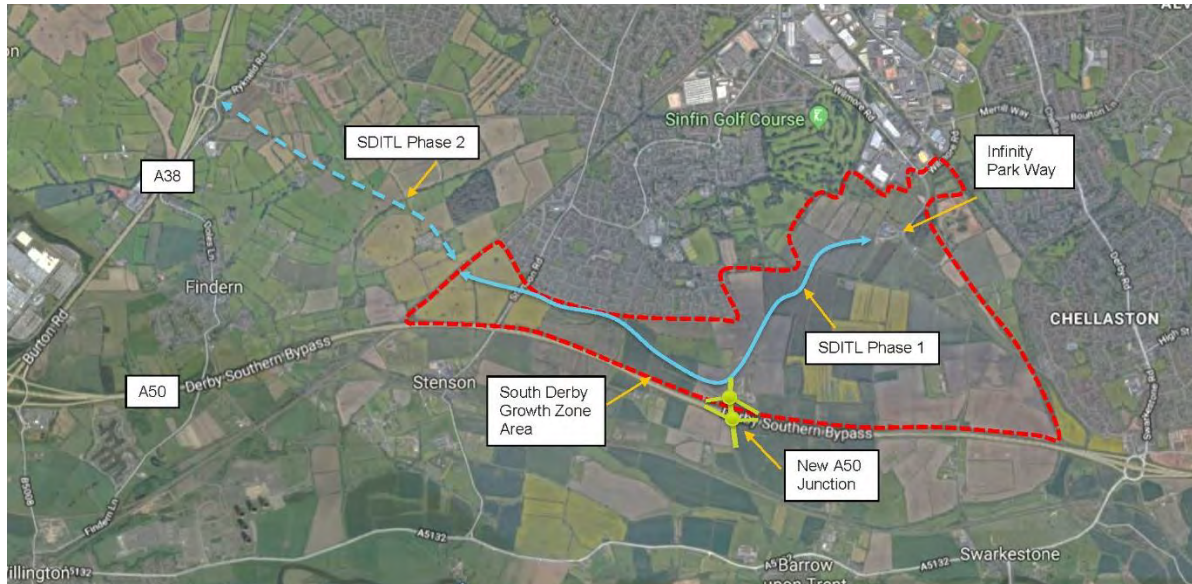
- 3.1 The South Derby Growth Zone (SDGZ) is the area of land to the south of Derby between Sinfin to the east, Chellaston to the west and south of the Rolls Royce campus encompassing the proposed Infinity Garden Village development. The overall site sits both within the Derby City Council boundary and also within the South Derbyshire District Boundary. A plan showing the extent of the area is provided in Figure 01 below.

Figure 01 – Extent of Strategic Development area



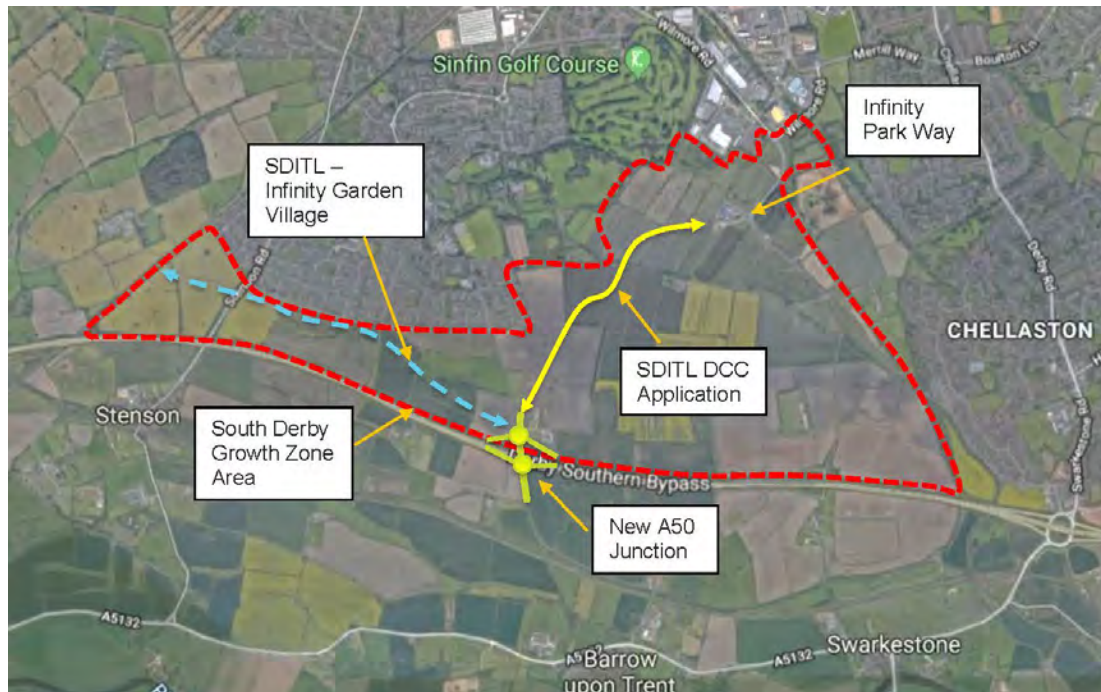
- 3.2 Land to the east of the Infinity Garden Village will form an extension to the existing Infinity Park and will include both employment and education allocation as well as further residential use within the Chellaston area.
- 3.3 The infrastructure to link the existing Infinity Park to Stenson Road will form part of the SDITL, with the future aspirations of taking the SDITL westwards across the railway line to join the A38 as shown in Figure 02 below.

Figure 02 – Extent of SDITL



- 3.4 Modelling of the SDGZ and SDITL has been carried out by Systra using Derby City's SDGZ Model which has in turn been informed by the Greater Derby Area Transport Model (GDATM). The modelling work assessed a number of scenarios with and without the new A50 junction the results of which were summarised in the 'South Derby Growth Zone, Traffic Modelling Summary Report' dated March 2019 prepared by BWB Consulting on behalf of Derby City Council, South Derbyshire District Council, Derby County Council and Highways England who form the Transport Working Group (TWG). The modelling was used to determine the impact of the proposals on the road network and also to determine if the new junction on the A50 would provide benefits to the local road network.
- 3.5 The BWB report concludes that;
- "the results of the infrastructure testing demonstrated that the new junction on the A50 brings the greatest benefit. The percentage benefits of the new junction on the A50 show that over 70% of the impact is negated. It is also acknowledged that there will be some residual impacts but this is to be expected as there will be local impacts that will need to be investigate and if necessary mitigated through the planning process."*
- 3.6 Following on from this modelling work, a planning application has been submitted by Derbyshire County Council to support the proposed SDITL infrastructure between Infinity Park and Infinity Garden Village. This application was supported by a Transport Assessment prepared by BWB Consulting Ltd. who have designed and assessed the proposed junctions along this part of the SDITL including the new A50 junction. The extent of the network included as part of the DCC application is shown in Figure 03 below.

Figure 03 – Extent of SDITL included in DCC application



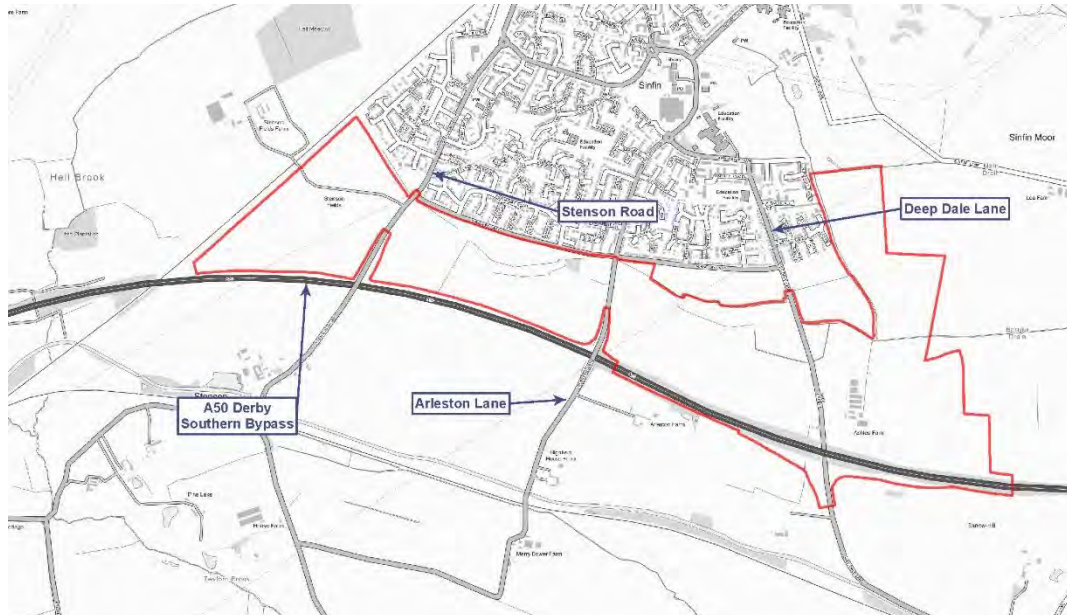
- 3.7 The results of the analysis show that in the 2030 scenario (allocated development) the proposed A50 junction will operate within capacity with the A50 (E) off slip operating at 89% of capacity.
- 3.8 The BWB TA also demonstrates that the other junctions on the SDITL which forms part of the DCC will operate within capacity.
- 3.9 Assessment of the impact associated with the Infinity Garden Village is included in the Transport Assessment submitted as a separate document to this planning application.

4 CONTEXT / SITE ASSESSMENT

Site Location and Existing Use

- 4.1 The proposed development site is located generally to the south of Wragley Way, extending from land to the west of Stenson Road to the east of Deep Dale Lane. The proposed development site, subject to this TA sits almost entirely within South Derbyshire (an area of land to be used as part of drainage and open space/ landscaping falls within Derby City). That part of the development site that is allocated provides for, amongst other uses, up to 1,850 dwellings.
- 4.2 Adjacent to this site are three other parcels of land two of which are located within the Derby City boundary and have been approved as part of separate planning applications and include a total of 180 dwellings, and one off Deep Dale Lane which is within South Derbyshire District Council boundary for 100 dwellings providing an overall total of up to 2,130 dwellings in this area.
- 4.3 The application site covers an area of 146 hectares, extending from the railway line at the western edge to a point approximately 550m east of Deep Dale Lane. The site is bounded by the A50 to the south and Stenson Road, Arleston Lane and Deep Dale Lane all cut through the site. The site area included as part of this application is shown in Figure 01 below.

Figure 01 – Site Location



Proposed Development

- 4.4 The proposed development of the Infinity Garden Village, Wragley Way will include up to 1,850 residential dwellings, a 2 form entry primary school, a local centre (including community hall, retail and other local services and facilities), public house, drive through restaurant, petrol filling

station and employment uses totalling up to 51,096sqm. A copy the of the Masterplan layout is included in **Appendix B**.

- 4.5 The development will also incorporate part of the South Derby Integrated Transport Link (SDITL) which in turn links to the new A50 junction and the section of the SDITL which will extend through Infinity Park development site. The new A50 junction and part of the SDITL through Infinity Park has been submitted as a separate planning application by Derbyshire County Council and the TA for that application was prepared by BWB consultants and has been referred to in this report.
- 4.6 The employment uses will be located on land to the east of the Garden Village, accessed from the proposed roundabout along the Infinity Park Link Road which is located north of the proposed A50 junction. The location of the proposed employment area is identified on the Masterplan layout included in **Appendix B**.
- 4.7 Access to the various areas of the development area will be made from off the new SDITL with three key junctions identified along this route including;
 - A new 50m ICD roundabout on Stenson Road at the Wragley Way junction;
 - A new staggered signalised junction arrangement at the Arleston Way/ Wragley Way junction;
 - A new signal junction to the west of the local centre.

Site Accessibility

Walking & Cycling

- 4.8 The site benefits from being located adjacent to existing developed areas which in turn have a good network of footways and on road cycle routes. The proposed development will include a strategic network of footways and cycle routes linking to the wider network.
- 4.9 The proposed development will include a new 2FE Primary School, Local Centre, Public House, Employment uses and a Petrol Filling Station; however the Sinfin District Centre also offers a good range of facilities and is an approximate 1.2km (15 min walk) from the centre of the site, providing an even wider range of facilities that are within easy walking and cycling distance. The facilities within the Sinfin area are likely to be used during the initial phases of development prior to the Local Centre and other facilities being developed.
- 4.10 There are no formal cycle routes provided within the local area of the site however the adjacent residential roads are relatively lightly trafficked routes and would be suitable for on road cycling and Deep Dale Lane and Arleston Lane are identified on Derbyshire County Council's cycle map as suitable routes to use. Given the local residential and rural nature of the area, it is considered that many of the local roads would lend themselves to being 'quiet routes' suitable for on road cycling which in turn allows easy access to existing cycle routes situated further north within Sinfin. A plan identifying the cycle catchment from the site is provided in **Appendix C**.
- 4.11 The National Cycle Route No. 66 goes through the Sinfin District, access to which can be made via Arleston Lane. This is a signed route forming part of the route that extends around Derby

City linking with NCN route No.'s 68 and 54. Parts of these routes are on road and part are off road. A plan showing the local cycle routes is included in **Appendix C**.

- 4.12 To encourage the use of non-car modes within the site, the layout of the site will be to provide wide and well-lit footway / cycleway links throughout the site providing direct routes in and out of the development. The width of the cycleway / footway routes will be a minimum of 3.5m; footway only routes will be a minimum of 2m in width. The plan included in **Appendix D** identifies the indicative footway and cycleway routes within the site.
- 4.13 Cycling will be encouraged either via dedicated off road routes or on road within the residential areas. A way finding strategy within the site will route cyclist to quieter routes with less traffic than the main street through the development, although 1.5m cycleways will also be provided adjacent to the main street. A plan showing the proposed indicative routes through the site are provided in **Appendix D**.

Deep Dale Lane

- 4.14 The proposed highway layout, during the final phases of development, will see Deep Dale Lane being closed to through traffic with vehicles being re-directed through the development onto the SDITL. Deep Dale Lane will, up to its junction with the A50, be downgraded to a 'Green Way' suitable for walking & cycling route which will in turn link with the new and existing footway/cycleway network. Deep Dale Lane continues south of the A50.

Bus

- 4.15 There are currently four bus routes that pass the site, all of which run along Wragley Way (Route 219 in part). The table below provides details of all the services that are currently available and their frequencies.

Table 4.1: Bus Routes Summary (Monday to Friday)

Bus	Operator	Route	First	Last	Daytime Frequency
38	Arriva Derby - Sapphire	Sinfin – Derby (Eastbound only) Terminates at Derby Bus Station	05:52	23:43	10mins
238	Notts and Derby	Sinfin – St. Benedict Catholic School	07:55	15:34 Wragley Way, Opp Etterick Drive	1 outbound and 1 inbound service (School days only)
219	Harpurs Coaches	Egginton - John Port School	08:15	16:00	1 outbound and 1 inbound service (School days only)
258	Notts and Derby	Sinfin – St. Benedict Catholic School	07:45	15:50	1 outbound and 1 inbound service (School days only)

Source: Traveline South East and Anglia

Table 4.2: Bus Routes Summary (Saturday and Sunday)

Bus	Operator	Route	First	Last	Daytime Frequency
Saturday					
38	Arriva Derby	Sinfin – Derby (Eastbound only)	07:03	23:41	10mins
Sunday					
38	Arriva Derby	Sinfin – Derby (Eastbound only)	09:29	23:56	10mins

Source: Traveline South East and Anglia

- 4.16 The above shows that Route 38 provides a very frequent bus service that connects the site with the Sinfin area and Derby City Centre. This is an eastbound service stopping at the bus stops local to the site. There are also three school bus services that may be beneficial to new residents who attend these schools. A bus route plan is included in **Appendix C**.
- 4.17 PLUSBUS is a cheap travel card that residents can buy with a train ticket at any station. It gives residents bus and tram travel on participating operator services to and from rail station and around the whole urban area of town that's at the start and /or end of their train journey. Bus service 38 and 238 participate in this.
- 4.1 The alignment of Wragley Way will change as part of the development proposal and as such will result in a slight change to the existing route of these services. The proposed changes to the services are identified in **Appendix D**.
- 4.2 Of the four services that are available, route 38 provides a frequent service which is a local circular service to Derby City Centre. The bus stops that are located on Wragley Way are situated within 500m of a large proportion of the development area, as such it is considered that suitable access can be achieved using the existing bus stops/ routes. A plan showing the catchment of the existing bus stops is provided in **Appendix D**.
- 4.3 The existing bus stops along Wragley Way will be upgraded to provide automated timetable information and if required raised kerbs.

Rail

- 4.4 The nearest railway station is the Peartree Station which is approximately 3 miles (4.3 km) north of the site. The service is provided by East Midlands Trains and links Derby with Stoke-on-Trent and Crewe and is accessible by cycle. However, there is a very infrequent service from this station, the only service in the AM is at 7:20 which arrives at London St. Pancras at 09:45 or in the PM there is a service at 16:19 which arrives in London St. Pancras at 18:36.
- 4.5 Derby Station is situated approximately 2km north of Peartree Station and is served by Cross Country Trains, East Midlands Trains and Northern Trains. From this station a good service is available to Sheffield, Nottingham and London St Pancras. This station is also considered to be accessible from the site by cycle.
- 4.6 Derby Station has 184 cycle spaces which are covered and located in the car park. The station also has 609 car parking spaces.
- 4.7 The table below identifies the frequency of services available from Peartree Station and Derby Station.

Table 4.3: Derby Rail Station Frequency

Rail	AM Peak	PM Peak	Off Peak	Weekend
From Derby to Crewe	1 per hour	1 per hour	1 per hour	1 per hour
First and Last Trains	06:40	20:42		06:42 / 20:42 (Sat) 14:40 / 20:40 (Sun)
From Derby to Nottingham	5 per hour	4 per hour	3 per hour	3 per hour
First and Last Trains	06:00	23:57		07:28 / 23:30 (Sat) 09:12 / 21:12 (Sun)
From Derby to London St Pancras	3 per hour	2 per hour	2 per hour	2 per hour
First and Last Trains	05:02	21:22		05:19 / 23:29 (Sat) 07:00 / 21:37 (Sun)
From Peartree to Crewe First and Last Trains	07:44	16:44 and 17:44	NA	07:44 / 17:45 (Sat)
From Crewe to Peartree First and Last Trains	06:07	16:07	15:07	06:07 / 16:07 (Sat)
From Peartree to London St Pancras First and Last Trains	07:20	16:19	NA	07:20 / 16:20 (Sat)
From London St Pancras to Peartree First and Last Trains	NA	15:02 / 23:08	NA	14:00 (Sat)

Source: East Midland Trains

Parking

- 4.8 The level of parking proposed on the site will conform to South Derbyshire's Parking standards.

5 TRAVEL SURVEY / TRIP GENERATION

Introduction

- 5.1 This section considers the anticipated trip generation of the Infinity Garden Village and outlines the baseline travel survey requirements. This Framework Travel Plan is proposed to form the basis of the final TP that will be implemented by the various uses in the site.

Baseline Travel Data

- 5.2 A baseline travel survey will be undertaken within 1 year of first occupation or upon occupation of the 100th dwelling/ within 6 months of employment occupation, to ascertain the travel patterns of residents/ employees.
- 5.3 The trip rates included in the SDGZ Model are 85th percentile trip rates obtained from the TRICS database. The trip rates are the same as those included as part of applications 05/13/00596 (Land south of Wragley Way), 02/15/00211 Land east of Deep Dale Lane and application ref: 09/2017/0922 Deep Dale Lane Phase 2. The use of 85th percentile trip rates are considered overly robust especially for a development of this size.
- 5.4 The trips associated with the other uses are identified in the tables below. The trip rates for the employment and PH have been extracted from SDGZ Modelling report, for the Primary School, the TRICS database has been used as there were no trip rates for this use in the SDGZ report.
- 5.5 The TRICS outputs are included Transport Assessment submitted as part of this planning application. The total trips predicted to be generated by the Infinity Garden Village during weekday AM and PM hours are summarised in **Table 5.1** below:

Table 5.1: Proposed Trips - All Vehicles

	Arrivals	Departures	Two-Way
Weekday AM Peak (08:00 – 09:00)			
Residential	185	871	1056
Employment	226	161	387
Primary School	113	76	189
Total	524	1108	1632
Weekday PM Peak (17:00 – 18:00)			
Residential	812	476	1288
Employment	133	242	375
Primary School	7	8	15
Public House	13	9	22
Total	965	735	1700

- 5.6 The above includes total vehicular trips allowing for some linked trips between the uses predicting a total of 1632 two-way trips in the AM Peak and 1700 two-way trips during the PM Peak.

- 5.7 The above trip rates are considered overly robust as they are based on 85th Percentile Trip Rates which is identified within the report to provide a 'potential worst case scenario'. To obtain an 85th percentile Trip Rate the TRICS database states that over 20 surveys need to be selected which are unlikely to be similar to the proposed site, however to ensure the assessment undertaken is robust consistent with the application on land south of Wragley Way and land east of Deep Dale Lane (Phase 1), the above Trip Rates have been used. Details of the proposed trip distribution and impact are included in the Transport Assessment submitted as part of this planning application.

6 OBJECTIVES

Concept of a Travel Plan

- 6.1 The emergence of Travel Plans has been an important development in transport policy. They demonstrate that the environmental improvement sought from the transport sector can be achieved at a local level and can contribute towards easing congestion, especially during the peak periods.
- 6.2 A Travel Plan is a management tool that brings together a co-ordinated strategy and a package of initiatives to minimise the number and length of car trips generated by a development, while supporting more sustainable forms of travel and reducing the overall need to travel.

Objectives

- 6.3 The objectives of the Travel Plan are to:
- Promote sustainable transport choices for residents and employees on the site; and
 - Reduce the need to travel by car, especially single car occupancy.
- 6.4 These objects will be met by:
- Raising travel awareness amongst residents;
 - Exploring measures to promote the use of alternative modes of travel to single occupancy car travel such as walking, cycling, passenger transport and car sharing;
 - Investigating opportunities to reduce the use of single occupancy car travel; and
 - Continually evaluating the transport needs of residents, employees and visitors.
- 6.5 The development and implementation of the Travel Plan to meet the objectives would benefit those who will live and also work within the Garden Village. The benefits would include:
- Reduce the impact of traffic on surrounding roads and local communities;
 - Reduce the cost of personal travel;
 - Improve personal and wider community health; and
 - Reduce air and noise pollution.

7 TARGETS

- 7.1 The targets set out below would provide a clear measure of the Travel Plan's progress towards meeting the objectives previously outlined in Section 6. These targets are shown as output targets, where specific actions are undertaken to successfully deliver or monitor the Travel Plan, and outcome targets which demonstrate the specific outcomes of the plan.

Output Targets

- 7.2 The output targets below demonstrate what will be undertaken in order to ensure the successful delivery of the Travel Plan. The output targets have been listed below:
- Appoint a TPC and provide contact details to Derbyshire County Council Travel Plan Officer one month prior to first occupation of the development;
 - Provide Welcome Travel Information Pack to all residents/ employees upon arrival;
 - Undertake a TRICS compliant baseline monitoring survey, to the agreed methodology with Derbyshire County Council, no later than 1 year after occupation or occupation of 100th dwelling/ within 6 months of employment occupation;
 - Submit a revised Travel Plan to Derbyshire County Council with amended baseline travel patterns within 1 month of initial survey;
 - Undertake review of the Travel Plan bi-annually until a period of 5 years post full occupation (or as agreed with DCC); and
 - Submit monitoring reports every 3 years following initial Travel Plan submission comparing changes from previous travel survey.
- 7.3 Further details of the monitoring of the plan have been set out in **Section 10**.
- 7.4 An example of a typical residential Travel Pack is included in **Appendix E**.

Outcome Targets

- 7.5 The Travel Plan and measures within it will be in place prior to first occupation of the various uses on the site ensuring that both residents and employees are fully aware of its existence upon arrival/ starting employment. Sustainable forms of travel will be promoted and residents/ employees of the site will benefit from some of the measures and initiatives soon after occupation, although some will be developed as the scheme progresses.
- 7.6 The baseline travel survey will identify the modal shift from which the Travel Plan measures can be tailored to more site specific measures.
- 7.7 It is important that the Travel Plan contains a headline target so that its overall performance can be monitored over time and, if necessary, further measures can be introduced to encourage mode shift towards more sustainable modes of travel. Travel Plan targets should be SMART (specific, measured, achievable, realistic and time bound).
- 7.8 Prior to any base line data being available and for the purpose of this Framework Travel Plan, the existing Travel to work Modal Splits for the local Sinfin Ward have been obtained from the 2011 Census database. This data is based on journey to work modes, although it is accepted

that not all trips are work related trips, this is still the primary trip purpose to/from developments and as such it is considered appropriate to use for this Framework Travel Plan. The data obtained is for the Sinfin ward and is summarised in **Table 7.1** below.

Table 7.1: 2011 Census Data – Sinfin Ward – Multi-Modal Journey to work data

Mode	Car/Van	Car / Van Passenger	Cycle	Walk	Train	Bus	Taxi/Other
2011 Census Data	58%	9%	4%	14%	1%	12%	3%

- 7.9 The above table identifies that 67% of people travel to work by car of which 9% car share, and 33% travel by non-car modes. The proposed target will be to reduce single car occupancy for the site as a whole by 10% to 48%. Based on this information the travel plan targets (and indicators by which the targets can be measured) are set out in **Table 7.2** below.

Table 7.2: Travel Plan Targets

No	Target	Indicator	Baseline Value	Target Value	% change	Measured By
‘Aim’ type targets						
1	Reduce the proportion of Single Occupancy Vehicle trips made by residents	Modal split in initial survey	58% (TBC from the baseline survey)	48% (TBC after baseline survey)	-10% (TBC after baseline survey)	Biannual surveys
2	Increase the proportion of walking to/from the site by residents	Modal split in initial survey	14% (TBC from baseline survey)	18% (TBC after baseline survey)	+4% (TBC after baseline survey)	Biannual surveys
3	Increase the proportion of cycling to/from the site by residents / visitors	Modal split in initial survey	4% (TBC from baseline survey)	8% (TBC after baseline survey)	+4% (TBC after baseline survey)	Biannual surveys
4	Increase the proportion of journeys undertaken on public transport	Modal split in initial survey	13% (TBC from baseline survey)	15% (TBC after baseline survey)	+2% (TBC after baseline survey)	Biannual surveys
1	Introduce public notice boards within the residential site and in the employment use entrances which will inform residents / employees and visitors of available travel choices	N/A		N/A		Upon Occupation
2	Welcome Travel Information Pack for residents & employees	N/A		N/A		Upon Occupation

- 7.10 The existing multi-modal data identifies that 2% of existing residents in Sinfin work from home, this is increasingly becoming more common and provides significant benefits by reducing the

number of cars on the local road network, but also provides other benefits as employees are generally happier working from home than in an office environment. To encourage this, all residential properties will be provided with a good Broadband service and connections to phone lines in a number of rooms.

8 PACKAGE OF MEASURES

Introduction

- 8.1 This chapter sets out the package of measures that will be introduced in order to influence the way residents travel to / from the site.
- 8.2 The baseline travel survey undertaken within 1 year of first occupation or upon occupation of 100 dwellings/ within six month of employment occupation to ascertain travel patterns of the residents and employees which may suggest that some measures included in this chapter may not be suitable for the site or alternatively, additional measures may be identified from the baseline survey data that will enhance the Travel Plan. At this juncture it will be possible to modify the Travel Plan targets and measures within this plan; however, any proposed changes to the plan will need to be agreed with Travel Plan Officers at Derbyshire County Council.

Marketing

- 8.3 To ensure that residents and visitors are informed about the Travel Plan, marketing and awareness measures will be used to promote sustainable travel behaviour.
- 8.4 Travel information will be provided on the availability of all sustainable travel modes and initiatives offered to residents/ employees. The provision of accurate and up to date information, together with wide ranging publicity, can thus form a fundamental basis for all of the other Travel Plan initiatives.
- 8.5 Residents and employees will be made aware of all travel choices and will be provided with accurate and up-to-date information, as soon as they commence occupancy to encourage a culture of sustainable travel. Accordingly, residents will be presented with a Travel Information Pack upon occupation, and Employees will be provided with personnel Travel Planning. The Travel Information pack will include the following details:
- Contact details for the TPC;
 - An overview of the Travel Plan measures, its objectives and targets;
 - Local area maps showing the location of amenities;
 - Local bus and rail timetables;
 - Contact details for local taxi operators;
 - Contact details of local car clubs (if applicable);
 - Contact details for cycle hire and servicing;
 - Details regarding cycle training run by Derbyshire County Council;
 - Information on public transport websites;
 - Details of travel infrastructure tailored to those with mobility impairments; and
 - Contact details for the bus / rail operators.

8.6 The development of the Welcome Travel Information Pack is a crucial stage in the Travel Plan process. It is essential that it contains the necessary travel information to suitably inform recipients. Travel information will also be added to the site wide web site and any public or resident's notice boards, including information publicising and promoting travel initiatives.

8.7 The main objective of this Travel Plan is to reduce single occupancy car use by residents and employees whilst promoting the use of walking, cycling and PT. To enable this objective to be met a number of sustainable transport initiatives will need to be implemented which include the following;

Site-wide website

8.8 A site-wide website will be established prior to 1st occupation. The web site will provide information about the site, local events as well as providing details about accessibility to the site. The web site will be maintained and updated as necessary by the site management Team and any data relating to accessibility will be updated by the site based TPC to ensure it is always relevant and contains up to date information. The Travel section of the website will include the following information:

- The Travel Plan;
- Information about the site including plans and local information;
- Information and plans showing cycle routes and facilities in the vicinity of the site;
- Information and plans showing walking routes in the vicinity of the site;
- Information and plans showing the bus routes in the vicinity of the site;
- Access to information about national events;
- Information about local initiatives and promotions to encourage mode shift;
- Results of monitoring surveys and notes from Residents Forum meetings.
- A twitter page that will enable residents to advise of any local issues or events etc. or an email contact to which comments could be forwarded.

8.9 The above is also applicable for the local employment web sites including details of the monitoring surveys and notes from the sites forum discussions as well as providing links to the site based web site.

8.10 The web sites will also provide access to other relevant websites including the following:

- Journey Planner (all sustainable routes available for any journey): www.transportdirect.info
- Cycle Journey Planner (with quietest, balanced and quickest route with average times): www.cyclestreet.net
- Cycle maps and cycle information: www.sustrans.org.uk
- Bus information via 'Traveline': www.traveline.org.uk
- Calorie calculator (gives you an idea on how many calories burnt by walking or cycling) www.eatwell.gov.uk/healthydiet/healthyweight/caloriescalculator/

- Carbon calculator (this works out the equivalent amount of carbon used or saved when using a car/not using a car): www.actionco2.direct.gov.uk/index.html
 - Car Sharing schemes such as www.derbyshire.liftshare.com
- 8.11 The personal journey planner and other websites listed will provide links to current cycle maps, bus maps/timetables and the ability to calculate distances and calories used when walking and cycling to the site.
- 8.12 In addition to the websites, further marketing of the Travel Plan to residents/ employees of the site will be required. Evidence indicates that Travel Plan Co-ordinators who run vigorous marketing campaigns have shown that strong promotion results in a greater uptake of the sustainable travel alternatives. The hallmarks of successful travel planning are lively presentation, persistence and a readiness to use a variety of marketing tools and techniques.

Walking

- 8.13 Walking is free and offers predictable journey times. Furthermore, it does not cause negative impacts in the same manner as vehicular travel (e.g. emissions, pollutants, severance etc). Walking is a form of active travel which can offer a range of physical and psychological benefits to the individual.
- 8.14 The Welcome Travel Information Packs provided to all new residents and employees will contain information and advice concerning safe pedestrian routes to and from the site with indicative travelling times. Walking and cycling route plans will also be made available to employees.
- 8.15 The TPC will also encourage walking by liaising with Derbyshire County Council and Derby City Council to promote the maintenance of existing footways within the vicinity of the development.
- 8.16 The Institution of Highways and Transportation's Guidelines for providing for Journeys on Foot (2000) notes that walking accounts for over a quarter of all journeys and four-fifths of journeys less than one mile (1.6 km). Walking is also an essential part of public transport travel as bus stops / rail stations usually being accessed on foot. Promoting sustainable, integrated transport involves providing good pedestrian links to public transport facilities.
- 8.17 The proposed development of the Infinity Garden Village will include a strategic network of footways and cycleways providing good links to local services and bus stops.

Cycling

- 8.18 The promotion of cycling as an alternative mode will be made to residents and employees. The merits of cycling can be actively promoted to those who live within five kilometres of their employment, education or recreational activities.
- 8.19 Cycling is a low cost mode, offers reliable journey times and is environmentally friendly. Travel Plans can offer substantial health benefits to individuals who are motivated to complete more journeys by cycle.
- 8.20 As previously discussed in Section 4 the proposed development will include a number of facilities and as such will be very accessible and amenable to access via bicycle. Residents

whose place of employment / education is less than five kilometres from the site will be encouraged to travel for these means via bicycle.

- 8.21 Publicity material highlighting the most suitable, safe, and comfortable cycle routes, with road crossing facilities and likely journey times highlighted will be produced by the TPC and made available to the residents within the resident's Welcome Travel Information Pack, and also made available to employees.
- 8.22 The TPC will promote 'National Bike Week' and 'Bike2Work' which are endorsed by Travel Wise and Cycling England, and normally occurs in June of each year. Bike2Work specifically looks at promoting the use of cycling for travel to and from work in National Bike Week.
- 8.23 Details will be provided regarding Derbyshire County Council cycle training and cycle maintenance training courses that are available for people living in the area. These include: Country Rider for ages 18 and over and Smart Rider, which is tailored to provide training to younger cyclists.
- 8.24 The Travel Information Welcome Pack will include discount vouchers for the purchase of cycles at local cycle shops. An example of a typical Welcome Pack is included in **Appendix E**.

Public Transport

- 8.25 The objectives of this Travel Plan are to promote more sustainable transport choices for residents, employees and visitors, and this can effectively be achieved by the provision and promotion of high quality public transport alternatives.
- 8.26 The publicity, marketing, and promotion of the public transport services will inform residents, employees and visitors as to the benefits of travelling by bus and rail. The TPC will ensure that residents are aware of bus routes and train timetables for public transport services operating in the vicinity of the site, with residents being provided with a Welcome Travel Information Pack which would include these timetables.
- 8.27 In addition the TPC will also seek to maximise the use of public transport in the following ways:
 - Promote existing/ new bus services;
 - Seek information from all residents/ employees and visitors using public transport on ways in which services may be improved and feed this back to the service provider and the local authority through the regular liaisons which form part of the TPC's role;
 - Provide local bus discount vouchers covering a one month period to use on local bus services within close proximity to the site.

Personalised Travel Planning

- 8.28 Use of the free National Rail web-based travel planning service: <http://ojp.nationalrail.co.uk/service/planjourney/search> will be promoted to all employees and residents.

9 TRAVEL PLAN MANAGEMENT

9.1 A Travel Plan strategy that sets out clearly the stages by which the Travel Plan will be developed and implemented is very important. Elements of a Travel Plan strategy usually relate to:

- Securing the resources (including time) that are necessary to develop and implement the travel plan;
- Consulting and educating residents and employees; and
- Identifying and engaging with relevant parties, i.e. local parish, council officers, bus companies etc.

9.2 In the context of this development, the Travel Plan will be orientated towards influencing travel behaviour of employees and residents and will seek to advise this group of the benefits of using alternative transport modes, promoting their use and discouraging the use of the car. The site based TPC will be responsible for the overall implementation of the Travel Plan.

Travel Plan Coordinator (TPC)

9.3 To effectively implement and manage the Travel Plan, the site management company will appoint and fund an appropriately skilled TPC for the entire Infinity Garden Village development. It is most likely that this role will be part of the management team and will undertake their TPC duties for a few hours each month. This will increase considerably when the baseline travel surveys, and any subsequent surveys, are being undertaken at the site.

9.4 The TPC will be advised of the relevant contact personnel at Derbyshire County Council and will act as a central point of contact for Derbyshire County Council regarding the implementation of initiatives and the ongoing monitoring of the Travel Plan targets. The TPC will be responsible for the implementation, administration and monitoring of the Travel Plan.

9.5 For employment sites within the Infinity Garden Village, TPC's will be employed who will work with the Site Based TPC to ensure a co-ordinated approach is applied.

9.6 The TPC would be a part time position, and their primary responsibilities will be:

- To set up the site wide/ local employment web page for sustainable travel;
- To promote and guide the development of the Travel Plan within the approved framework;
- To retain an awareness of local, regional and national transport policies and programmes so as to ensure that the Travel Plan remains current;
- To retain an awareness of local, regional and national transport initiatives so as to ensure that residents and employees are able to take maximum advantage of new initiatives and assistance schemes as they emerge;
- To assemble and maintain current public transport timetable and fare information and ensure this is made readily available to residents and employees;
- To identify public transport fare discount opportunities;
- To set SMART targets for the percentages of trips by each mode of travel; and

- Undertake baseline TRICS compliant survey to obtain information on residents' travel habits and compare these to the modal split targets identified from the baseline surveys. Follow up with subsequent reviews (and surveys if necessary) bi-annually following first occupation.
- 9.7 The TPC will ensure that all the necessary systems relating to the Travel Plan, e.g. data collection and recording, resident's travel database, travel questionnaires etc, are established, maintained and regularly updated. The TPC will also ensure relevant information is available for inspection by Derbyshire County Council as necessary.
- 9.8 The TPC will use the results of the travel surveys to create SMART targets for the initial five year period of the Travel Plan.
- 9.9 The TPC will liaise with officers of Derbyshire County Council responsible for cycling and public transport as required, to ensure maximum advantage is being taken of sustainable initiatives for travel. The TPC will also keep Derbyshire County Council officers aware of travel targets set and the success of the TP against those as it evolves and becomes firmly defined.
- 9.10 Effective travel planning requires ready access to accurate and current travel information. The TPC will make maximum use of the site wide web site and notice boards to distribute and collect information as well as providing speedy access to bus and rail timetables, for all residents and employees. Through this medium information will be available to respond to all personal travel needs to and from the site.
- 9.11 The monitoring of a Travel Plan is pivotal to understanding areas of concern, and opportunities to encourage modal shift. The TPC will review the travel survey and any additional feedback from residents on transport related matters. The results will be made available to Derbyshire County Council to contribute to monitoring of travel patterns in the area.
- 9.12 The baseline travel survey undertaken within 1 year of first occupation or upon occupation of 100th dwelling/ within 6 months of employment occupation, and subsequent reviews bi-annually will provide an accurate record of modal changes and enable the TPC to understand the travel characteristics of residents and employees. The TPC's will use the results of the travel surveys to develop specific measures within the Travel Plan to encourage more sustainable travel.
- 9.13 The TPC will discuss potential remedial actions with Derbyshire County Council during the Travel Planning process. If the Travel Plan fails to meet the targets then the implementation of further appropriate measures will be considered by the TPC's in consultation with Derbyshire County Council.

10 MONITORING AND ACTION PLAN

Monitoring

- 10.1 The TPC will be the primary point of contact for Derbyshire County Council regarding the implementation of the Travel Plan initiatives and will be responsible for the ongoing monitoring and review of the Travel Plan targets. The contact details of the TPC will be provided to Derbyshire County Council at least two months prior to first occupation of the development.
- 10.2 Monitoring will involve the regular collection of analytical “hard” data and “soft” data in the form of feedback. The TPC will:
- Seek feedback from Derbyshire County Council and public service operators to establish the perceived level of demand for services; and
 - Record comments made by residents on the operation of the Travel Plan.
- 10.3 Information gathered through the monitoring process will be recorded and used through the subsequent review process. It will be made available for inspection by Derbyshire County Council Travel Plan Officers.

Mitigation Measures

- 10.4 Following the biannual resident surveys and if the headline targets are not being achieved, additional actions will be taken to help attain them. Explanations and information about what actions will be taken over the subsequent period to meet the target would be provided.
- 10.5 It is suggested that if targets are not met during following the survey a discussion is held with Derbyshire County Council Travel Plan Officer within three months of the submission of the survey results. An example of possible mitigation measures that could be included are stated as follows:
- Increase the marketing and promotion of the Travel Plan and travel options;
 - Review and promote cycle facilities;
 - Provide additional cycle parking areas;
 - Review and promote bus and National Rail services;
 - Introduce a further targeted Personalised Travel Planning program; and
 - Hold further ‘Travel Plan days’ to promote the Travel Plan.
- 10.6 It should be noted that the above list is an indication of potential future measures and is by no means considered exhaustive or prescriptive of what would be implemented. For instance, it is difficult to identify the precise form and scale of the mitigation measures as the appropriate interventions will be determined following a review of the performance against the headline target and also the secondary targets for each mode of travel.
- 10.7 A draft timescale for the delivery and implementation of these Travel Plan initiatives, including the intended outcomes and outputs, are provided below as an Action Plan.

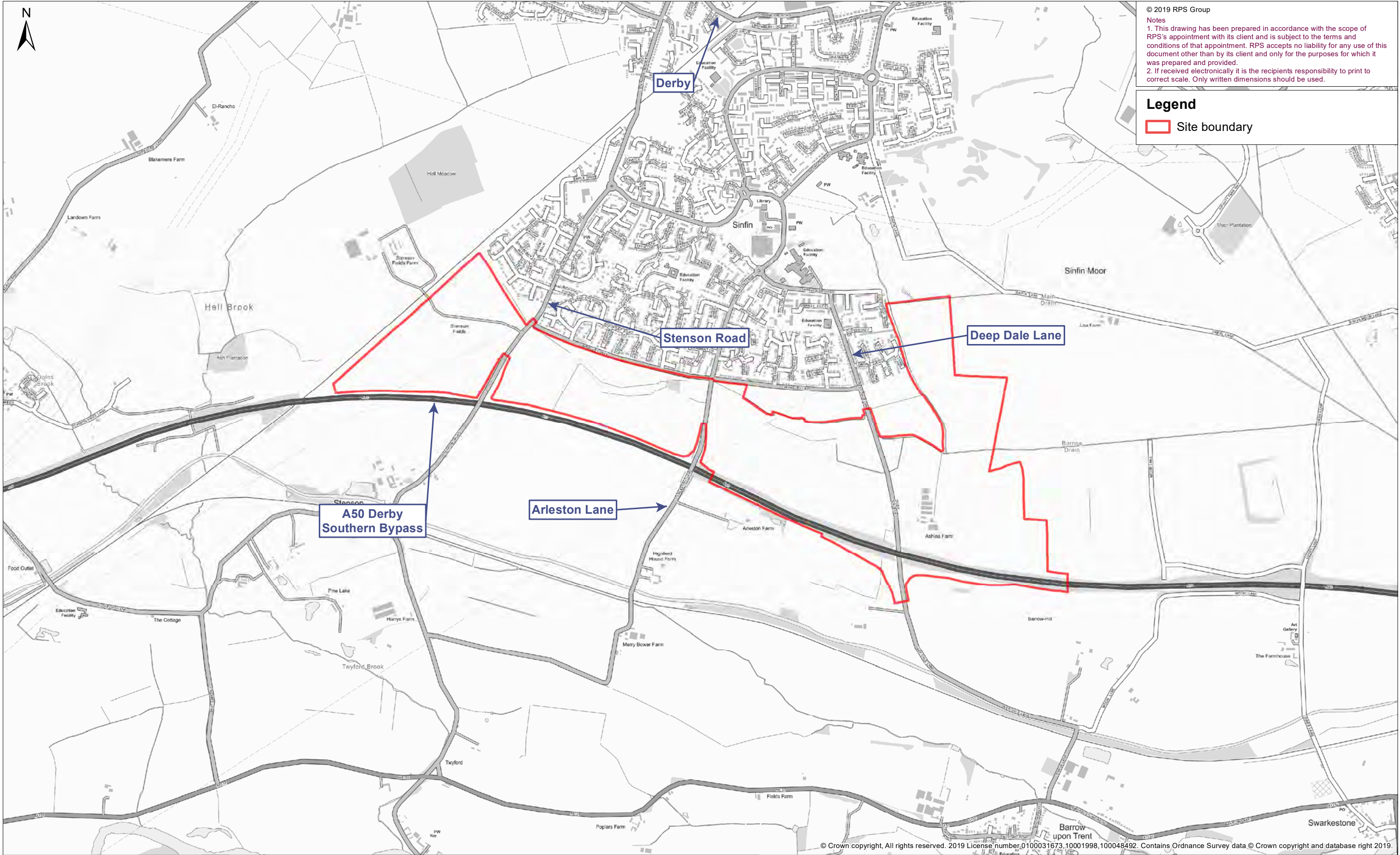
Table 10.1: Travel Plan Action Plan

Action	By Whom	By When	Intended Outcome / output
Improve Travel Information			
Include travel information in resident's/ employees Welcome Pack and on the Site wide Web Site	TPC	Ongoing – reviewed quarterly	All new residents and employees made aware of Travel Plan and alternative modes of travel
Retain an awareness of local, regional and national transport initiatives to take advantage of new initiatives and assistance schemes as they emerge	TPC	Ongoing – reviewed quarterly	Reduce costs and barriers associated with travelling via alternative modes, thereby encouraging sustainable travel
Improve travel awareness for disabled site users	TPC	Ongoing – reviewed quarterly	Reduce barriers associated with travel undertaken by disabled / mobility impaired residents/ employees
Promote Public Transport			
Ensure service information is provided within the residents'/ employees Welcome Pack and on the Site Wide Web Site	TPC	Before first occupation and ongoing	Enhance awareness and encourage sustainable travel
Obtain feedback from residents, employees and visitors using public transport on improvements	TPC	Ongoing	Give residents the opportunity to feed back to service providers to improve the service offering
Provide Public Transport Discount Vouchers for local bus services for one month after occupation	TPC	Before first occupation and ongoing	Reduce costs of sustainable travel to encourage residents to use alternative modes to the car
Provide route maps and details of Traveline (http://www.traveline.info) and National Rail (http://www.nationalrail.co.uk) journey planning websites	TPC	From first occupation and ongoing – reviewed quarterly	Enhance awareness of journeys and encourage sustainable travel
Promote Cycling			
Provide discount vouchers for the purchase of cycles from local cycle shops	TPC	Before first occupation and ongoing	Encourage the use of cycling
Provide plans of cycle routes in the area and details of local cycle shops	TPC	Before first occupation and ongoing – reviewed quarterly	Enhance knowledge and increase awareness, encouraging cycling

Action	By Whom	By When	Intended Outcome / Output
Promote Walking			
Include plans of safe pedestrian routes to local facilities and services	TPC	Before first occupation and ongoing	Enhance resident's knowledge and awareness
Liaise with Derbyshire County Council to ensure pedestrian routes to and from the site are appropriately maintained	TPC	Ongoing	Ensure routes are of an appropriate standard to encourage walking
Develop Car Sharing / Car Club Use			
Identify new car club / car sharing opportunities and include information in residents' / employees Welcome Pack and Site Wide Web Site. Provide details of Derbyshire County Council's Car Sharing Database (https://derbyshire.liftshare.com)	TPC	Ongoing	Ensure routes are of an appropriate standard to encourage walking

Appendices

Appendix E – Travel Information Pack Example



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Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.

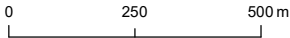
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.

Legend

Site boundary

Rev	Description	By	CB	Date
Figure Number				Rev
1				-
rpsgroup.com				

Client	Hallam Land Management
Project	Wragley Way, Derby
Title	Site location plan



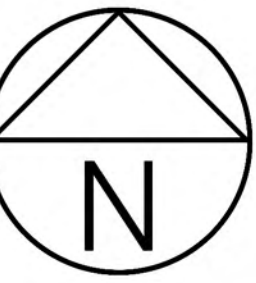
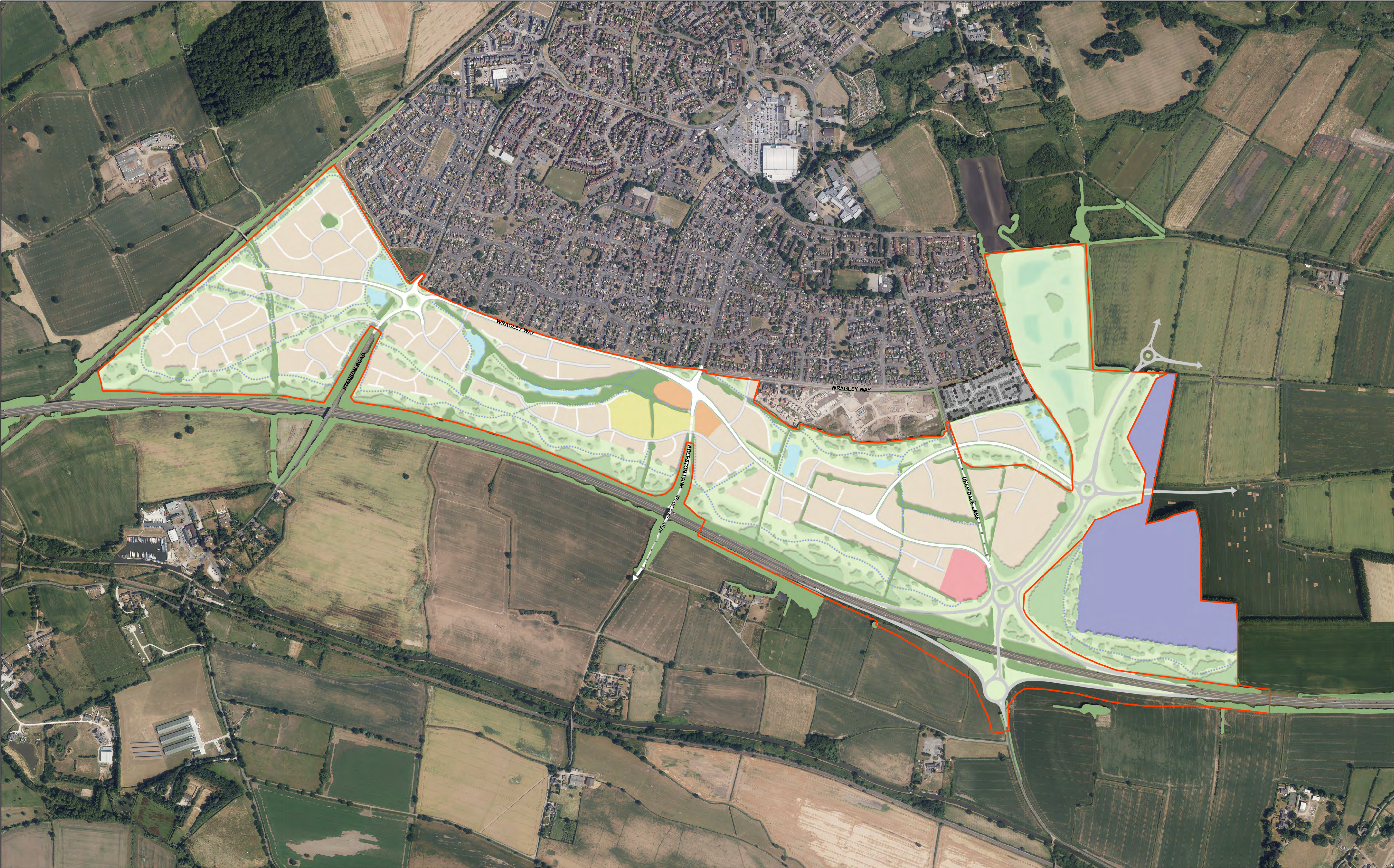
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Project Number	Scale @ A3	Date Created
JNY9033	1:15,000	MAY 2019

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Appendix B – Masterplan Layout



KEY

- | | | | | | |
|--|-----------------------------|--|---------------------------------|--|-------------------------------------|
| | Application site boundaries | | Proposed employment area | | Proposed link road |
| | Proposed residential | | Proposed attenuation pond | | Proposed secondary road |
| | Proposed primary school | | Existing vegetation | | Proposed minor road |
| | Proposed local centre | | Proposed vegetation | | Proposed A50 junction and link road |
| | Proposed mixed use | | Proposed pedestrian/cycle route | | |

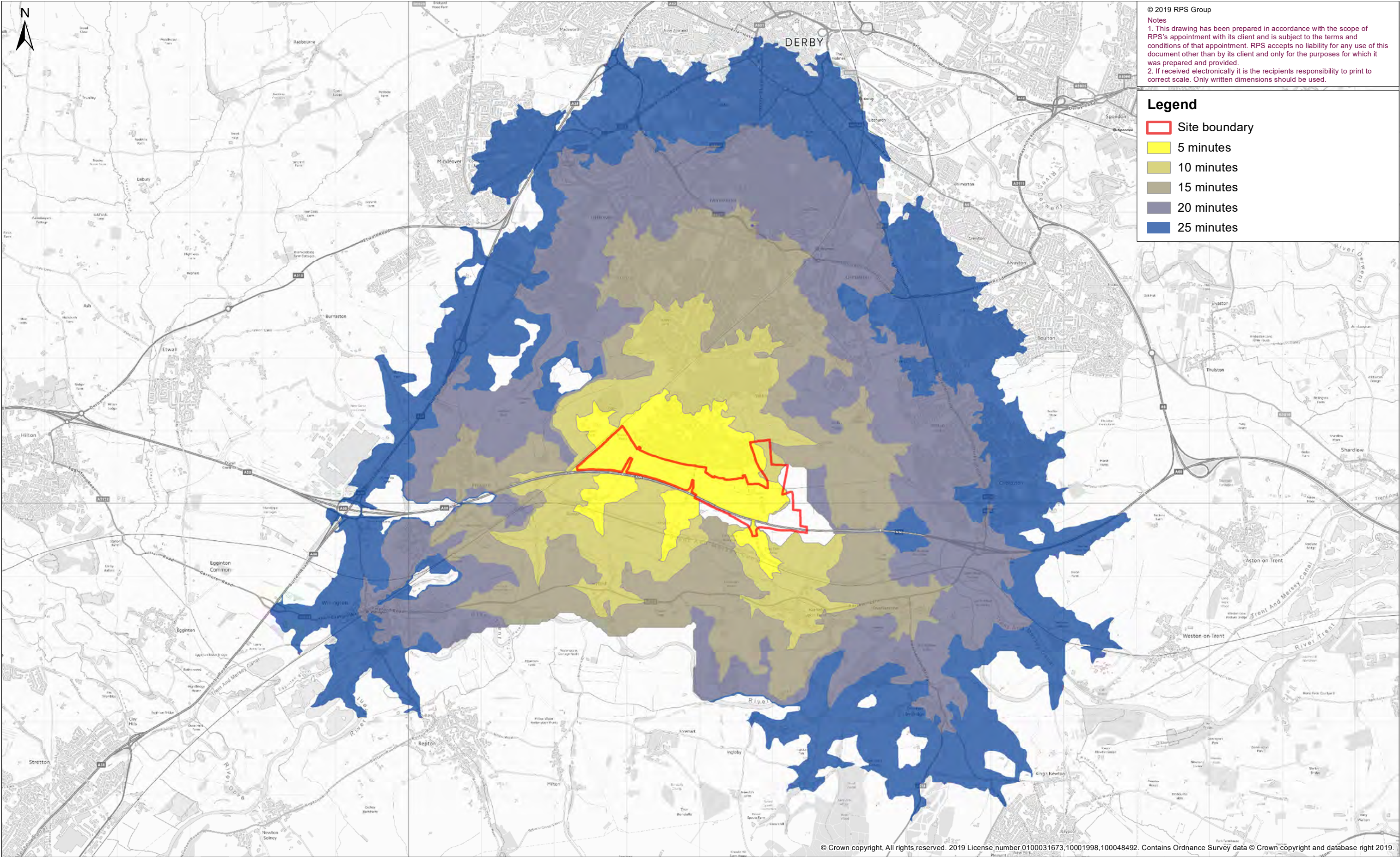
0m 100m 200m 300m 400m 500m

FOR ILLUSTRATIVE PURPOSES ONLY

Drawn By	S.C.M.	Title	Infinity Garden Village (Wragley Way) ILLUSTRATIVE MASTERPLAN	Drawing No	13.060/18
Approved By	D.P.	Scale	1:5,000 @ A1	P and DG accept no responsibility for any unauthorised amendments to drawings and does not permit unauthorised copying of drawings in order that subsequent reproduction of drawings are internally controlled. Copyright P and DG	
Revision Detail / Date		Date	05/2019		



Appendix C – Existing Walking, Cycling & PT routes



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- Legend**
- Site boundary
 - 5 minutes
 - 10 minutes
 - 15 minutes
 - 20 minutes
 - 25 minutes

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Rev	Description	By	CB	Date
Figure Number				Rev
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Client Hallam Land Management

Project Wragley Way, Derby

Title Cycling Isochrone

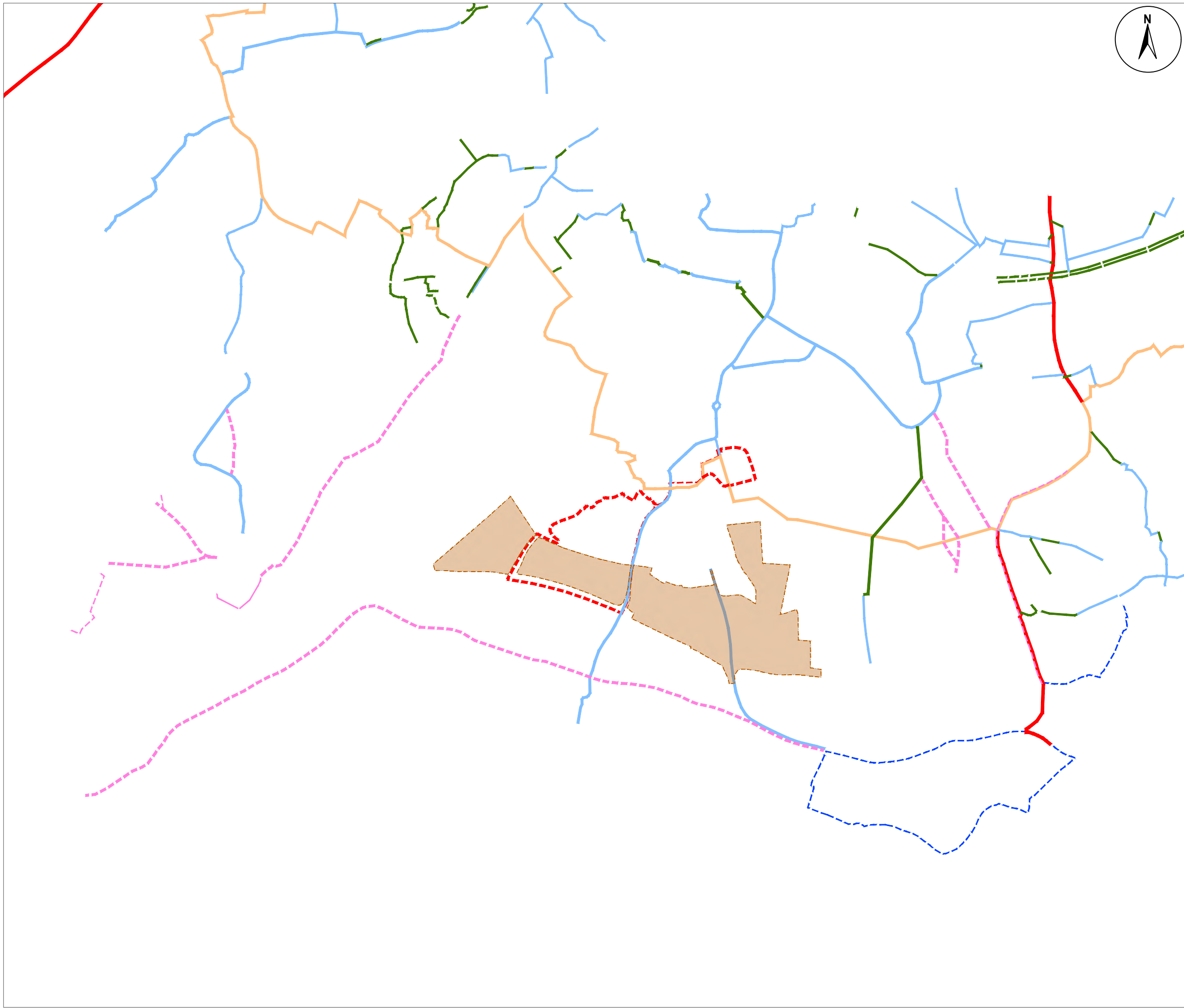
0 500 1,000 m

Note:
Total end to end journey time using
Basemap TRACC
with Cycle speed of 16km/hr

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Project Number	Scale @ A3	Date Created
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- Key:
- Footpath
 - Circular Walk - Sinfin & Stenson
 - Circular Walk - Swarkstone
 - Cycle Route - Recommended Unmarked
 - Cycle Path - Traffic free
 - Cycle Route - Orbital 66
 - National Cycle Route
 - Site

Rev	Description	By	CB	Date
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ClientHallam Land Management

ProjectWragley Way, Derby

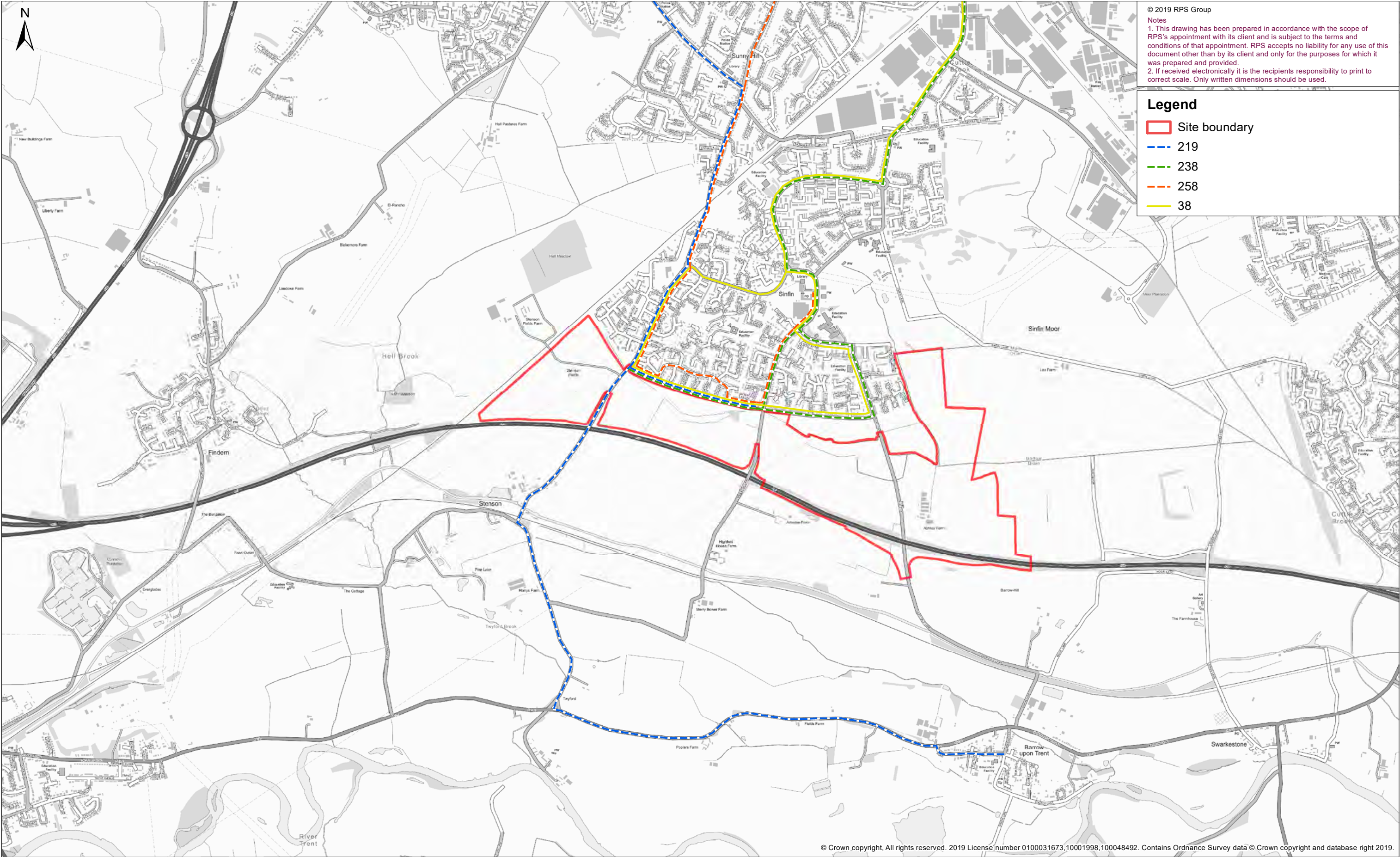
TitleExisting Walking / Cycling Routes

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Project NumberScale @ A3Date Created
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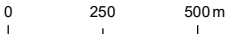
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Client	Hallam Land Management
Project	Wrangley Way, Derby
Title	Bus Routes

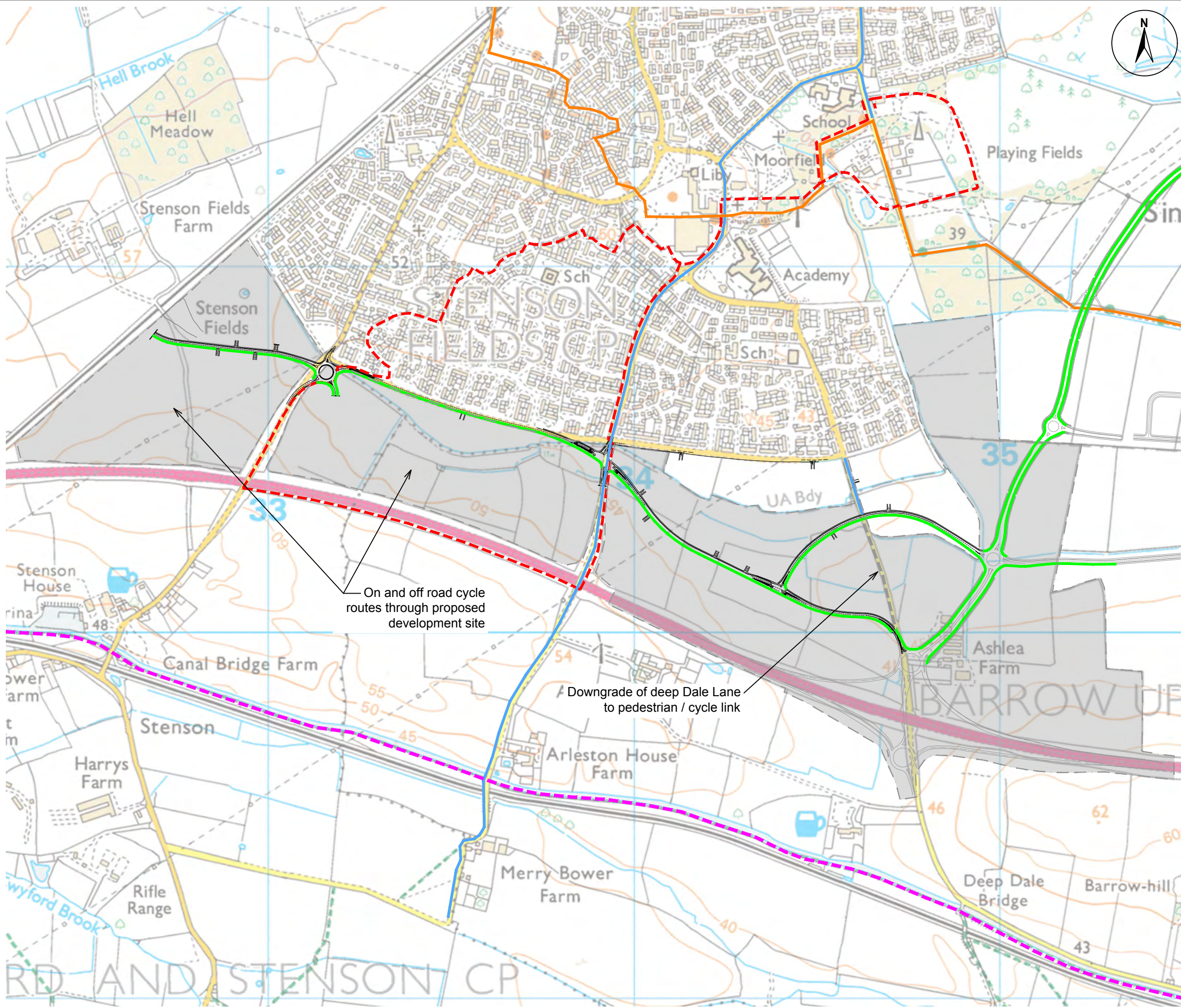


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Appendix D – Proposed Cycle & Bus Routes



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 3. This drawing is to be read in conjunction with all relevant scheme drawings.

- Footpath
- Circular Walk - Sinfin & Stenson
- Circular Walk - Swarkstone
- Cycle Route - Recommended
- Unmarked
- Cycle Route - Orbital 66
- Proposed new off road cycle route
- Site

Rev	Description	By	CB	Date
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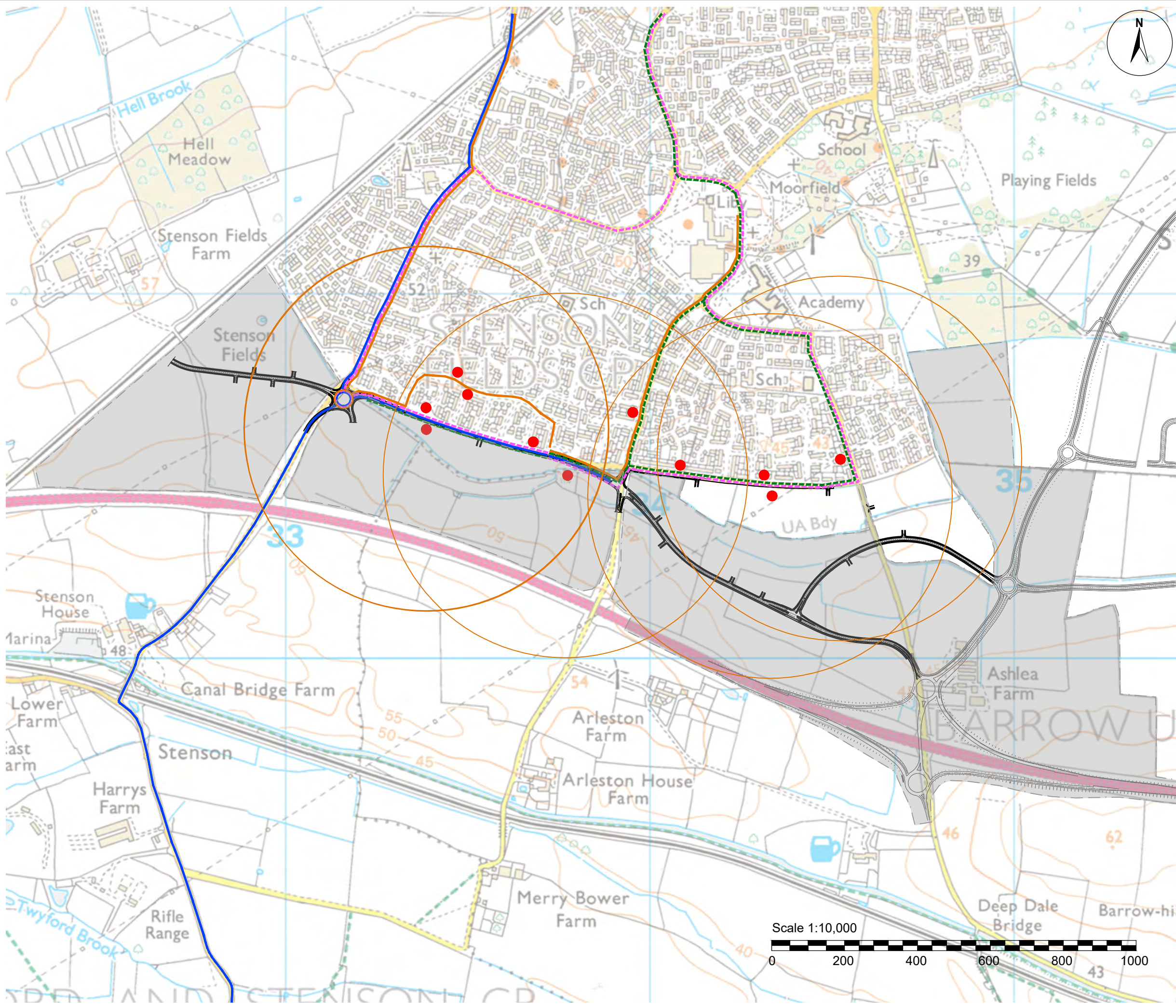
Client Hallam Land Management

Project Wragley Way, Derby

Title Proposed Walking / Cycling Routes

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INFORMATION	AJ	MA
Project Number	Scale @ A3	Date Created
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 3. This drawing is to be read in conjunction with all relevant scheme drawings.

Key:

- Site
- Bus Route 38
- Bus Route 219
- Bus Route 238
- Bus Route 258
- 500m Catchment
- Existing bus stops

Rev	Description	By	CB	Date
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Client Hallam Land Management

Project Wragley Way, Derby

Title Bus Routes

Status	Drawn By	PM/Checked by
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JNY9033	1:10,000	May 2019
RPS Drawing/Figure Number		Rev
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Appendix E – Travel Information Pack Example



NEW LUBBESTHORPE

Travel Information Pack

THE VISION FOR NEW LUBBESTHORPE



New Lubbesthorpe is set to become a vibrant village filled with new homes, new schools, a health centre with doctors/dentists, shops, community facilities, parks and play areas.

It will be a place that people want to live, work, learn and enjoy. New Lubbesthorpe will retain its rich rural setting with woodland areas, wildlife areas, rich parklands, allotments, play places, walking and cycling all within walking distance of your home.

Over the next decade thousands of new jobs will be created within this new community; in its construction as well as in the healthcare centre, schools, shops and the new business village. It will be well connected, with a new bridge to the M1 and within easy reach of Fosse Park, Meridian and the Park and Ride.

There is an exciting future ahead for New Lubbesthorpe. Keep your eye on the website to see how the plans unfold or use our Facebook site to keep in touch.

Welcome to New Lubbesthorpe – make it your new home.

Contents

Page

Welcome	2
Walking & Cycling	3
Bus Services	10
Rail Services	14
Car Sharing	16
Community Transport	17
Home Working	18
Shopping Locally and Home Delivery	19
Useful Contacts and Links	20



Welcome to New Lubbesthorpe

“The Developer of your home has committed to delivering a sustainable development. Part of this commitment involves producing a new Residents Travel Plan which aims to minimise single occupancy car journeys to and from the site”

Principally, this Travel Plan aims to increase travel mode choice through the implementation of a package of measures and initiatives to promote and encourage use of sustainable transport modes such as walking, cycling, public transport and car-share where practical. The benefits of reduced car trips will be:

- a safer and cleaner environment;
- reduced congestion;
- improved health; and
- personal financial savings.

There's an easier way from A...B

These travel pages provide information to help you plan your day to day journeys. By providing a range of travel information we hope this will encourage you to consider

other ways to travel than by car on your own.

Travel surveys at the New Lubbesthorpe development will identify baseline travel patterns and targets for reducing drive alone journeys.

We understand that sometimes there is no alternative to travelling by car. However, we encourage you to consider alternative ways to travel when possible.

Why make fewer trips by car?

- It saves you money! The fewer trips you make, the more money you save on fuel and car maintenance costs;
- Reducing your annual mileage reduces your private vehicle insurance premium;
- Walking and cycling on a regular basis is good for your heart and lungs, burns calories and is a good way to achieve a fitter and healthier lifestyle;
- When travelling by bus or train you don't need to find a parking space, or worry about parking tickets. You also get to avoid the stresses of driving; and
- Fewer car journeys will reduce local CO2 emissions creating a cleaner environment for you to live in.

We hope you will find this pack useful and that it helps you to explore your local area and the great benefits it has to offer!

Walking and Cycling

Fit exercise into your daily routine by walking or cycling all or part of your journey

Walking and cycling are great ways to boost your health, fitness and wellbeing. It is recommended that the average adult should do 30 minutes of exercise five times per week. Walking or cycling to work, the shops or school is an easy way to achieve this target. Walking and cycling also offer a cheaper alternative to a monthly gym membership!

Walking or cycling can often be combined with other modes of transport for part of the journey, e.g. bus or train.



“Walking on a regular basis is good for your health and wellbeing and it’s FREE. Try the NHS Change4life website for ideas of how to fit being active into your lifestyle!”

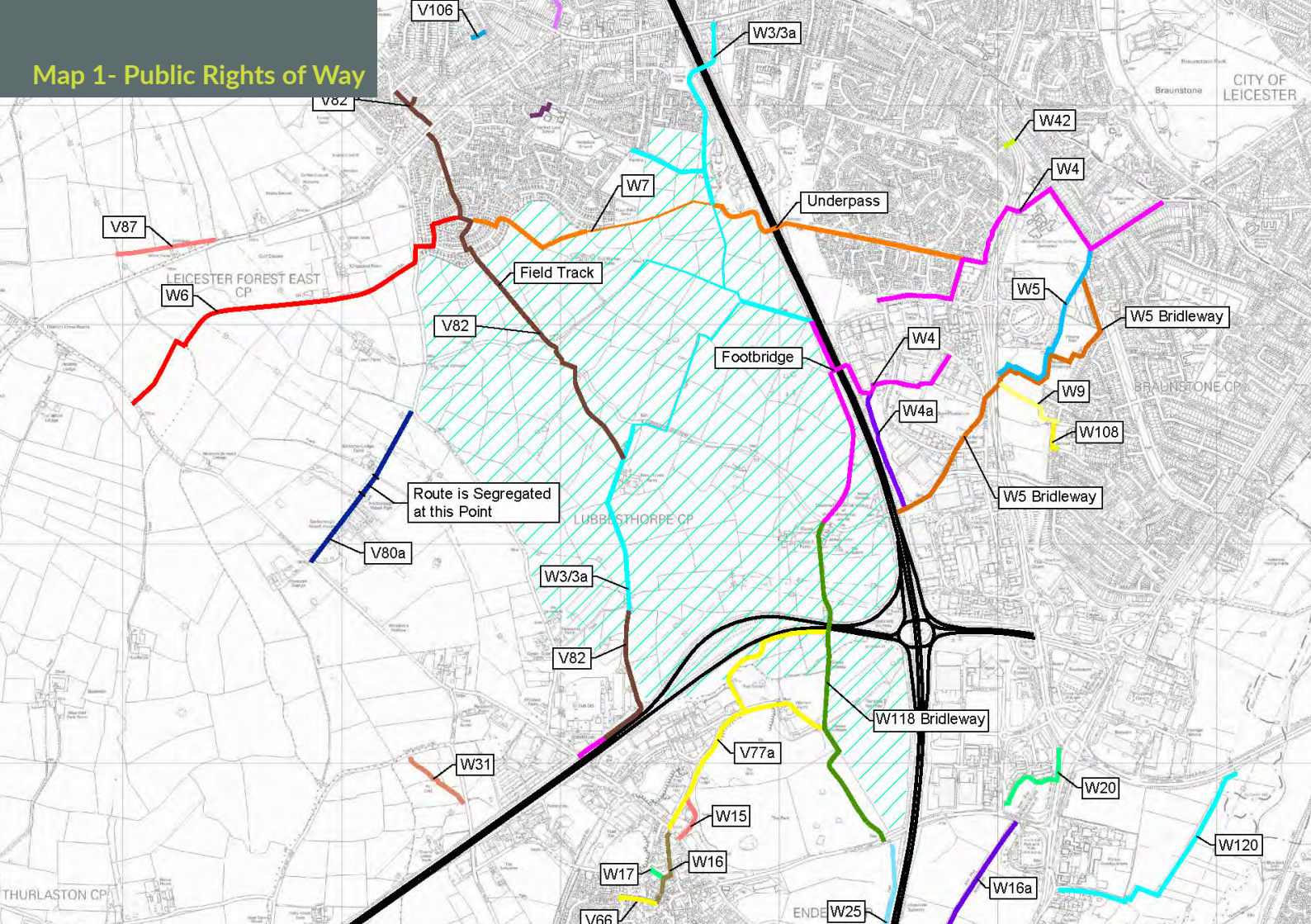
Did you know...

Walking and cycling have great personal health and fitness benefits such as:

- Lower risk of heart disease, high blood pressure and diabetes;
- Stronger bones;
- A strengthened immune system;
- Better weight management;
- Increase energy levels;
- Enhanced self esteem; and
- Better sleep.

The Travel Plan Co-ordinator (TPC) will promote the use of a Bicycle User Group (BUG). Participation in cycling events such as national cycle to work day, HSBC UK City Ride, City Bike Challenge and Health Lifestyles help to raise the general profile of cycling.

Map 1- Public Rights of Way



There are a number of existing Public Rights of Way (PRoW) that cross the development site; these will be amended to follow the proposed footways and cycleways throughout the site. The location of these PRoWs are shown on Map 1. The comprehensive network of footways and cycleways will allow you to walk or cycle to local facilities and places of employment within the site itself and the surrounding area.

High quality, well-lit walking routes will be provided to/from the site to the surrounding areas. A number of pedestrian access points will provide access to the existing pedestrian network including to the A47; Meridian Way and Thorpe Astley via the new M1 crossing; to Braunstone via the Watergate Lane underpass and to Leicester Lane via a new link road and bridge over the M69. Further pedestrian access will be provided to Beggars Lane to the north of the access to the development. There are two crossings south of the MSA; a footbridge which links with the Meridian



industrial estate, and an underpass on the north which carries an existing PRoW into the Thorpe Astley residential estate.

The development is located approximately 5km cycle distance to the City Centre and cycling is well provided for within the vicinity of your new house. A plan identifying the existing cycle routes is provided at Map 2.

The A47 Hinckley Road accommodates intermittent on road cycle lanes between the junction with Beggars Lane and Leicester City Centre. A short length of on-road cycle lane is provided on both sides of the A47 for approximately

on your bike... it's quicker to cycle!

It is often quicker to cycle or walk short distances than travel by car, particularly during the morning and evening rush hours.

100 metres to the east of the junction with Beggars Lane. In addition, cycle lanes are provided on both sides of carriageway between the junction with Warren Lane and Ellis Drive. Cycle lanes then continue in an easterly direction from the point where the A47 crosses the M1.

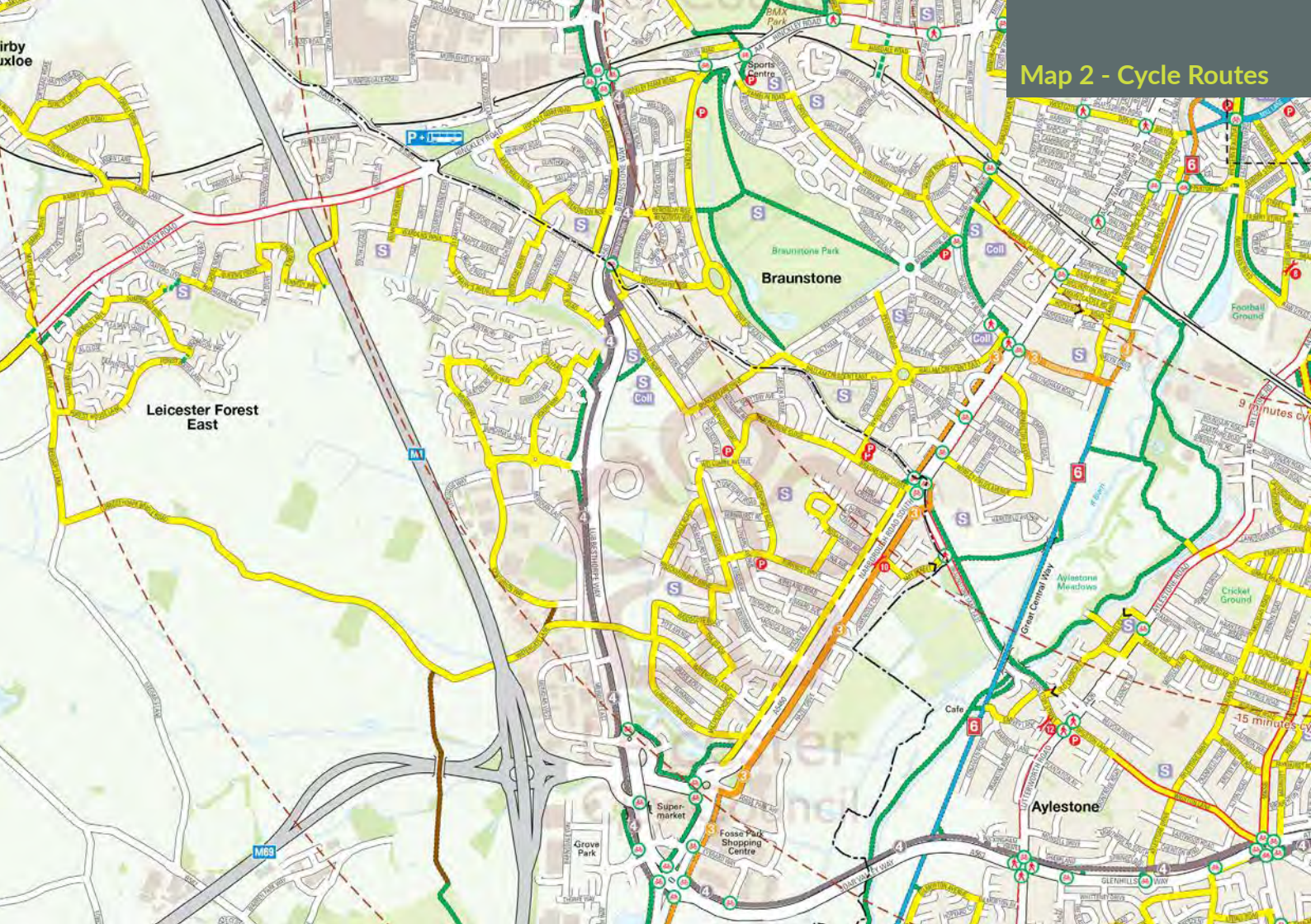
Along Leicester Lane, there is an existing combined footway/cycleway which starts from a point approximately 240 metres west of the M1 and continues eastwards to the B414 Narborough Road South. Narborough Road provides off road cycle lanes in both a northerly and southerly direction, and in turn links with Fosse Park retail development.

Off road cycle routes also run alongside the A563 Lubbethorpe Way (Leicester Ring Road) and provide links to the wider Leicester Cycle Network. An existing combined footway/cycleway is provided on both sides of Meridian Way along the section which is a dual carriageway.

There are a number of local facilities within walking and cycling distance of your development, providing a wide range of services for everyday needs. There will also be the provision of local amenities within the new development, including a primary school and convenience store.



Map 2 - Cycle Routes



A walk and cycle route plan through the development is shown in **Map 3**.

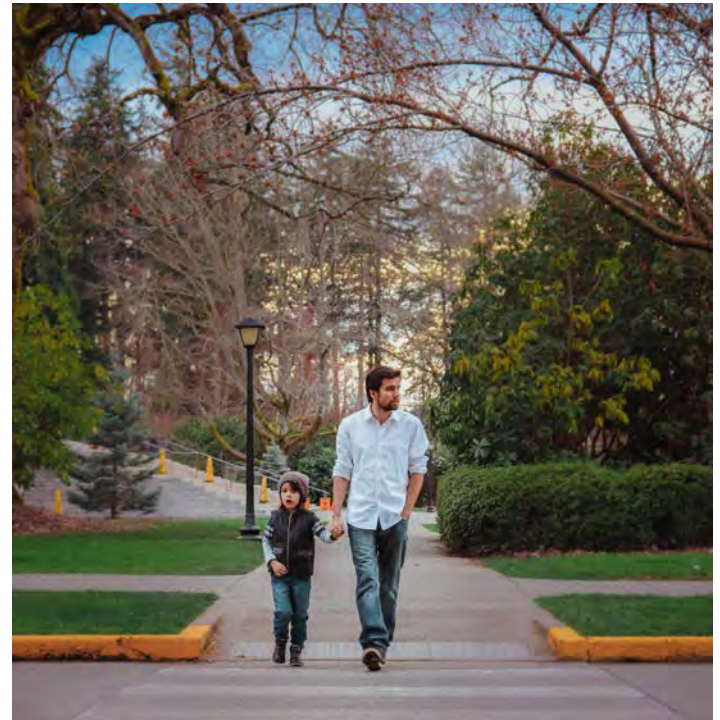
If you fancy walking or cycling your commute to work or outside of work, there are plenty of routes and groups available at the following websites;

- Ramblers
www.ramblers.org.uk/go-walking/find-a-walk-or-route.aspx
- Walking in Leicestershire
www.walkinginleics.co.uk/groups.php
- Sustrans
www.sustrans.org.uk/ncn/routes
- Cycling Groups
www.cyclinguk.org/local-groups

As well as all the health and fitness benefits of cycling it is also a quick way of getting around and much cheaper than driving. Cycling to your local shops is good for the community too, as this helps support your local economy.

- Nearly a quarter of all car trips are less than two miles (3km), a distance that can be cycled in under 15 minutes;
- Cycling two-mile trips could save £600 per year in fuel;

- Car journeys under one mile normally take 20 minutes to walk;
- Walking one-mile trips could save £160 per year in fuel;
- The school run costs families on average £300 a year in petrol and car maintenance. Walking there and back could be good for your bank balance and your heart.

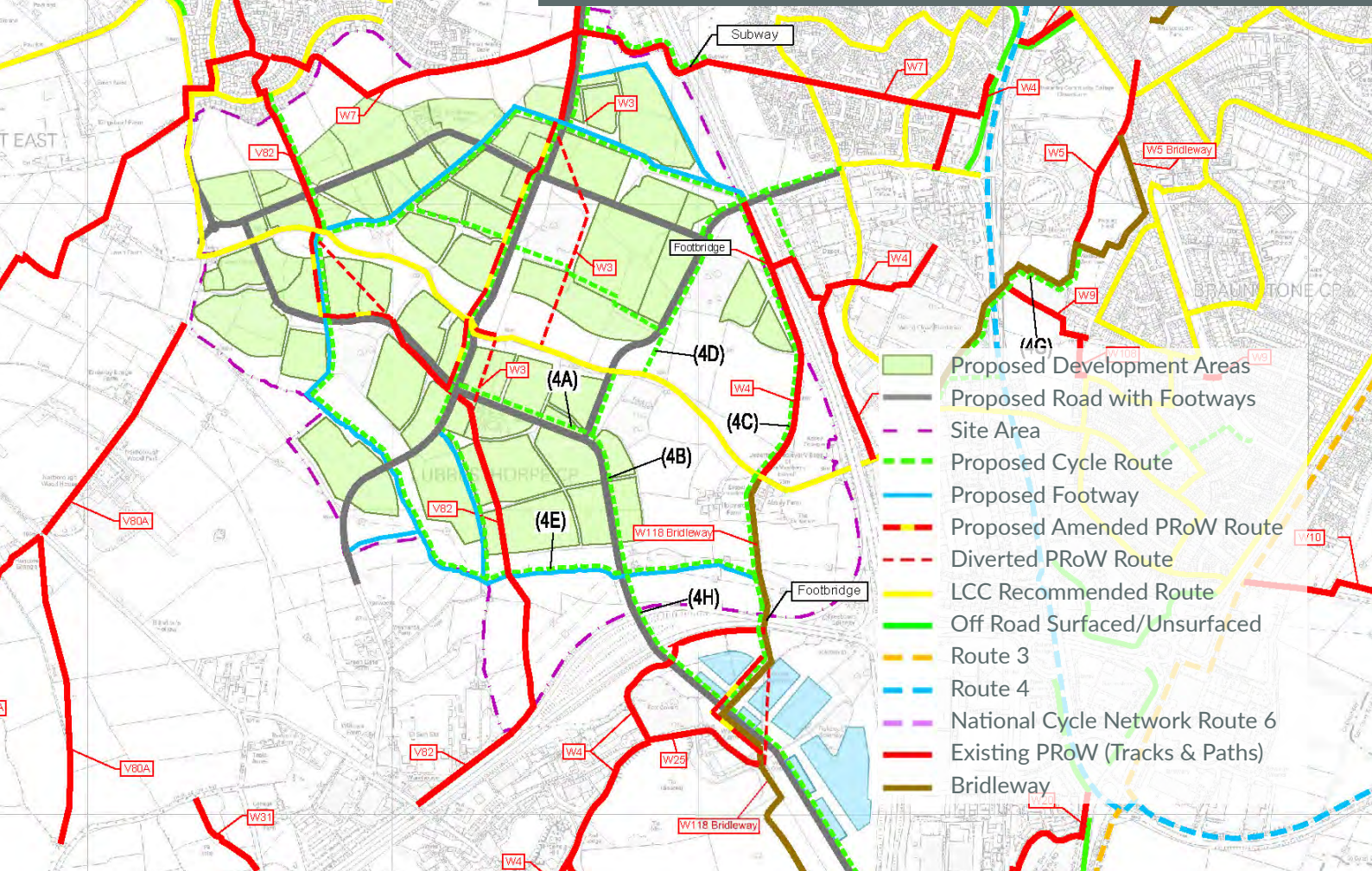


Map 3 - Indicative Final Development Walk and Cycle Routes

The map illustrates the proposed development area and its surrounding infrastructure. Key features include:

- Proposed Development Areas:** Shaded in green.
- Proposed Road with Footways:** Thick grey lines.
- Site Area:** Dashed purple line.
- Proposed Cycle Route:** Dashed green line.
- Proposed Footway:** Solid blue line.
- Proposed Amended PRow Route:** Thick red line.
- Diverted PRow Route:** Dashed red line.
- LCC Recommended Route:** Yellow line.
- Off Road Surfaced/Unsurfaced:** Green line.
- Route 3:** Orange dashed line.
- Route 4:** Blue dashed line.
- National Cycle Network Route 6:** Purple dashed line.
- Existing PRow (Tracks & Paths):** Red line.
- Bridleway:** Brown line.

The map also shows existing roads, footbridges, and a subway. Various route labels (e.g., W3, W4, W5, W6, W7, W8, W9, W10, W11, W12, W13, W14, W15, W16, W17, W18, W19, W20, W21, W22, W23, W24, W25, W26, W27, W28, W29, W30, W31, W32, W33, W34, W35, W36, W37, W38, W39, W40, W41, W42, W43, W44, W45, W46, W47, W48, W49, W50, W51, W52, W53, W54, W55, W56, W57, W58, W59, W60, W61, W62, W63, W64, W65, W66, W67, W68, W69, W70, W71, W72, W73, W74, W75, W76, W77, W78, W79, W80, W81, W82, W83, W84, W85, W86, W87, W88, W89, W90, W91, W92, W93, W94, W95, W96, W97, W98, W99, W100) are visible.



Bus

on the bus... stop fuelling around!
Relax and let someone else drive you there

Why take the bus?

- Relax and read a book or the newspaper on your way to work or to the shop;
- Where routes have dedicated bus lanes, you can avoid sitting in traffic jams;
- No need to drive around trying to find a parking space, or pay the charges;
- Total flexibility, no restricting parking tickets;
- Meet up and go for a drink with your friends, someone else will drive you home;
- Season tickets offer unlimited travel on services and can prove cheaper to filling your car up and the associated maintenance costs; and
- Bus users breathe a third less pollution than car users.

Your development will provide bus stops with real time bus information, bus shelters, raised kerbs and seating on good pedestrian links. The development will provide a service that will connect the site non-stop to the City Centre, Haymarket Bus Station via the A47 and the bus priority corridor, these services will have a 20 minute frequency

10

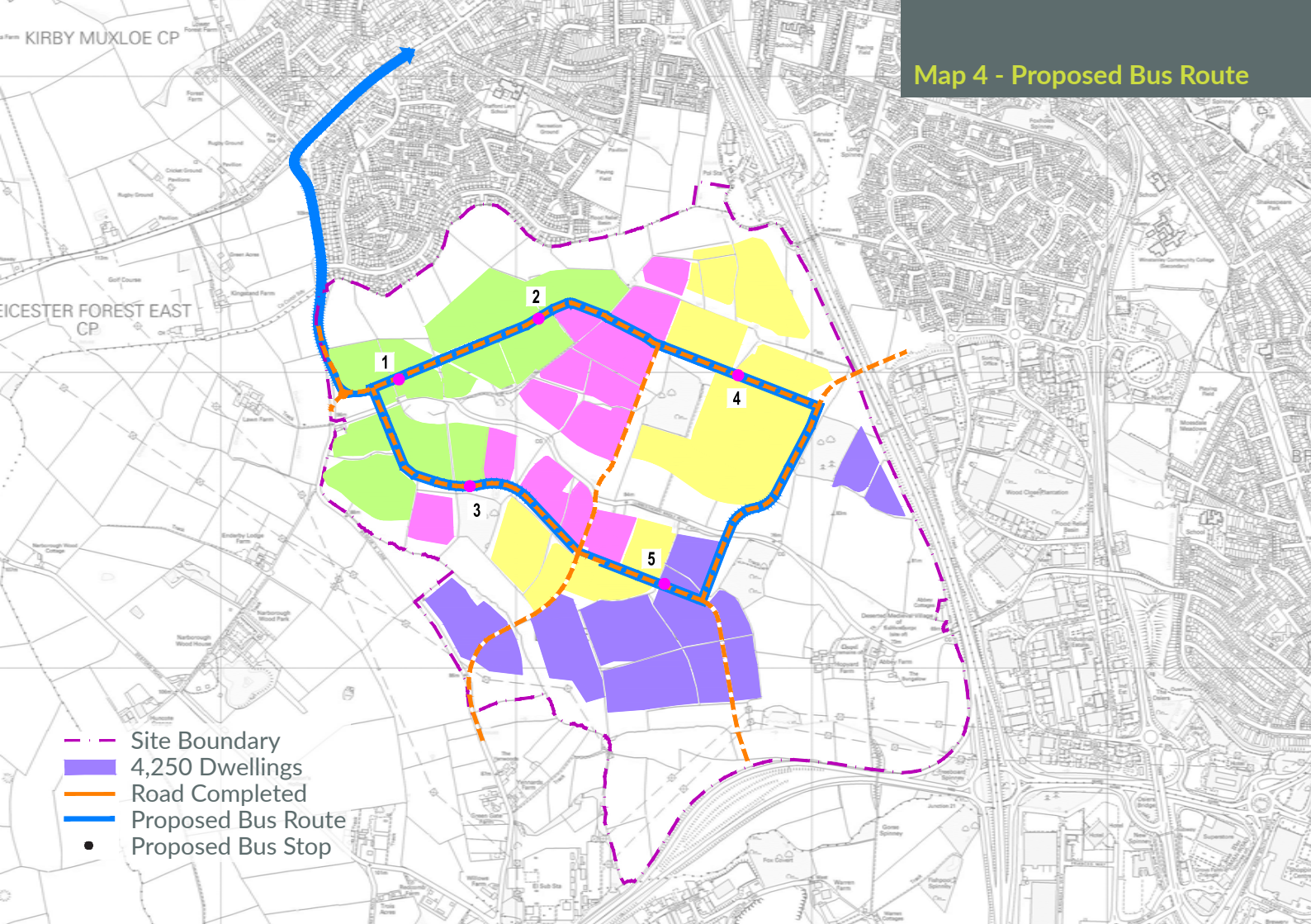


throughout peak periods. The A47 bus corridor provides a high quality public transport link from the site into the City Centre.

The service will follow a circular route around the roads within the development, providing a 20 minute frequency, travelling clockwise and anti-clockwise. The direct service to the City Centre provides an express bus link for the development, taking advantage of the existing and proposed bus priority measures which will offer a more attractive journey time for residents. The new bus service will commence post occupation of 301 dwellings.

Map 4 shows the proposed indicative route of the service. The initial route for the bus will be via Beggars Lane.

Map 4 - Proposed Bus Route



Each dwelling will be provided on application with a six month free bus pass for the Leicester zone to encourage the use of the services; this is part of the personalised travel planning for your development. An application pack for

the free travel pass is included in this pack and should be returned direct to Arriva.

A summary of current local services is provided in Table 1 below:

Table 1: Local Bus Services (correct up to June 2017)

Service	Company	Route	Day	Frequency	First Bus	Last Bus
50 / 51	Arriva	Leicester to Narborough & Braunstone	Monday - Friday	6 per hour	05:50	23:00
			Saturday	4 per hour	07:00	23:00
			Sunday	4 per hour	10:00	23:00
18 / 19	First	City Centre - Braunstone - City Centre	Monday - Friday	3 per hour	06:47	20:47
			Saturday		07:07	20:47
			Sunday	2 per hour	09:30	20:40
15	Stagecoach	Almond Road - Town Centre - Northfield Avenue - Tesco	Monday - Saturday	2 per hour	06:49	18:43
			Sunday	No Service		
104	Arriva	Leicester to Fosse Park	Monday - Friday	5 per hour	07:00	22:43
			Saturday	5 per hour	07:14	22:43
			Sunday	2 per hour	09:45	17:45
X6	Travel de Courcey	Coventry - University Hospital - Burbage - Fosse Park - Leicester	Monday - Friday	1 per hour	06:10	18:00
			Saturday	1 every 1-2 hours	07:20	17:50
			Sunday	3 services (11:05, 14:05, 17:05)		

Service	Company	Route	Day	Frequency	First Bus	Last Bus
158	Arriva	Leicester to Nuneaton	Monday - Friday	3 per hour	06:20	23:10
			Saturday	3 per hour	07:05	23:10
			Sunday	1 per hour	09:55	17:55
47 / 48	Arriva	Leicester to South Wigston & Wigston Magna circular	Monday - Friday	4 per hour	06:10	23:30
			Saturday	3 per hour	06:40	23:30
			Sunday	No Service		
52	Arriva	Leicester to Thorpe Astley	Monday - Friday	1 per hour	07:40	19:15
			Saturday	1 per hour	08:05	19:15
153	Arriva	Leicester to Market Bosworth	Monday - Friday	2 per hour	05:57	19:20
			Saturday	2 per hour	06:39	19:23
			Sunday	No Service		

Concessionary Bus Passes

Concessionary travel is available for disabled people to travel for free or at a reduced rate on local bus services in Leicester, Leicestershire and throughout England. For more information, go to the following website or ask the Travel Plan Co-ordinator for more details:

www.leicestershire.gov.uk/popular-now/apply-for-a-disabled-persons-bus-pass

You can apply for an older person's bus pass for free travel on the bus anywhere in England during off-peak times. For more information, go to the following website or ask the Travel Plan Co-ordinator for more details:

www.leicestershire.gov.uk/roads-and-travel/buses-and-public-transport/older-persons-bus-pass

Train

on the right tracks... Beat the rush and take the train

The benefits of rail travel are shared with those of travelling by bus, such as:

- Rail travel could save you time and money, and help you reduce your carbon footprint;
- You don't have to worry about traffic jams or speeding fines;
- You can lose yourself in a good book or catch up on some sleep;
- You can catch up on your work, or even have a meeting; and
- You can arrive at the centre of your destination and avoid paying for the car park.

Travelling by rail provides a fast, efficient and frequent option, whether travelling for business or pleasure. Your development will provide a direct bus services from the site to Leicester Rail Station, or it is 24 minutes' drive to the north east. Narborough Railway Station is located to the south of the site approximately eight minutes' drive away.

Leicester Station provides 515 parking spaces for cars and 222 spaces for cycles. Parking at the Station for cars is £14



per day (correct Aug 2017). You could save yourself some money by taking the bus or cycling to and from the station or alternatively car share with someone you know.

Services run frequently to destinations including Birmingham New Street and Leicester from Narborough Station, and Stansted Airport, London St Pancras, Nottingham, Lincoln and Sheffield from Leicester Station. The services are summarised in Table 2 below (correct at June 2017). Further information on rail travel and services can be found at: www.nationalrail.co.uk.

Railcards - National Rail offers a number of Railcards with a range of eligibilities that can save you a third on most rail fares. More information on Railcards and fares can be found at: www.nationalrail.co.uk/times_fares/46540.aspx

Table 2: Rail Services (correct up to June 2017)

Route	Day	Frequency	First Train	Last Train
Birmingham New Street (Narborough and Leicester)	Monday – Friday	1 per hour	06:28	22:38
	Saturday		05:59	22:27
	Sunday		10:31	22:29
Leicester (Narborough)	Monday – Friday	1 per hour	06:04	23:08
	Saturday		08:38	23:08
	Sunday		10:37	22:37
Stansted Airport	Monday – Friday	4 per hour	04:45	21:58
	Saturday		04:55	21:58
	Sunday	2 per hour	06:53	21:16
London St Pancras International	Monday – Friday	4 per hour	04:45	21:58
	Saturday		04:55	21:58
	Sunday	2 per hour	06:53	21:16
Nottingham	Monday – Friday	4 per hour	06:26	01:07
	Saturday		06:26	23:46
	Sunday	2 per hour	10:20	23:22
Lincoln	Monday – Friday	2 per hour	06:26	21:48
	Saturday		06:26	23:46
	Sunday	1 per hour	11:15	1:15
Sheffield	Monday – Friday	2 per hour	07:12	01:07
	Saturday		07:12	23:46
	Sunday		10:20	23:41

Car Share

on the road... got a spare seat, why not share your car journey?

One way of reducing the costs of travelling by car is to 'car share'. As well as saving you money you will also help the environment by reducing your carbon footprint. Car sharing can be done when travelling to work, going shopping, on the school run; in fact on any journey you make. It's also a great way to meet new people and make new friends.

Choose How You Move CarShare has been set up to provide a matching service for all those who live, work and travel in and around Leicester and Leicestershire. This



site matches you up with potential partners as a driver or passenger for regular, occasional and one-off journeys anywhere in the city, county, or rest of the UK. By sharing your commute, business and leisure trips, you can turn spare seats into savings, cut congestion and enjoy the company. Further details can be found here at the following website: liftshare.com/uk/community/leicestershare.

Follow these simple guidelines when meeting up with your car share for the first time:

- Agree a convenient pick up point e.g. an open and public space, such as a bus stop or outside a shop;
- Arrange to meet near public transport links so you have an alternative means of travelling should the lift fall through;
- The first time you lift share with a stranger, satisfy yourself as to his or her identity. You could ask for ID, such as a passport or driving licence;
- Find out what colour and model of car to expect. If you want to share with the same sex only, then you can indicate this when you search for a match; and
- Tell a friend or family member when and where you are travelling and with whom.

So why don't you sit back, relax and let someone else do the driving?

Community Transport

Leicester County Council provide accessible transport services for people who, because of age, disability or rural isolation, cannot use conventional public transport or have problems doing so. Services are provided for individuals to help them live and travel as independently as possible.

Community Transport is mostly provided by voluntary sector partners and includes social car schemes and community bus services. Social car schemes involve volunteers using their own cars to provide door-to-door transport. Community bus services use wheelchair-accessible minibuses to provide travel from home to common destinations such as town or shopping centres. Details on Community Transport in Leicestershire is provided at the Choose How You Move website: www.choosehowyoumove.co.uk/everyday/community-transport

There is a Community Action Partnership for Blaby, in which the village of Lubbethorpe and the new development is situated. This offers community transport for:

- Elderly people;
- Those who find it difficult or are unable to use public transport;
- Those whose mobility is impaired or are disabled; and
- Those who are rurally isolated.

For more information use the following contact details;

- Contact Name(s): Community Action Partnership (Blaby)
- Telephone: 0116 2786604
- Email: muriel@communityap.org.uk
- Website: www.communityactionpartnership.org.uk
- Charges: There will be a charge, please check with the provider for exact fares.

For Greater Leicester community transport, there is Central Leicestershire Dial-a-Ride which is an accessible solution for people who find buses a problem.

Dial-a-Ride services are available to anyone, of any age, who finds it hard or impossible to catch a bus. Dial-a-Ride collects you from your door and allows you to take someone with you for help or company. Fares are comparable with bus fares for similar journeys and you can use your bus pass. You usually get about two hours in the city or shopping centre.

The buses have passenger lifts, so you can easily get on and off board even if steps are a problem or you use a wheelchair. Dial-a-Ride drivers will also give you help on and off the bus. There are five Dial-a-Ride transport services currently available.

Home Working

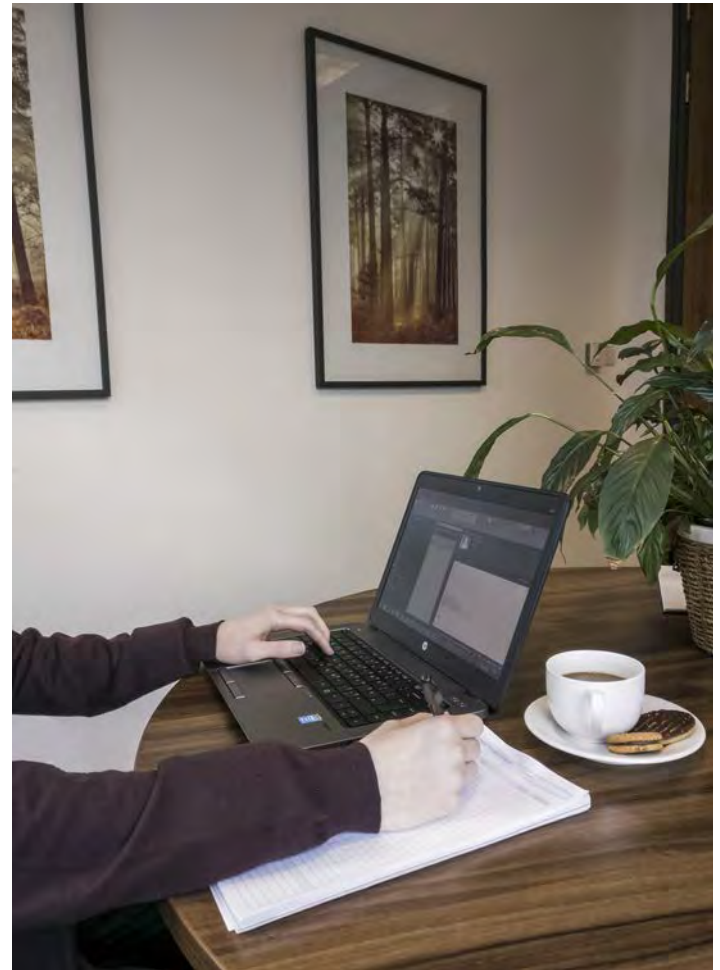
Save money, reduce pollution and reduce stress!

Working from the comfort of your own home can save time and hassle, whilst making a valuable contribution to the environment.

Homeworking offers greater flexibility and the benefit of reclaiming time normally spent travelling, resulting in increased productivity and a better work/life balance.

Working at home doesn't mean working in isolation away from office-based colleagues. Efficient use of technology can ensure contact is still maintained in an effective way, for example using email, instant messaging, telephone and conference facilities.

All you often need is a computer and home broadband connection to get you going.



Shopping Locally and Home Delivery

Live local... shop local

An easy way to cut the cost of car travel is to shop locally. New Lubbethorpe will offer a variety of local shops all within easy walking/cycling distance.

Too much shopping to carry? Walk into town and get the bus /taxi home – it could be cheaper than parking!

By shopping in your local town centre, you will also be supporting your local community and economy.

Alternatively, take the stress and drive out of your weekly shop by doing it online. Your local supermarket Sainsburys offers home delivery for online orders.



Useful Contacts and Links

There are a range of organisations and websites dedicated to helping people who want to walk or cycle more, whether for leisure or work.

Travel Plan Co-ordinator

Your Travel Plan Co-ordinator (TPC) is Martin Lewis, based on site at New Lubbethorpe at the site office. He is responsible for providing you with travel advice, information and guidance. Martin can offer you many services, including personalised journey planning, helping you to choose travel options tailored for you.



The TPC will also keep your community notice board updated with the latest timetable information, discounts and offers, training and sustainable travel activities to help you change your travel habits.

For more information on personalised journey planning or anything else travel related, go and have a chat with the Sales Office – your travel information hub.

You can contact Martin on:

- 07887 514314
- site.liason@newlubbethorpe.co.uk

Useful Links

Sustrans

www.sustrans.org.uk

Roadworks

roadworks.org

Journey Sharing

liftshare.com/uk

liftshare.com/uk/community/leicestershare

Google Maps

www.google.co.uk/maps

Ramblers

www.ramblers.org.uk/go-walking/find-a-walk-or-route.aspx

Walking in Leicestershire

www.walkinginleics.co.uk/groups.php

Cycling Groups

www.cyclinguk.org/local-groups

Paul S. Winson Coaches

www.winsoncoaches.co.uk/bus-timetables

Leicester County Council – Bus Travel

www.leicestershire.gov.uk/roads-and-travel/buses-and-public-transport/buses-in-my-local-area

Stagecoach

www.stagecoachbus.com/timetables

Travel de Courcey

www.traveldecourcey.com

National Express

www.nationalexpress.com/home.aspx

First Leicester

www.firstgroup.com/leicester

Arriva in the Midlands

www.arrivabus.co.uk/midlands

Leicetser City Council – Travelling by Bus

www.leicester.gov.uk/transport-and-streets/travelling-by-bus

Choose How You Move

www.choosehowyoumove.co.uk/everyday/community-transport

Concessionary Bus Passes

www.leicestershire.gov.uk/popular-now/apply-for-a-disabled-persons-bus-pass

www.leicestershire.gov.uk/roads-and-travel/buses-and-public-transport/older-persons-bus-pass

National Rail

www.nationalrail.co.uk



NEW LUBBESTHORPE

www.newlubbesthorpe.co.uk

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INFINITY GARDEN VILLAGE, WRAGLEY WAY, DERBY

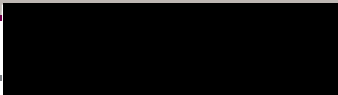
Transport Assessment

JNY9033
Transport Assessment
01
04 June 2019

Document Status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
01	Transport Statement	Melanie A'Lee	Brian Plumb	Brian Plumb	04 June 2019

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1 INTRODUCTION

Report Brief

- 1.1 RPS has been commissioned by Hallam Land Management (HLM) Ltd to provide a Transport Assessment (TA) in relation to the two proposed outline planning applications for the proposed Infinity Garden Village development on Land south of Wragley Way and west of Stenson Road, Derby to consider the potential impact on the surrounding highway network.
- 1.2 The proposed development will include up to 1,850 dwellings, a 2 form entry Primary School, Local Centre, Public House, drive through restaurant, petrol filling Station and employment development, as well as providing part of the South Derby Integrated Transport Link (SDITL). The site is largely identified as Housing Policy site ref 15 within South Derbyshire Local Plan.
- 1.3 This report reviews the impact associated with this development based on the trip rates that have been previously adopted and included within the Derby Transport Model and the strategic modelling of the South Derby Growth Zone (SDGZ). Whilst this report provides an assessment of the local highway network associated with the development, further supplementary work is likely to follow this TA to assesses the impact of the development using the Derbyshire County Council Gateway Model. The modelling of the local highway network within this report has been undertaken on a spread sheet based assessment, using existing traffic surveys carried out in 2018 and also informed by the modelling outputs for the SDITL and new A50 junction. In addition a review has been undertaken of the SDGZ Model outputs verses the manual spread sheet TA assessment which is included in Section 11.
- 1.4 The SDGZ Model includes the new highway infrastructure associated with the development of Infinity Park and the new junction onto the A50. The provision of the new A50 junction and Infinity Park Link Road have been submitted as a separate planning application by Derbyshire County Council which deals with the infrastructure only but includes as part of the impact assessment work, the traffic associated with the Infinity Garden Village and other site allocations identified in the Local Plans. The impact assessment for this infrastructure has been carried out by BWB Consulting Ltd. on behalf of DCC and the findings of this TA and subsequent modelling work regarding the provision of the new A50 junction is included in Section 6 of this TA.
- 1.5 The impact assessment within this TA assumes that the new A50 junction and associated SDITL infrastructure proposed as part of the DCC application will be in place during the initial phases of development.
- 1.6 The development proposal at Wragley Way will include the provision of part of the SDITL as well as providing new junctions onto Stenson Road and Wragley Way. This report also considers the phasing of the development identifying the extent of development and the off-site mitigation measures required.
- 1.7 The site's accessibility by modes other than the private car and links with surrounding areas are also assessed within this report.
- 1.8 Scoping of this report has been undertaken with Derbyshire County Council, Derby City Council and Highways England and a copy of the Scoping Report is included in **Appendix A**.

- 1.9 Within the Impact Assessment section of this report, assessments have been carried out with and without the employment element of the development proposal. This is due to the employment element of the site being submitted as a separate planning application to the overall Infinity Garden Village application, although this TA is to be used for both applications.

Background

- 1.10 The South Derbyshire Local Plan Part 1 (adopted June 2016) and Derby City Local Plan Part 1: Core Strategy (adopted January 2017) allocated land in the vicinity of Wragley Way and Deep Dale Lane for around 2,000 dwellings along with associated improvements to infrastructure, services and facilities. This site allocations are identified as Policy site H15 within the adopted South Derbyshire District Council Local Plan and as Site Policy AC18 with the adopted Derby City Local Plan. Details of the relevant planning policy requirements are included in Section 4 of this TA.
- 1.11 Within the extent of site allocation identified within the Local Plans, three separate planning applications have been made, these include; Land South of Wragley Way (130 dwellings, Application Ref: 05/13/00596), Land east of Deep Dale Lane Phase 1 (50 dwellings, Application Ref: 02/15/00211) and Land east of Deep Dale Lane Phase 2 (100 dwellings, Application Ref: 9/2017/0922).
- 1.12 The application off Wragley Way (130 dwellings) and Deep Dale Lane Phase 1 (50 Dwellings) have been granted planning consent. The Deep Dale Lane Phase 2 (100 dwellings) site is pending determination at the time of writing this report, however the traffic associated with all three sites has been included as part of the impact assessment.

Report Format

- **Section 2** of the report describes the existing site in relation to the surrounding transport infrastructure including accessibility to local facilities by modes other than the private car. This section also details the Traffic Surveys undertaken and the assessment years being used;
- **Section 3** provides details on the existing accessibility together with an outline of the wider master plan for Infinity Garden Village as published within the draft 'Infinity Garden Village Development Framework' document, and how this context relates to the site development. This section also provides an overview of the transport aspects of committed development in the area, in particular at Stenson Fields at the west of Stenson Road, Land south of Wragley Way (130 dwellings) and Land East of Deep Dale Lane (50 dwellings);
- **Section 4** provides a review of the relevant National and Local Transport Planning Policy.
- **Section 5** of the report considers the Personal Injury Accidents that have occurred in the local area between 2011 and 2016;
- **Section 6** of the report considers the application submitted for the A50 junction and the South Derby Integrated Transport Link (SDITL)
- **Section 7** provides details on the development proposal, the access arrangements for the site and parking associated with the development;

- **Section 8** sets out details of the proposed accessibility for the site and the measures to enhance and encourage sustainable travel.
- **Section 9** provides information on the predicted trip generation to the site and the distribution to the local highway network;
- Assessment of the development impact is identified in **Section 10**;
- **Section 11** provides a review of the SDGZ modelling that has been undertaken.
- **Section 12** provides a summary and the conclusions of the report.

2 EXISTING SITE AND SURROUNDING TRANSPORT INFRASTRUCTURE

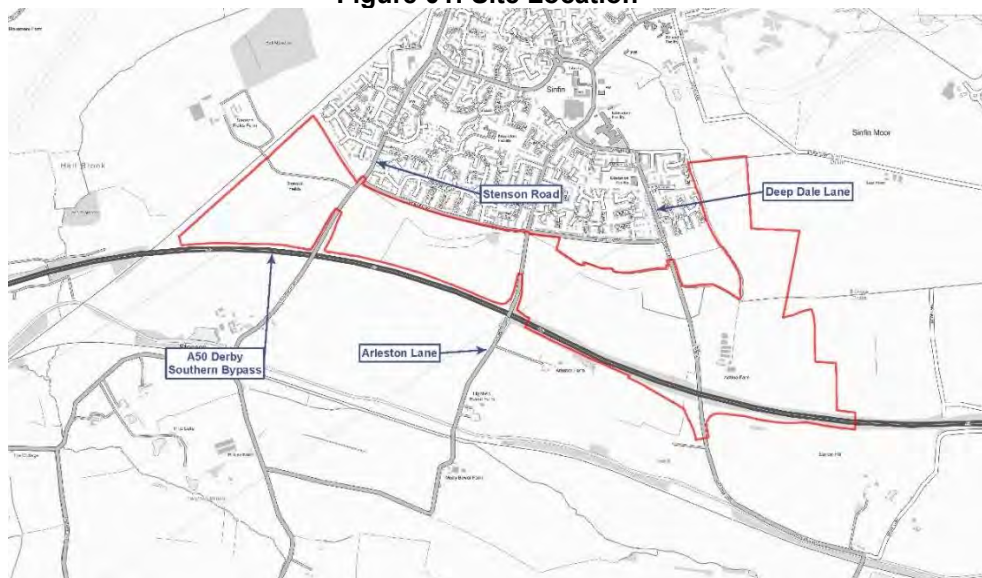
Introduction.

- 2.1 This section of the report provides details on the existing site and the surrounding infrastructure. As part of this details are provided on the existing traffic flows, the local road network and the various routes considered as part of the assessment together with the committed development considered in this appraisal.

Site Location

- 2.2 The proposed development site is located generally to the south of Wragley Way, extending from land to the west of Stenson Road to the east of Deep Dale Lane. The proposed development site, subject to this TA sits almost entirely within South Derbyshire (an area of land to be used as part of drainage and open space/ landscaping falls within Derby City). That part of the development site that is allocated provides for, amongst other uses, up to 1,850 dwellings.
- 2.3 Adjacent to this site are three other parcels of land two of which are located within the Derby City boundary and have been approved as part of separate planning applications and include a total of 180 dwellings. Furthermore there is one more site off Deep Dale Lane which is within South Derbyshire District Council boundary for 100 dwellings which is the subject of a planning application. The total level of development provides an overall total of up to 2,130 dwellings in this area.
- 2.4 The application site covers an area of 146 hectares, extending from the railway line at the western edge to a point approximately 550m east of Deep Dale Lane. The site is bounded by the A50 to the south and Stenson Road, Arleston Lane and Deep Dale Lane all cut through the site. The site area included as part of this application is shown in Figure 01 below.

Figure 01: Site Location



- 2.5 The site sits to the south of Derby City and the district of Sinfen. The ward areas that cover this are the Stenson Ward and Arleston Ward (South Derbyshire).

Local Road Network

- 2.6 The roads detailed below are the main routes within close proximity to the site.

Deep Dale Lane

- 2.7 Deep Dale Lane is located to the eastern side of the site on a north-south alignment and extends between Farmhouse Road to the north and Moor Lane/ Sinfen Lane and then onto A5132 Twyford Road to the south. South of Wragley Way, Deep Dale Lane is predominately rural in character with verge and hedges on either side and continues beneath the A50 via a road tunnel. North of Wragley Way, Deep Dale Lane changes to an urban road with footways and street lighting serving a residential area.
- 2.8 A new footway is proposed along the eastern side of Deep Dale Lane as part of application ref 9/2017/0922 (100 dwellings land east of Deep Dale Lane) and application ref: 02/15/00211(50 Dwellings east of Deep Dale Lane) to link the site with the existing footways on Wragley Way and the rest of Deep Dale Lane.
- 2.9 The junctions with Deep Dale Lane are all simple priority junction arrangements and the road width varies along its route from approximately 6.5m to the north of Wragley Way to around 5m to the south. No Parking restrictions are provided along Deep Dale Lane.
- 2.10 The speed limit along Deep Dale Lane is 30mph between Farmhouse Road and a point 97m south of Wragley Way. South of this location the speed limit changes to the national speed limit (60mph).

Wragley Way

- 2.11 Wragley Way is an urban road serving existing residential properties and has a footway along the northern side of the road together with Street lighting. This road continues on an east-west alignment between Deep Dale Lane to the east and Stenson Road to the west.
- 2.12 Wragley Way is approximately 6.5m in width and no parking restrictions are provided. The speed limit along Wragley Way is 30mph between Deep Dale Lane and Arleston Lane, west of Arleston Lane the speed limit changes to 40mph.
- 2.13 As part of application ref 02/15/00211 a new footway is to be provided along part of the southern side of Wragley way linking this development area to the existing bus stops and the footway on Deep Dale Lane.

Arleston Lane

- 2.14 Arleston Lane is located central to the site and extends between its junction with Grampian Way within the Sinfen District centre to the north of the site and to Buckford Lane to the south west. Buckford Lane joins the A5132 Twyford Road to the south.
- 2.15 Arleston Lane, north of Wragley Way, is an urban road that serves existing residential areas and has footways and street lighting, this section of Arleston Lane has a 30mph speed limit. To the south of Wragley Way, Arleston Lane is a rural lane narrowing to around 4m with passing

places and as such is signed as being unsuitable for through traffic. This section of the lane is bound by verges and hedges and no footways are provided.

- 2.16 Arleston Lane continues across the A50 via a road bridge which is approximately 3.5m wide.

Stenson Road

- 2.17 Stenson Road is situated to the western side of the site and extends from A511 Warwick Avenue to the north to the A5132 to Buckford Lane to the south.
- 2.18 Stenson Road is subject to a 40mph speed limit at its junction with Wragley Way with a footpath on the western side, the footpath changes to the eastern side just north of Wragley Way.
- 2.19 North on Stenson Road there is a signal controlled traffic arrangement on the bridge that crosses the railway line. A footway/cycleway is provided on the eastern side of the bridge protected with guard railing. The footway/ cycle link continues north into the City centre and east to into the Sinfen area.
- 2.20 To the south of Wragley Way, Stenson Road is subject to the national speed limit until it reaches Stenson Village where the speed limit changes to 30mph. Traffic calming is provided in this village in the form of priority working and the footway provision continues into the village centre.

A5132

- 2.21 The A5132 runs on an east-west alignment joining the A50 and A516 to the west and A514 and Swarkestone Road to the east, as well as joining the A38 mid-way. Swarkestone Road in turn links with the A50 at the Bonnie Prince Roundabout and then continues northwards into Derby City centre.
- 2.22 The A5132 is a rural route with limit footway provision until it enters the village of Hilton to the west.

A50

- 2.23 The A50 is a strategic dual carriageway route managed by Highways England extending from the A500/ M6 in Stoke on Trent west of Derby, to junction 24A of the M1 in the east.
- 2.24 The junctions closest to the site are currently the A38 junction to the west of the site and the Bonnie Prince roundabout in Chellaston to the east. The quickest route to these junctions from the site would be via Stenson Road or Deep Dale Lane, however a new junction on the A50 is proposed, details of this are provided in Section 6.

Traffic Surveys

- 2.25 To establish the existing traffic situation within the local area, Traffic surveys were carried out in 2018 at the following junctions:
- Stenson Road/ Warwick Avenue;
 - Sinfen Lane/ Osmaston Park;
 - Stenson Road/ Blagreaves Lane;

- Sinfin Lane/ Wilmore Road;
 - Stenson Road Bridge (Priority working);
 - Grampian Way/ Arleston Lane/ Asda Superstore
 - Grampian Way/ Lynwood Road/ Sinfin Lane;
 - Merrill Way/ Chellaston Road/ Boulton Lane;
 - Wragley Way/ Arleston Lane;
 - A50/ Swarkestone Road/ Infinity Park Way
 - Stenson Road/ A5132
 - Sinfin Lane/ A5132/ Brookfield Road
 - A5132/A514
- 2.26 In addition to the above, Automatic Traffic counts were positioned on the following roads for a period of 1 week recording directional traffic movements by vehicle classification and speeds;
- Stenson Road (North of Wragley Way)
 - Stenson Road (South of Wragley Way)
 - Wragley Way (West of Arleston Lane)
 - Deep Dale Lane (south of Wragley Way)
- 2.27 The results of these surveys are provided in **Appendix B**.
- 2.28 Data from the Systra Model has also been obtained from Derby City Council and a review using this data is included in Section 11.
- 2.29 The network peak periods identified vary between the junctions, the peak periods are identified on the flow diagrams included in **Appendix B**.

Committed Development

- 2.30 The sites included as part of this assessment work include the following;
- Application Ref: 05/13/00596: Wragley Way (130 dwellings)
 - Application Ref: 02/15/00211: Deep Dale Lane - Phase 1 (50 dwellings)
- 2.31 In addition, whilst not committed at the time of preparing this report, application Ref: 9/2017/0922, Deep Dale Lane Phase 2 (100 dwellings) has also been included.
- 2.32 All of these site form part of the overall site allocation for this area.

Summary

- 2.33 In summary the site is an approved allocation within both Derby City and South Derbyshire's Local Plans permitting development of around 2,000 dwellings. The area of the site allocation included for as part of this application sits within the South Derbyshire boundary. Three separate planning applications have already been submitted for other sections of the overall site allocation, two of which have been approved and are included for as committed

development in this TA. The site will also incorporate part of the SDITL which will link with Infinity Park to the east and up to the railway line to the west,

- 2.34 The site sits adjacent to the A50 and Stenson Road which provides links to Derby City Centre. Base line Traffic surveys have been carried out in 2018 covering a wide area so that the impact of the development proposal can be ascertained.

3 ACCESSIBILITY

Introduction.

- 3.1 This section of the Transport Assessment provides details on the existing opportunities for sustainable travel within the vicinity of the site.

Walking & Cycling

- 3.2 The site benefits from being located adjacent to existing developed areas which in turn have a good network of footways and on road cycle routes. The proposed development will include a strategic network of footways and cycle routes linking to the wider network, details of the proposed measures are provided in Section 8.
- 3.3 The proposed development will include a new 2FE Primary School, Local Centre, Public House, Employment uses and a Petrol Filling Station; however the Sinfin District Centre also offers a good range of facilities and is an approximate 1.2km (15 min walk) from the centre of the site, providing an even wider range of facilities that are within easy walking and cycling distance. The facilities within the Sinfin area are likely to be used during the initial phases of development prior to the Local Centre and other facilities being developed.

Cycling

- 3.4 There are no formal cycle routes provided within the local area of the site however the adjacent residential roads are relatively lightly trafficked routes and would be suitable for on road cycling and Deep Dale Lane and Arleston Lane are identified on Derbyshire County Council's cycle map as suitable routes to use. Given the local residential and rural nature of the area, it is considered that many of the local roads would lend themselves to being 'quiet routes' suitable for on road cycling which in turn allows easy access to existing cycle routes situated further north within Sinfin. A plan identifying the cycle catchment from the site is provided in **Appendix C**.
- 3.5 The National Cycle Route No. 66 goes through the Sinfin District, access to which can be made via Arleston Lane. This is a signed route forming part of the route that extends around Derby City linking with NCN Route No.'s 68 and 54. Parts of these routes are on road and part are off road. A plan showing the local cycle routes is included in **Appendix C**.
- 3.6 On Stenson Road, north of its junction with Grampian Way, there is a signalised vehicle priority arrangement on the road bridge over the railway. This arrangement includes separate marked pedestrian and cycle lane which forms part of the NCN Route 66.

Public Transport Links

Bus

- 3.7 There are currently four bus routes that pass the site, all of which run along Wragley Way (Route 219 in part). The table below provides details of all the services that are currently available and their frequencies.

Table 3.1: Bus Routes Summary (Monday to Friday)

Bus	Operator	Route	First	Last	Daytime Frequency
38	Arriva Derby - Sapphire	Sinfin – Derby (Eastbound only) Terminates at Derby Bus Station	05:52	23:43	10mins
238	Notts and Derby	Sinfin – St. Benedict Catholic School	07:55	15:34 Wragley Way, Opp Etterick Drive	1 outbound and 1 inbound service (School days only)
219	Harpurs Coaches	Egginton - John Port School	08:15	16:00	1 outbound and 1 inbound service (School days only)
258	Notts and Derby	Sinfin – St. Benedict Catholic School	07:45	15:50	1 outbound and 1 inbound service (School days only)

Source: Traveline South East and Anglia

Table 3.2: Bus Routes Summary (Saturday and Sunday)

Bus	Operator	Route	First	Last	Daytime Frequency
Saturday					
38	Arriva Derby	Sinfin – Derby (Eastbound only)	07:03	23:41	10mins
Sunday					
38	Arriva Derby	Sinfin – Derby (Eastbound only)	09:29	23:56	10mins

Source: Traveline South East and Anglia

- 3.8 The above shows that Route 38 provides a very frequent bus service that connects the site with the Sinfin area and Derby City Centre. This is an eastbound service stopping at the bus stops local to the site. There are also three school bus services that may be beneficial to new residents who attend these schools. A bus route plan is included in **Appendix D**.
- 3.9 PLUSBUS is a cheap travel card that residents can buy with a train ticket at any station. It gives residents bus and tram travel on participating operator services to and from rail station and around the whole urban area of town that's at the start and /or end of their train journey. Bus service 38 and 238 participate in this.

Rail

- 3.10 The nearest railway station is the Peartree Station which is approximately 3 miles (4.3 km) north of the site. The service is provided by East Midlands Trains and links Derby with Stoke-on-Trent and Crewe and is accessible by cycle. However, there is a very infrequent service from this station, the only service in the AM is at 7:20 which arrives at London St. Pancras at 09:45 or in the PM there is a service at 16:19 which arrives in London St. Pancras at 18:36.

- 3.11 Derby Station is situated approximately 2km north of Peartree Station and is served by Cross Country Trains, East Midlands Trains and Northern Trains. From this station a good service is available to Sheffield, Nottingham and London St Pancras. This station is also considered to be accessible from the site by cycle.
- 3.12 Derby Station has 184 cycle spaces which are covered and located in the car park. The station also has 609 car parking spaces.
- 3.13 The table below identifies the frequency of services available from Peartree Station and Derby Station.

Table 3.3: Derby Rail Station Frequency

Rail	AM Peak	PM Peak	Off Peak	Weekend
From Derby to Crewe	1 per hour	1 per hour	1 per hour	1 per hour
First and Last Trains	06:40	20:42		06:42 / 20:42 (Sat) 14:40 / 20:40 (Sun)
From Derby to Nottingham	5 per hour	4 per hour	3 per hour	3 per hour
First and Last Trains	06:00	23:57		07:28 / 23:30 (Sat) 09:12 / 21:12 (Sun)
From Derby to London St Pancras	3 per hour	2 per hour	2 per hour	2 per hour
First and Last Trains	05:02	21:22		05:19 / 23:29 (Sat) 07:00 / 21:37 (Sun)
From Peartree to Crewe	07:44	16:44 and 17:44	NA	07:44/ 17:45 (Sat)
First and Last Trains				
From Crewe to Peartree	06:07	16:07	15:07	06:07 / 16:07 (Sat)
First and Last Trains				
From Peartree to London St Pancras	07:20	16:19	NA	07:20 / 16:20 (Sat)
First and Last Trains				
From London St Pancras to Peartree	NA	15:02 / 23:08	NA	14:00 (Sat)
First and Last Trains				

Source: East Midland Trains

Residential Modal Split

- 3.14 To establish the mode of transport that residents are likely to use in the peak hours, Monday to Friday, a review of the 'travel to work' 2011 census data has been carried out. The ward used is the Sinfen Ward which is considered the area that is most likely to reflect the modes used by the new residents. The results are provided in the table below.

Table 3.4: 2011 Census Data “Resident Population” Sinfin

	Mode						
	Train	Bus	Car	Car Passenger	Cycle	Walk	Taxi / Other
2011 Census Data	1%	12%	58%	9%	4%	14%	3%

Source: Census Database

- 3.15 The above results show that 67% of residents use the car to travel to work whilst 12% will use public transport and 18% walk or cycle to work.

Residential Travel Plan

- 3.16 The site will include a new school and local facilities as well as being within a reasonable walking/cycling distance of the existing facilities provided within the Sinfin area. To encourage the use of modes other than the private car especially for short journeys, a Travel Plan has been produced. This Travel Plan will be a framework for the final Travel Plans to be based upon, which will include the school, residential area, employment and the local facilities (depending upon their size).
- 3.17 As part of the Travel Planning exercise a Travel Information Pack will be provided to all new residents and new employees to the area.
- 3.18 Reference is made to DfT’s June 2007 Summary Publication ‘Making Residential Travel Plans Work’ which states on page 2:
- “A Residential Travel Plan is a package of measures designed to reduce car use originating from new housing by supporting alternative forms of transport and reducing the need to travel in the first place. They are an important tool to help deliver accessible, communities and offer clear benefits to all the parties involved – public, private and the community.”*
- 3.19 In addition, the NPPF states in paragraph 111:
- “All development that will generate significant amounts of movement should be required to provide a Travel Plan and the application should be supported by a Transport Statement or Transport Assessment so that the likely impacts of the proposal can be assessed.”*
- 3.20 The Travel Information Pack is likely to include the following:
- Contact details for the TPC;
 - An overview of the Travel Plan measures, its objectives and targets;
 - Local area maps showing the location of amenities;
 - Local bus and rail timetables;
 - Contact details for local taxi operators;
 - Contact details of local car clubs (if applicable);

- Contact details for cycle hire and servicing;
 - Details regarding cycle training run by Derbyshire County Council;
 - Information on public transport websites;
 - Details of travel infrastructure tailored to those with mobility impairments; and
 - Contact details for the bus / rail operators.
- 3.21 The information within a Travel Pack will help introduce residents/ employees to alternative modes and enable them to consider the trips to be made and the mode by which they can be made. By providing such a pack, it is intended that this will encourage a change in perceptions and attitudes and therefore promote the desired change in travel behaviour.
- 3.22 The existing modal split for existing residents identified in **Table 3.4** shows that 23% of residents within this area use modes other than the private car to travel to work. The provision of the Travel Packs would help to encourage a greater proportion of the new residents to use modes of travel other than the private car. The layout of the proposed development will also be designed to provide these opportunities.
- 3.23 As part of this planning application a Framework Travel Plan has been produced which will form the basis for various uses within the site. This document has been submitted as a stand-alone document.

Wider Area Masterplan.

- 3.24 Attached at **Appendix E** are details of the wider area master for the Infinity Garden Village as published within the draft 'Infinity Garden Village Development Framework' document, and how this context relates to the site development. The plan also provides details of committed development in the area, in particular at Stenson Fields at the west of Stenson Road, Land south of Wragley Way (130 dwellings) and Land East of Deep Dale Lane (50 dwellings).

Summary

- 3.25 The site benefits from being adjacent to an existing residential area and local facilities including an ASDA food store which is within easy cycling distance of the site. There are currently no formalised cycle routes adjacent to the site, however Sustrans NCN Rout 66 is accessible via Arleston Lane.
- 3.26 There are also four bus routes that currently pass the site on Wragley Way, providing access to schools and Derby City Centre. Route 38 provides a very frequent service and will be accessible to a number of new residents, however the proposal will also be to include a new shuttle bus service to the City Centre details of which are provided later in this report.
- 3.27 The 2011 Census data shows that 67% of existing residents in this part of Derby travel to work by car and 12% will use Public Transport and 18% cycle. The proposed development will adopt a Framework Travel Plan which will aim to further reduce the level of single occupancy vehicles during the busier peak periods.

4 TRANSPORT PLANNING POLICY

Introduction

- 4.1 This section of the report evaluates the development proposal against the appropriate national, regional and local transport policies.

National Policy

National Planning Policy Framework (NPPF)

- 4.2 National policy in relation to the transport planning of developments is set out in the National Planning Policy Framework (NPPF) (February 2019). Section 9 'Providing Sustainable Transport – considering development proposals' states the following:
- 4.3 Paragraph 108 states that:
- “In assessing site that may be allocated for development in plans, or specific applications for development, it should be ensures that:*
- a) Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
 - b) Safe and suitable access to the site can be achieved for all users; and*
 - c) 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.”*
- 4.4 Paragraph 109 states that:
- “Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety or residual cumulative impacts on the road network would be severe.”*
- 4.5 Paragraph 111states that:
- “All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement of transport assessment so that the likely impacts of the proposal can be assessed.”*
- 4.6 With regard to parking, Paragraph 105 of the NPPF states that:
- ‘If setting local parking standards for residential and non-residential development, policies should take into account:*
- The accessibility of the development;*
 - The type, mix and use of the development;*
 - The availability of and opportunities for Public Transport;*
 - Low car ownership levels; and*

- *the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.”*

4.7 Paragraph 106 states that:

“Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport (in accordance with Chapter 11 of this Framework). In town centres, local authorities should seek to improve the quality of parking so that it is convenient, safe and secure, alongside measures to promote accessibility for pedestrians and cyclists.”

Local Planning Policy

4.8 As stated earlier in this report, the site sits within South Derbyshire District, however adjoins Derby City. Below are the relevant planning policies for both Derby City and South Derbyshire District Council Local Plans.

Derby City Local Plan

4.9 The Derby City Local Plan – Part 1 Core Strategy was adopted by the Council on Wednesday 25th January 2017. It is the key planning document for the City setting out a long term strategy for the spatial development of Derby to 2028.

4.10 In respect of Transport, the Local Plan states;

CP23 – Delivering a Sustainable Transport Network;

A) The council will support proposals that:

- 1. Promote greater travel choice and equality of opportunity for all through the delivery and promotion of high quality and accessible walking, cycling and public transport networks, which maintaining appropriate access for car users and the movements of goods.***
- 2. Include initiatives to manage down traffic impacts, promote sustainable transport and the development of accessible sites.***
- 3. Contribute to better safety, security and health for all by improving road and rail safety, improving security on transport networks and promoting active travel.***
- 4. Contribute to tackling climate change by developing low-carbon travel and lifestyle choices, including the provision of infrastructure to support the use of low carbon vehicles, active travel and reducing the need to travel through the provision of improved IT infrastructure.***
- 5. Support growth and economic competitiveness by delivering reliable and efficient transport networks that will enhance connectivity to, from and within the City.***

6. *Ensure that investment in transport contributes to the enhancement of the urban and natural environment.*
- B) Actively manage the pattern of development to ensure that new development:**
7. *Is located in accessible locations that are well served by frequent high quality bus service and which help to facilitate walking and cycling.*
 8. *Connects residents to jobs, shopping, leisure, open space, health and educational opportunities.*
 9. *Implements, and/ or contributes to, appropriate on-site and offsite measures to mitigate the impact of development.*
 10. *Contributes to improving public transport cycle and pedestrian infrastructure and public transport services.*
 11. *Includes proportionate Transport Assessments and Travel Plans for all major applications and any proposal where transport issues are likely. Developers will be expected to agree appropriate transport modelling for use in their evidence with the Council.*
 12. *Is not permitted where it would cause, or exacerbate, severe transport problems, including unacceptable impacts on congestion, road or rail safety, the rail network, access and air quality – including any cumulative impacts on Air Quality Management Areas (AQMA).*
 13. *Is not permitted where it would sever or prejudice the re-use of the routes of former railway lines and canals which have the potential to function as a pedestrian footpath, cycleway or bridleway or where the need has been identified for a new public transport facility, freight connection or extension to an existing network has been identified or possible introduction in the future.*
 14. *Is not permitted where it would sever Public Rights of Way or prejudice access to these routes, unless an alternative route or routes can be secured which are of equal or better quality.*
 15. *Provides appropriate levels of parking for cars, motor cycles and bicycles, having regard to the standards set out in Appendix C. In highly accessible locations, a lower level of parking will be encouraged. In all cases, the individual circumstances of each proposal will be taken into account, including the realistic requirements of the user(s), the accessibility of the area by different transport modes and the possible impact of the parking on the transport network.*

Policy CP24 - Transport Infrastructure

Initiatives will include:

- a) *Supporting the implementation of Highways England's A38 Derby Junctions Grade Separation Scheme;*
- b) *Implementation of 'T12' and the 'South Derby Integrated Transport Link' Phases 1 and 2;*
- c) *Implementation of improvements to the A52 between Raynesway and Pentagon island, including improved access to Park & Ride;*
- d) *Implementation of improvements at the A50 junctions with the A514 and A38;*
- e) *Supporting the implementation of the Boulton Moor Park and Ride site in South Derbyshire;*
- f) *Implementation of the Park & Ride at Royal Derby Hospital*
- g) *Implementation of the Statement of Actions in the Rights of Way Improvement Plan;*
- h) *Implementation of a strategic cycle network*
- i) *Supporting the implementation of Network Rails Electrification of the Midland Mainline;*
- j) *Implementing the restoration of the Derby Canal;*
- k) *Ensuring connectivity to HS2.*

4.11 The site is identified in the Local Plan as Policy AC18, the policy states that the council will work with South Derbyshire District Council to ensure that:

- a) *new highway infrastructure is provided to help mitigate the impact of the development on the local and strategic road networks. This will include the development of, or contributions towards, the construction of the South Derby Integrated Transport Link. The potential for a new junction onto the A50 to be delivered in the future should not be prejudiced. Contributions may also be required towards improvements to the Strategic Road Network as necessary;*
- b) *Appropriate primary school provision is made to serve the wider development as a whole;*
- c) *Secondary school needs are met through the extension of existing facilities and / or the provision of a new secondary school;*
- d) *New on-site local shopping and community facilities are provided to meet the needs arising from the new development*
- e) *Appropriate flood mitigation and drainage measures are implemented;*
- f) *Appropriate landscaping / buffering is provided between new homes and the proposed employment site south of Wilmore Road (Infinity Park), the Derby to Birmingham railway line west of Stenson Road, the Local Wildlife Site/ Local Nature Reserve at Sinfin Moor Lane Meadows and between new homes and the A50 trunk road;*

- g) A mix of new green infrastructure is provided to meet the needs of residents. Green infrastructure should be integrated to create a cross boundary network of green spaces;*
- h) Improvements to the Green Wedge at Sinfin Moor. The boundaries of the Green Wedge should also be strengthened;*
- i) Cycleway and pedestrian links are provided and/or improved across and around the site including links to Infinity Park, the local District Centre at Sinfin and to the open countryside and wider rights of way network.*

Within the City, the City Council will require development;

- j) To be designed to integrate fully with the larger element if the development in South Derbyshire, particularly in terms of scale, design and road, cycle and pedestrian links;*
- k) Where appropriate, to contribute the provision of supporting infrastructure which will be required as a result of the development. Supporting infrastructure will be carefully planned and co-ordinated between the two authorities and may be required within the City and/ or South Derbyshire.*

South Derbyshire Local Plan

4.12 The Local Plan for South Derbyshire has been prepared in two parts. Part 1 was adopted by Full Council on June 13, 2016. The local Plan Part 2 was adopted by Full Council on November 2, 2017.

4.13 The site is identified as an allocated development under Policy H15 which states:

A. Residential development on land at Wragley Way will provide for around 1,950 dwellings within South Derbyshire.

B. The Council will require the below listed site specifics and accordance with other Local Plan policies:

- i. New highway infrastructure to mitigate the transport impact on the local and strategic road networks of the whole site. This will include the provision of and/or contributions to the construction of the South Derby Integrated Transport Link;*
- ii. Developer contributions are to be made towards improvements to the A50/A514 and A50/ A38 junctions to safeguard the operation of the Strategic Road Network;*
- iii. Any development should not prejudice the construction of a potential junction connecting the site to the A50, which may potentially be needed following the completion of the South Derby Integrated Transport Link;*

- iv. *The provision of sufficient new primary school provision on site for the development as a whole;*
 - v. *High quality pedestrian and cycle links should be provided across the site and to the nearby residential, retail and employment developments together with recreational areas;*
 - vi. *The number of homes to be occupied before completion of the South Derby Integrated Transport Link shall be agreed with the Council;*
 - vii. *A new on-site local shopping centre shall be provided which should be commensurate in size to the needs of the community, taking into account the surrounding retail provision available. The location of the centre should be the focal point at the heart of the new community;*
 - viii. *The east, south and west of the site will require a green buffer and landscaping from the railway line and the A50 and enhancements to a defensible boundary along Sinfin Moor; and*
 - ix. *Improvements to existing green infrastructure shall be made, along with the provision of new green infrastructure on site.”*
- 4.14 Policy INF2 Sustainable Transport states:
- “A:**
- i. *Planning permission will be granted for development where:*
 - a) *Travel generated by the development, including goods vehicle movement, should have no undue detrimental impact upon local amenity, the environment, highway safety, the efficiency of transport infrastructure and the efficiency and availability of public transport services;*
 - b) *Appropriate provision is made for safe and convenient access to and within the development for pedestrians, cyclists, public transport users and the private car; and*
 - c) *Car travel generated by the development is minimised relative to the needs of the development;*
 - ii. *In order to achieve this, the Council will secure, through negotiation, the provision by developers of contributions towards off-site works where needed;*
 - iii. *In implementing this policy account will be taken of the fact that in more remote rural areas there is often less scope to minimise journey lengths and for the use of non-car modes;*

- iv. *Planning applications for development with significant transport implications should be accompanied by a Transport Assessment and Travel Plan identifying the transport impacts of the proposal and measures needed to meet the criteria set out in Part 1 of this policy. Travel Plan measures should be funded by developer contributions appropriate for the impacts on the transport network caused by the development. For development that is expected to have less significant transport implications, planning applications shall be accompanied by a Transport Statement.*

B. Walking and Cycling

- i. *The Council will work in partnership with County Councils, neighbouring local authorities, the National Forest Company, charitable organisations, landowners and developers to secure the expansion, improvement and protection of walking and cycling networks, including public rights of way, cycle routes, greenways and supporting infrastructure. Routes should be coherent, direct, continuous, safe, secure and attractive and should contribute to the wider green infrastructure network wherever possible;*
- ii. *Where a need is identified in Part 1 of this policy, the council will seek to negotiate the provision by developers of contributions toward new, or the enhancement of existing, walking and cycling routes and supporting infrastructure;*
- iii. *Development that is likely to prejudice the use of disused railway lines or canals for walking, cycling or horse riding will only be permitted, where it can be demonstrated that there would be no practical prospect of implementation in the future;*
- iv. *Cycling and greenway network proposals will be identified in Supplementary Planning Documents.*

C. Public Transport

- i. *The Council will work in partnership with County Councils, neighbouring local authorities, public transport operators and community transport operators to improve public transport services, infrastructure and information provision in the district;*
- ii. *Development should be designed and laid out in such a way as to ensure that, wherever possible, public transport services are within convenient walking distance of all site residents, staff and visitors;*
- iii. *Where a need is identified under Part 1 of this policy, the Council will seek to negotiate the provision by developers of measures to encourage the use of public transport. These may include:*
 - a) *Bus shelters and laybys;*
 - b) *Railway stations and public transport interchanges; and*

- c) *Initial financial contributions towards the cost of running public transport services.*

E. Parking

Development should include appropriate car parking provision having regard to:

- a) **Parking standards to be published as a Supplementary Planning Document;**
- b) **The need to ensure that development would not have an undue detrimental impact on pedestrian and cyclist movement and highway safety;**
- c) **The need to encourage travel on foot, by cycle and by public transport in preference to the private car by minimising parking provision;**
- d) **The need to provide sufficient conveniently located spaces to meet the needs of people with impaired mobility;**
- e) **The conclusions of and Transport Assessment undertaken in accordance with Part 2 of this policy;**
- f) **The need to encourage the use of low emission vehicles.”**

Derbyshire Local Transport Plan 2011 to 2026

4.15 The Derbyshire Local Transport Plan (LTP) is a relevant consideration, because covers land adjacent to the development site, and west along Wragley Way. The junctions studied for this report include a number that are covered by this LTP.

4.16 The five transport goals are:

- 1. “Supporting a resilient local economy.**
- 2. Tackling climate change.**
- 3. Contributing to better safety, security and health.**
- 4. Promoting equality of opportunity.**
- 5. Improving quality of life and promoting a healthy natural environment.**

The plan puts emphasis on supporting a resilient local economy, contributing to better safety, security and health, and improving quality of life and promoting a healthy natural environment.

It aims to achieve longer term benefits for climate change and measures to help people under the equality of opportunity goal.”

Policy Summary

- 4.17 In summary it is considered that the development proposal conforms to the above policies as follows:
- 4.18 **NPPF** – The principles of the NPPF are to promote sustainable development in terms of its economic role, social role and environmental role. The presumption in favour of sustainable development is in place, subject to any adverse effects arising from a development outweighing the benefits.
- 4.19 This report identifies that the site is situated adjacent to an existing residential district and is within easy walking/cycling distance of the facilities that are available within Sinfin including schools, healthcare facilities, food stores and commercial properties. In addition, the assessment in terms of traffic generation identified in this TA demonstrates that the impact of the development on the local highway network can be suitably mitigated. In addition, the development is accessible by modes other than the private car. On this basis it is considered that the site conforms to the transport related policies set out in the NPPF.
- 4.20 **Derby City Council Local Plan Part 1: Core Strategy Submission** – The Core Principles of the Core strategy include Place making, assessing the developments impact on the local highway network, this TA provides a review of the local road network. CP23 Delivering a Sustainable Transport Network by allowing residents to have access to alternative modes of transport, this TA demonstrates the site accessibility to alternative modes of transport and the measures that will be provided to encourage non-car modes including the provision of a Framework Travel Plan. This development includes a strategic network of footways and cycleways encouraging the use of non-car modes. It is considered that this development proposal accords with the aims of the core principals set out in the Core strategy submission.
- 4.21 **South Derbyshire Local Plan** – Policy INF2. This TA demonstrates that the impact of the development proposal on the local highway network can be suitably mitigated and that the development will not have a ‘severe’ impact. Measures are also proposed to ensure the site is accessible to modes other than the private car.
- 4.22 **Derbyshire Local Transport Plan** – In terms of improving the choice of travel mode, the application includes improving the local footway network and the site already has access to regular bus routes although proposals will also include the provision of a new local bus service. The development proposal accords with the aims of the LTP.
- 4.23 On the basis of the above, it is considered that the development proposal meets the objectives and conforms to the policies of the local authorities in terms of highways and transportation.

5 ACCIDENT ANALYSIS

Introduction

- 5.1 This section of the TA reviews the incidents that have occurred on the local road network over a five year period. This data has been obtained from Derbyshire Constabulary and covers the period 1 February 2014 to 31 January 2018, a review of Crash map has been undertaken for 2018. This section reviews the data along Deep Dale Lane, Wragley Way and Stenson Road to the Bridge over the railway line. A copy of this data is included in **Appendix F** and a summary is provided below.

Deep Dale Lane

- 5.2 There have been four recorded incidents along Deep Dale Lane over the five year period, three of which were recorded as 'Slight' in terms of severity and one as serious. All accidents occurred on the section of Deep Dale Lane to the south of the A50. The Serious accident occurred in 2016 with a vehicle turning right and a motorcycle overtaking. This level and type of incidents occurring on Deep Dale Lane does not indicate any reoccurring pattern which would suggest a highway layout issue, as such it is considered that the accidents that have occurred are as a result of driver error.

Wragley Way

- 5.3 There have been three recorded incidents along Wragley Way over the five year period, two of which have been recorded as slight in terms of severity and one as serious. The serious accident occurred at the junction with Arleston Lane with a vehicle turning right colliding with a vehicle travelling ahead. The level of visibility along Wragley Way is very good, as such it is considered that these incidents are likely to be as a result of driver error rather than highway design or layout.

Warwick Avenue (A5111) / Stenson Road / Kenilworth Avenue

- 5.1 A cluster of 20 slight accidents occurred at the roundabout between Warwick Avenue (A5111) / Stenson Road and Kenilworth Avenue.
- 5.2 One serious accident that occurred at the roundabout between Warwick Avenue (A5111) / Stenson Road and Kenilworth Avenue resulted from a collision between a vehicle turning left and a cyclist. The weather condition was dry without high winds.

Stenson Road

- 5.3 A cluster of 27 slight accidents occurred along Stenson Road.
- 5.4 A cluster of six serious accidents occurred on Stenson Road. One serious accident occurred at the junction between Oaklands Avenue and Stenson Road and was resulted from a collision between two vehicles. The weather condition was dry without high winds. Two serious accident occurred at the junction between Sunnyhill Avenue and Stenson Road near a pedestrian crossing. One resulted from a collision between a vehicle going ahead and a pedestrian. The weather condition was dry without high winds and another one that occurred in the daytime

resulted from a collision between a vehicle and a cyclist. The weather condition was dry without high winds.

- 5.5 One serious accident that occurred in the daytime on Stenson Road, approximately 160 metres south west of the junction with Pilgrims Way, resulted from a collision between a car and a pedestrian. The weather condition was dry without high winds.
- 5.6 One serious accident occurred in the daytime approximately 140 metres south west of the junction between Stenson Road and Sunnyhill Avenue outside a Tesco store and resulted from a collision between a car turning right and a motorcyclist going ahead. The weather condition was dry without high winds. Another serious accident that occurred at the junction between Stenson Road and Goodsmoor Road resulted from a collision between 2 vehicles. The weather condition was dry without high winds.

Kenilworth Avenue

- 5.7 A cluster of 11 slight accidents occurred on Kenilworth Avenue.
- 5.8 One serious accident occurred in the darkness circa 35 metres south east of the junction between Kenilworth Avenue and Offerton Avenue. It was resulted from a collision between a car going ahead and a motorcyclist. The weather condition was dry without high winds.

Newdigate Street (A511) / Balaclava Road / Osmaston Park Road (A5111) / Sinfin Lane

- 5.9 A cluster of 38 slight accidents occurred at the junction between Newdigate Street (A511) / Balaclava Road / Osmaston Park Road (A5111) / Sinfin Lane.
- 5.10 A cluster of Four serious accidents occurred at the junction between Newdigate Street (A511) / Balaclava Road / Osmaston Park Road (A5111) / Sinfin Lane. One serious accident occurred in the darkness and it was resulted from a collision between a car turning right and a motorcyclist going ahead. The weather condition was dry without high winds. One serious accident occurred in the darkness at the junction between Osmaston Park Road and Carnegie Street circa 150 metres east of the junction between Newdigate Street (A511) / Balaclava Road / Osmaston Park Road (A5111) / Sinfin Lane. It was resulted from a collision between a car and a cyclist. The weather condition was raining with high winds. One serious accident that occurred at a roundabout on Foresters Way circa 250 metres south east of the junction between Newdigate Street (A511) / Balaclava Road / Osmaston Park Road (A5111) / Sinfin Lane was resulted from a collision between a car and a pedestrian. The weather condition was dry without high winds. Another serious accident occurred in the darkness on Sinfin Lane circa 110 metres south of the junction between Newdigate Street (A511) / Balaclava Road / Osmaston Park Road (A5111) / Sinfin Lane. It was resulted from a collision between a car and a pedestrian. The weather condition was dry without high winds.

Sinfin Lane

- 5.11 A cluster of 21 slight accidents occurred on Sinfin Lane.
- 5.12 A cluster of six serious accidents occurred along Sinfin Lane. One serious accident that occurred circa 160 metres south west of the junction with Wilmore Road was resulted from a collision between a car and a motorcyclist. The weather condition was wet without high winds.

- One serious accident occurred at the junction with Shakespeare Street. It was resulted from a collision between a car and a pedestrian. The weather condition was dry with high winds.
- 5.13 Two serious accidents occurred at the junction with Lynwood Road. One serious accident that occurred in the darkness was resulted from a collision between a car and a cyclist. The weather condition was wet without high winds. The other serious accident occurred in the daytime and it was resulted from a collision between a car going ahead and a cyclist. The weather condition was raining with high winds.
- 5.14 One serious accident occurred at the junction with Wilmore Road. It was resulted from a collision between a car and a cyclist. The weather condition was dry without high winds. One serious accident occurred in the daytime at the junction with Wordsworth Avenue opposite the petrol station. It was resulted from a car doing U turn and a motorcyclist going ahead. The weather condition was dry without high winds.

Sunnyhill Avenue

- 5.15 One serious accident occurred in the darkness on Sunnyhill Avenue circa 300 metres south east of the junction with Stenson Road. It was resulted from a collision between two vehicles, one reversing and another one going ahead. The weather condition was dry without high winds.

Arleston Lane

- 5.16 A cluster of three slight accidents occurred on Arleston Lane.
- 5.17 A cluster of two serious accidents occurred on Arleston Lane. One serious accident occurred at the junction with Jarvis Road. The other serious accident that occurred in the darkness at the junction with Wragley Way was resulted from a collision between a car turning right and a motorcyclist going ahead. The weather condition was raining without high winds.

Derby Southern Bypass (A50)

- 5.18 A cluster of 13 slight accidents occurred on Derby Southern Bypass (A50).
- 5.19 A cluster of two serious accidents occurred on Derby Southern Bypass (A50). One serious accident occurred circa 430 metres east of the junction with Arleston Lane. The other serious accident occurred in the daytime circa 350 metres west of Stenson Road. It was resulted from a collision between 2 cars and a goods vehicle. The weather condition was dry without high winds.
- 5.20 One fatal accident occurred in the darkness circa 700 metres east of Deep Dale Lane and it was resulted from a collision between a car going ahead and a pedestrian. The weather condition was dry without high winds.

Bonnie Prince Roundabout

- 5.21 A cluster of 17 slight accidents occurred at the Bonnie Prince Roundabout.

Barrow Lane, Twyford Road, Swarkestone Road (A5132)

- 5.22 A cluster of 16 slight accidents occurred along Twyford Road / Swarkestone Road (A5132).

- 5.23 A cluster of four serious accidents occurred along Twyford Road / Swarkestone Road (A5132). One serious accident occurred circa 100 metres west of the junction between Swarkestone Road and Pingle Lane at the entrance to Cottage Service Station. It was resulted from a collision between 5 vehicles. The weather condition was dry without high winds. One serious accident occurred in the darkness at the junction between Swarkestone Road and Church Lane. The weather was dry with high winds. One serious accident occurred in the darkness at the junction between Barrow Lane / Swarkestone Road / Swarkestone Bridge. The weather condition was dry. Another serious accident occurred in the daytime on Swarkestone Road at the Cuttle Bridge and it was resulted from a collision between a goods vehicle turning right, a car going ahead and a pedestrian. The weather condition was dry without high winds.
- 5.24 A fatal accident occurred in the darkness at the junction between Barrow Lane and Woodshop Lane and it was resulted from a collision between a car and a pedestrian. The weather condition was dry.

Summary

- 5.25 Accident Data has been obtained from Derbyshire Constabulary covering the extent of area being assessed within this TA. The review concludes that the pattern of accidents occurring do not identify any particular safety issues with the existing highway layout and are considered primarily related to driver or pedestrian/cyclist error. It is considered that the level of traffic proposed by the development is unlikely to exasperate the existing level of accidents occurring.

6 SOUTH DERBY INTEGRATED TRANSPORT LINK & A50 JUNCTION

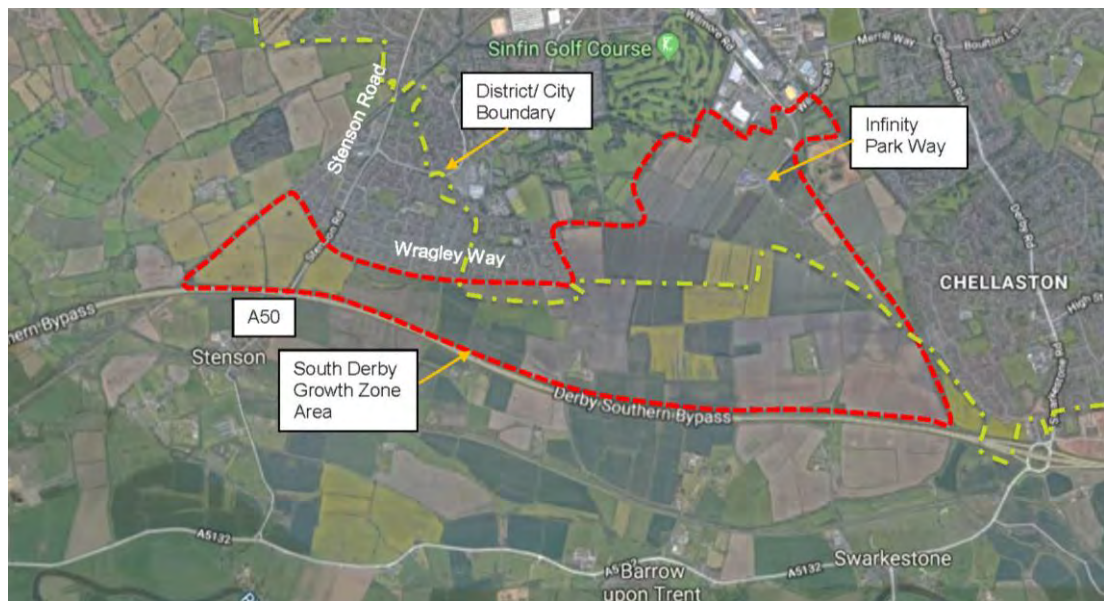
Introduction

- 6.1 This section provides some background into the work that has been undertaken to date in respect of the new A50 junction and the recent planning submission made by Derbyshire County Council for part of the South Derby Integrated Transport Link (SDITL) and new A50 junction.

SDITL and New A50 Junction Assessment

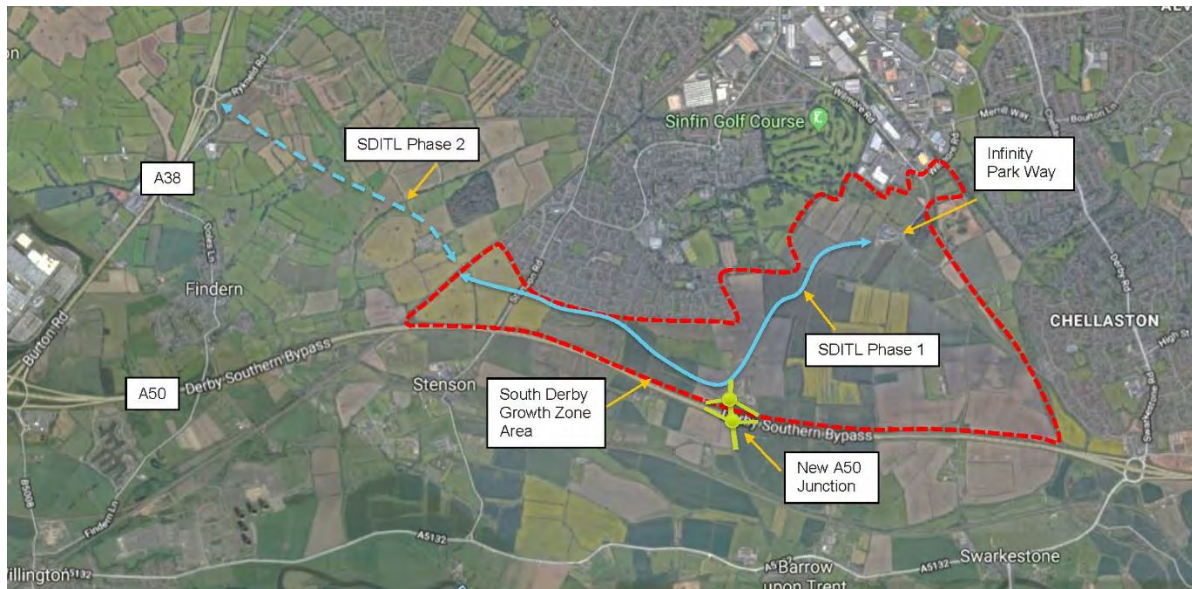
- 6.2 The South Derby Growth Zone (SDGZ) is the area of land to the south of Derby between Sinfin to the east, Chellaston to the west and south of the Rolls Royce campus encompassing the proposed Infinity Garden Village development. The overall site sits both within the Derby City Council boundary and also within the South Derbyshire District Boundary. A plan showing the extent of the area is provided in Figure 02 below.

Figure 02 – Extent of Strategic Development area



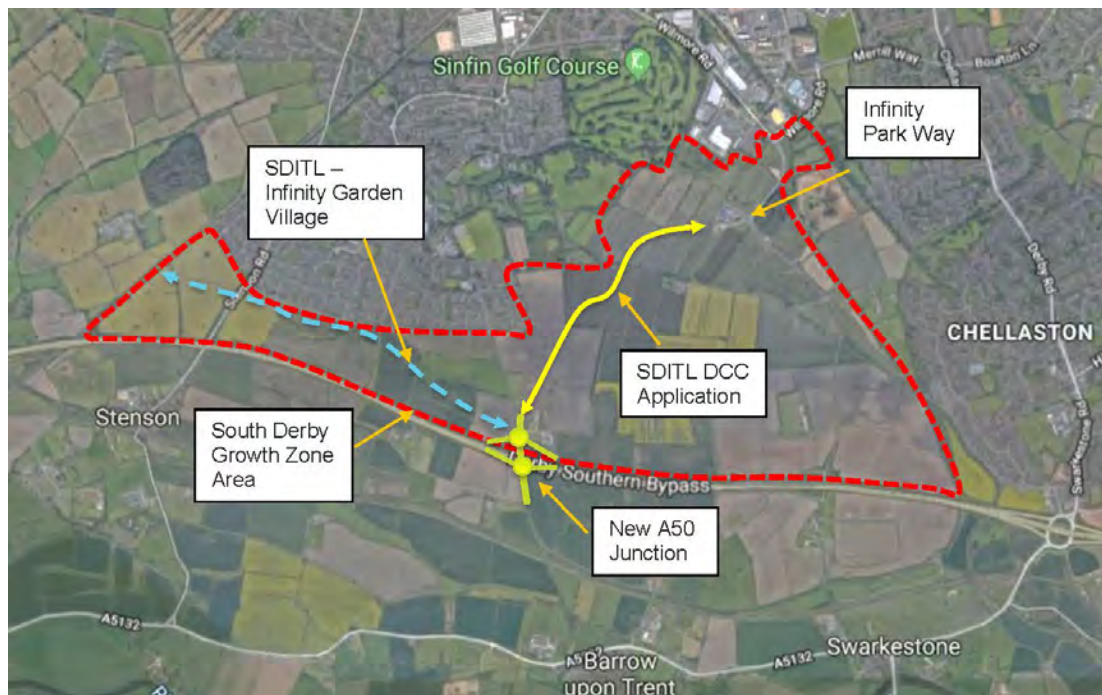
- 6.3 Land within the eastern part of Infinity Garden Village will form an extension to the existing Infinity Park and will include both employment and education allocation as well as further residential use within the Chellaston area.
- 6.4 The infrastructure to link the existing Infinity Park to Stenson Road will form part of the SDITL, with the future aspirations of taking the SDITL westwards across the railway line to join the A38 as shown in Figure 03 below.

Figure 03 – Extent of SDITL



- 6.5 Modelling of the SDGZ and SDITL has been carried out by Systra using Derby City's SDGZ Model which has in turn been informed by the Greater Derby Area Transport Model (GDATM). The modelling work assessed a number of scenarios with and without the new A50 junction the results of which were summarised in the 'South Derby Growth Zone, Traffic Modelling Summary Report' dated March 2019 prepared by BWB Consulting on behalf of Derby City Council, South Derbyshire District Council, Derby County Council and Highways England who form the Transport Working Group (TWG). The modelling was used to determine the impact of the proposals on the road network and also to determine if the new junction on the A50 would provide benefits to the local road network.
- 6.6 The BWB report concludes that;
- 'the results of the infrastructure testing demonstrated that the new junction on the A50 brings the greatest benefit. The percentage benefits of the new junction on the A50 show that over 70% of the impact is negated. It is also acknowledged that there will be some residual impacts but this is to be expected as there will be local impacts that will need to be investigate and if necessary mitigated through the planning process.'*
- 6.7 Following on from this modelling work, a planning application has been submitted by Derbyshire County Council to support the proposed SDITL infrastructure between Infinity Park and Infinity Garden Village. This application was supported by a Transport Assessment prepared by BWB Consulting Ltd. who have designed and assessed the proposed junctions along this part of the SDITL including the new A50 junction. The extent of the network included as part of the DCC application is shown in Figure 04 below.

Figure 04 – Extent of SDITL included in DCC application



- 6.8 The BWB report includes assessment of the proposed junctions on the SDITL and the new A50 junction using the Junctions 9 modelling software. The assessment scenarios undertaken include;
- 2020 Infrastructure Only
 - 2030 Allocated Development Only
 - 2030 Full Future Development Scenario
- 6.9 The Full future development scenario is a sensitivity assessment that includes future aspirational development assuming complete infill of development on the land available within the development boundary.
- 6.10 The results of the analysis show that in the 2030 scenario (allocated development) the proposed A50 junction will operate within capacity with the A50 (E) off slip operating at 89% of capacity.
- 6.11 The proposed A50 junction has also been modelled using a VISSIM Model. The VISSIM Model also demonstrated that the proposed A50 junction would operate efficiently mirroring the results provided in the Junctions 9 assessment, it also shows that the traffic on the slip roads merges satisfactorily with the main line traffic on the A50.

- 6.12 The BWB TA also demonstrates that the other junctions on the SDITL which forms part of the DCC will operate within capacity.
- 6.13 This Transport Assessment supports the application for the Infinity Garden Village and the section of the SDITL that continues from the new A50 junction west to the railway line, reviewing the impact on the surrounding highway network in more detail using the modelling data from the Systra SDGZ model.

Summary

- 6.14 The modelling work undertaken to date by the TWG demonstrates that the provision of the new A50 junction will enable the SDGZ development area to come forward. A planning application has been submitted for part of the SDITL that extends from Infinity Park to the new A50 junction by Derbyshire County council together with detailed impact assessment and design work undertaken by BWB Consultants Ltd. The modelling of the junctions on the SDITL and new A50 junction using the SDGZ Model shows that these junctions will operate within their design capacity accommodating the development allocations identified within the Local Plans.

7 DEVELOPMENT PROPOSALS AND ACCESS

Introduction

- 7.1 This section provides details of the development proposal including the uses proposed, access for all modes and parking. Section 8 considers the on and offsite measures to be proposed to encourage non-car trips.

Development Proposal

- 7.2 The proposed development of the Infinity Garden Village, Wragley Way will include up to 1,850 residential dwellings, a 2 form entry primary school, a local centre (including community hall, retail and other local services and facilities), public house, drive through restaurant, petrol filling station and employment uses totalling up to 51,096sqm. A copy the of the Masterplan layout is included in **Appendix G**.
- 7.3 The development will also incorporate part of the South Derby Integrated Transport Link (SDITL) which in turn links to the new A50 junction and the section of the SDITL which will extend through Infinity Park development site. The new A50 junction and part of the SDITL through Infinity Park has been submitted as a separate planning application by Derbyshire County Council and the TA for that application was prepared by BWB consultants and has been referred to in this report.
- 7.4 The employment uses will be located on land to the east of the Garden Village, accessed from the proposed roundabout along the Infinity Park Link Road which is located north of the proposed A50 junction. The Employment use has been submitted as a separate application, however as this forms part of the Infinity Garden Village, it is included for as part of this TA. The location of the proposed employment area is identified on the Masterplan layout included in **Appendix G**.
- 7.5 Access to the various areas of the development area will be made from off the new SDITL with three key junctions identified along this route including;
- A new 50m ICD roundabout on Stenson Road at the Wragley Way junction;
 - A new staggered signalised junction arrangement at the Arleston Lane/ Wragley Way junction;
 - A new signal junction to the east of the local centre.
 - New access onto the proposed SDITL roundbaout proposed as part of the Infinity Park Link Road north of the new A50 junction
 - New access onto the proposed northern roundabout proposed as part of the new A50 junction arrangement / Infinity Park Link Road.
- 7.6 All of the above junctions are submitted as detailed submissions as part of this application except for the new signal junction to the east of the local centre, although the same level of detail is also included in this TA for all junctions. Plans showing the proposed highway layouts are included in **Appendix H** together with swept path analysis.

Internal Road Geometry

- 7.7 The speed limit within the development will be 30mph changing to 40mph at the Wragley Way/ Stenson Road junction and also to the east where the SDITL meets the A50 junction and the Infinity Park part of the link road. The road width of the SDITL will be 6.5m to 7.3m wide in general with 1m verges and 2.0m wide footways on both sides plus a 1.5m cycleway on one side. Routes that extend off the main SDITL will be 5.5m wide except where bus routes are proposed, these routes will be 6.0-6.5m wide. The proposed dimensions conform to the Leicestershire Design Guidance which was previously the 6 C's Design guidance.
- 7.8 A plan showing the proposed speed restrictions is identified in **Appendix I**.
- 7.9 At the proposed Local Centre, the speed limit is proposed to reduce to 20mph and will be enforced through design and traffic calming features. The proposed Primary School will also be located within this area. The table below identifies the typical dimensions that will be used within the development.

Table 7.1: Typical Highway Design

Road Type	Carriageway Width	Footway Width	Design Speed
Main Street (Bus Route)	6.0m – 7.3m with on street parking	Min 2m (footway) + 1.5m (Cycleway)	30mph
Mixed Use Street (Not accessed by bus)	5.5m	2 x 2m	30mph
Mews/ Lane	4.8m	1 x 2m	20mph

- 7.10 Of the proposed junctions identified in paragraph 7.2, only two are being submitted for detailed design approval namely the Stenson Road/ Wragley Way/ SDITL roundabout and the Arleston Lane/ Wragley Way/ SDITL junction. However all three junctions have been reviewed as part of the Stage 1 Road Safety Audit which has been undertaken by an independent Stage 1 Road Safety Audit. Due to the timing of the submission of this application, the details of the RSA will be included as part of supplementary information to be provided which will also include the designer's response.
- 7.11 Details relating to the walking, cycling and PT Strategy for the site are covered in Section 8.

Parking

- 7.12 Parking within the development will conform to South Derbyshire DC parking standards. For the residential element of the site the SDDC's Design Guide recommends the following;

Houses

- Minimum of 2 spaces per dwelling (2-3 bedrooms)
- Minimum of 3 spaces per dwellings (4+ bedrooms)

Flats/ apartments

- One unallocated visitor space for every two dwellings (0.5 spaces per dwelling)

- 7.13 Cycle Parking will also be provided throughout the development site. The standards provided in the South Derbyshire 2001 Cycle Strategy sets out the following cycle parking requirements;

Table 7.2: Cycle Parking Standards

Land Use	User	Cycle Parking Spaces
General Shops	Customers	1 per 300m ²
Public House	Customers Staff	1 per 10m ² drinking area 1 per 150m ² drinking area
General Industry (B2)	Long Stay	1 per 400m ²
Storage & Distribution (B8)	Long Stay	Above 1000m ² : 1 per 100m ² internal space plus 1 per 2000m ² external storage
Flats (C3)	Long Stay	1 per unit
Clinics, health centre	Visitors Staff (long stay)	1 per 2 consulting rooms (minimum 1) 1 per 2 consulting rooms (minimum 1)
Primary School	Long Stay	2 per classroom/ teaching area
Public Hall (D1)	Long Stay	1 space per 50m ² floor area

- 7.14 The proposed layouts and access arrangements associated with the various uses on the site will be submitted as part of reserve matters applications and are not considered in detail within this TA.

Phasing

- 7.15 The development will be constructed over a 10-15 year period and will involve a series of phased areas of development. The proposed SDITL will also be completed in phases as the development progresses, these phases are described below;
- 7.16 **Phase 1.** This would relate to around 150 dwellings and allow the commencement of land parcels 1A and 1B (Land south of Wragley Way & east of Deep Dale Lane). Associated with these areas of development would be the accesses to the sites and localised improvements to Deep Dale Lane over the site frontage.
- 7.17 **Phase 2.** This would relate to the next 150 dwellings and allow the commencement of development on Stenson Road accessed from the new roundabout, access to area 2C (South of Wragley Way), together with further completions within parcels 1A and 1B.
- 7.18 By the completion of the 300th dwelling (Phases 1 and 2) the additional infrastructure would include the new link from Deep Dale Lane to the commercial development roundabout to the east, allowing a route between Stenson Road and the employment area and also the A50 junction.
- 7.19 It is anticipated that the delivery of the A50 junction and the first part of the link into the commercial area would be completed within two years of the commencement of the development hence this would be complete before 300 dwellings were completed on site.

- 7.20 **Phase 3.** This phase would then be the next 300 dwellings and also include the local centre, school site and parts of the SDITL. In this phase it is anticipated that the link from the commercial area to the new SDITL would be delivered together with part of the SDITL between this junction and the A50 roundabout. Also as part of this phase, the link from Arleston Lane would be started to allow access to the Local Centre and primary school. These works would allow areas 3A, 4A (Land to the north west of the new A50 junction) plus further development within the development areas previously identified.
- 7.21 **Phase 4.** By the completion of the first 1000 dwelling the works to deliver the SDITL from the Arleston Lane junction to the A50 roundabout would be completed together with the connection to the commercial area. This phase of 400 units would build on those areas previously opened up and allow access to the final area of 4B (Land adjacent to the Local Centre).
- 7.22 As part of this phased provision new cycle and footway routes will be developed as well as installing appropriate infrastructure for the new bus stops.
- 7.23 **Phase 5.** The final phase would relate to the remaining 940 dwellings and would provide the link to the railway line to the west of the site, or at least to a point within the development serving the dwellings with the remaining land associated with the route safeguarded.
- 7.24 A plan showing the phased road infrastructure is included in **Appendix J.**

Summary

- 7.25 The development of Infinity Garden Village will include up to 1,850 residential dwellings, a 2 Form entry Primary School, a Local Centre (including community Hall, Retail and other local services and facilities), Public House, Drive Through restaurant, Petrol Filling Station and employment uses totalling up to 51,096sqm.
- 7.26 The development will also incorporate part of the SDITL which will provide a link between Infinity Park and Stenson Road, part of the link that includes the section between Infinity Park and the new A50 junction has been submitted as a separate planning application by Derbyshire County Council, the section of the SDITL included as part of this application continues from the new A50 junction to a point just east of the railway line.
- 7.27 The provision of the employment use is to be submitted as a separate planning application, although still forms part of the overall Infinity Garden Village proposal and as such is included for as part of this TA.
- 7.28 This application includes the design of three key junctions within the development of which two are identified for detailed planning approval.
- 7.29 The proposed geometry has been carried out to accord with DMRB/ 6C's Design Guidance (Now Leicestershire Design Guidance) / MfS.
- 7.30 Parking within the development will conform to South Derbyshire DC's parking standards.
- 7.31 The proposed development will be undertaken in a number of phases with the construction of the SDITL being completed as part of the phased works.

8 PROPOSED ACCESSIBILITY

Introduction

- 8.1 This section of the report reviews the measure proposed to promote the site's accessibility to modes other than the private car. Whilst the internal layout has been submitted as outline, this report provides the proposed strategy to be adopted as part of the development proposal.
- 8.2 The proposed development site will be situated adjacent to an existing residential area south of Derby City Centre, as such the focus of this development design is to ensure good levels of accessibility are provided to both new and existing residents.
- 8.3 The proposed primary school and local centre will be located central to the site providing easy access by none car modes for the majority of the development.

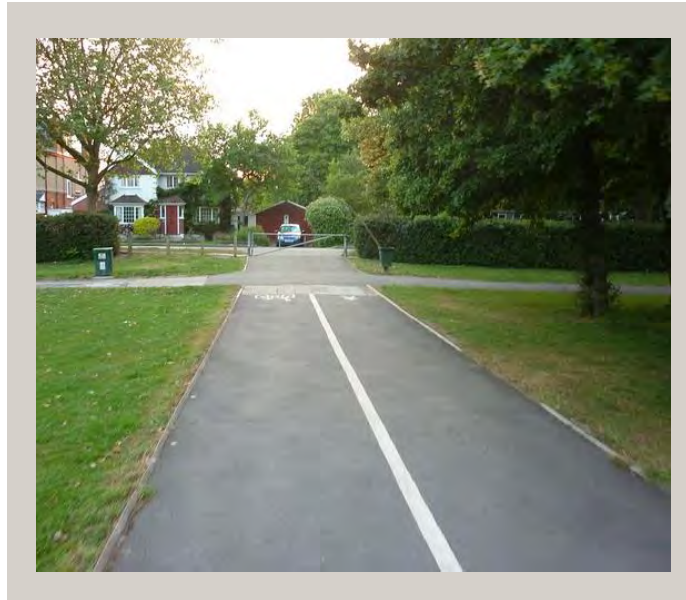
Walking and Cycling

- 8.4 To encourage the use of non-car modes within the site, the layout of the site will be to provide wide and well-lit footway / cycleway links throughout the site providing direct routes in and out of the development. The width of the cycleway / footway routes will be a minimum of 3.5m; footway only routes will be a minimum of 2m in width. The plan included in **Appendix K** identifies the indicative footway and cycleway routes within the site.
- 8.5 Cycling will be encouraged either via dedicated off road routes or on road within the residential areas. A way finding strategy within the site will route cyclist to quieter routes with less traffic than the main street through the development, although 1.5m cycleways will also be provided adjacent to the main street. Below are some photos of typical layouts used in residential areas.

Photo 1: Example of Off-Road Segregated Footway/Cycleway

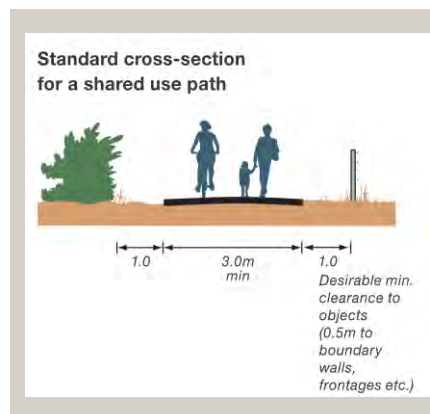


Photo 2: Example of Off-Road Segregated Footway/Cycleway



- 8.6 For the recreational areas, combined footway cycle routes will be provided, an example of these types of route are provided in the photo below.

Photo 3/ 4: Examples of Off Road Recreational Footway/cycleway



- 8.7 The site's location benefits from being adjacent to existing residential areas where connections can be provided to existing walking routes and other cycle routes that are available.
- 8.8 New controlled and uncontrolled crossing facilities provided to allow easy access for pedestrians and cyclists across the SDITL and other roads within the development.

Deep Dale Lane

- 8.9 The proposed highway layout, during the final phases of development, will see Deep Dale Lane being closed to through traffic with vehicles being re-directed through the development onto the SDITL Deep Dale Lane will, up to its junction with the A50, be downgraded to a 'Green Way' suitable for walking & cycling route which will in turn link with the new and existing footway/cycleway network. Deep Dale Lane continues south of the A50.

Public Transport

- 8.10 The existing bus stops on Wragley Way provide access to four existing bus services. The alignment of Wragley Way will change as part of the development proposal and as such will result in a slight change to the existing route of these services. The proposed changes to the services are identified in **Appendix L**.
- 8.11 Of the four services that are available, route 38 provides a frequent service which is a local circular service to Derby City Centre. The bus stops that are located on Wragely Way are situated within 500m of a large proportion of the development area, as such it is considered that suitable access can be achieved using the existing bus stops/ routes. A plan showing the catchment of the existing bus stops is provided in **Appendix L**.
- 8.12 The existing bus stops along Wragley Way will be upgraded to provide automated timetable information and if required raised kerbs.

Travel Plan

- 8.13 In order to encourage new residents and new employees of the benefits of travel to / from the site by more sustainable modes of travel, a site wide Framework Travel Plan has been produced. This Travel Plan is a separate document submitted as part of this application and seeks to reduce single car occupancy and encourage the use of public transport, cycling and walking.
- 8.14 The majority of the facilities on the site will be within easy walking or cycling distance of the local residents reducing the need for residents to use their cars. The development proposal will include a network of footways that will provide easy access to local facilities, schools and bus stops. The layout has been designed to allow cycling on roads where the volume of traffic movements and speeds will be low and also along dedicated off road routes which traverse the site and will be situated along the SDITL.
- 8.15 For those travelling outside of the development, the use of public transport is encouraged. This will be done through the provision of taster tickets for residents providing them with free bus travel for 1 month.
- 8.16 The Travel Plan includes for a Travel Information pack to be issued to each household which will provide a range of information including:

- Walking and cycling routes;
- Bus stop locations, routes and timetables;
- Train Station locations, routes and timetables; and
- Web sites which include:
 - Journey Planner (all sustainable routes available for any journey) - www.transportdirect.info;
 - Cycle Journey Planner (with quietest, balanced and quickest route with average times) - www.cyclestreet.net;
 - Cycle maps and cycle information - www.sustrans.org.uk;
 - Bus information via Traveline - www.traveline.org.uk;
 - Calorie calculator (gives you an idea on how many calories burnt by walking or cycling) - www.eatwell.gov.uk/healthydiet/healthyweight/caloriescalculator;
 - Carbon calculator (this works out the equivalent amount of carbon used or saved when using a car / not using a car) - www.actionco2.direct.gov.uk/index.html; and
 - Car Sharing schemes such as www.CarshareDerbyshire.com.
 - The key aims of the Travel Plan are to increase bus patronage and reduce single occupancy car travel.

Summary

- 8.17 This section reviews the measures proposed to improve accessibility between the site and the existing surrounding areas. The measures include;
- New off road cycle routes both along the SDITL and internal to the site;
 - New network of footways throughout the site linking with the existing footway network;
 - Downgrade of Deep Dale Lane (in part) to provide a 'Green Way' route for pedestrians and cyclists;
 - New controlled and uncontrolled crossing facilities at key locations;
 - Upgrade of existing bus stops on Wragley Way to include digital timetable information, raised kerbs and if room is available; shelters and seating;
- 8.18 The use of non-car modes will also be encouraged through the provision of a Framework Travel Plan which will encompass all uses within the Village.

9 TRIP GENERATION AND DISTRIBUTION

Introduction

- 9.1 This section of the report considers the likely traffic generation of the proposed Infinity Garden Village development south of Wragley Way. The impact assessment has been informed by the South Derby Growth zone (SDGZ) Modelling carried out by Systra. The SDGZ modelling has been undertaken to support the evidence base for a new junction on the A50 at Deep Dale Lane details of which are provided in Section 6. A review of the modelling is provided in Section 11.

Residential Trip Generation

- 9.2 The trip rates included in the SDGZ Model are 85th percentile trip rates obtained from the TRICS database. The trip rates are the same as those included as part of applications 05/13/00596 (Land south of Wragley Way), 02/15/00211 Land east of Deep Dale Lane and application ref: 09/2017/0922 Deep Dale Lane Phase 2. The use of 85th percentile trip rates are considered overly robust especially for a development of this size and will include all the internal trips within the development not just the externalising trips
- 9.3 Notwithstanding the above, the table below identifies the trip rates and proposed traffic movements associated with this application.

Table 9.1: Derby Urban Area Modelling Trip Rates (1,850 Dwellings) All Vehicles

	Arrivals		Departures		Two-Way	
	Trip Rate	No Trips	Trip Rates	No Trips	Trip Rates	No Trips
Weekday AM Peak (08:00-09:00)	0.177	327	0.523	968	0.700	1295
Weekday PM Peak (17:00-18:00)	0.463	857	0.296	548	0.759	1405

Source: MVA Consulting Derby Urban Area Model

Trip Distribution

- 9.4 The distribution of the residential traffic has been assigned using the 2011 journey to work census data which summarises the distribution of trips as follows;

Table 9.2: 2011 Census Work Place Destinations (Residents)

Route	% of Trips
North via Stenson Road	40%
South via Stenson Road	3%
North Via Arleston Lane	22%
North via Deep Dale Lane (north of Wragley Way)	1%

Southwest via Deep Dale Lane/ A514	7%
West Via A50	7%
East Via A50	16%
East Via the SDITL	4%

- 9.5 The 2011 Census database has also been used to determine the work place destination trips for the employment use on the site. Other trips have been based on existing highway distributions. A copy of the proposed development flows is included in **Appendix M**.

Other Development Uses Trip Generation

- 9.6 In addition to the residential element of the site, the development will include the provision of a 2FE primary school, Public House, PFS and employment as well as local facilities. The PFS and local facilities trips are considered to be trips already be on the local highway network and as such are not identified as additional trips within this TA.
- 9.7 The trips associated with the other uses are identified in the tables below. The trip rates for the employment and PH have been extracted from SDGZ Modelling report, for the Primary School, the TRICS database has been used as there were no trip rates for this use in the SDGZ report. A copy of the TRICS output is included in **Appendix N**.
- 9.8 For the employment element of the development, the final uses are not yet known as such it has been assumed, for the purpose of this TA, that the total floor area will be split equally between B1(c), B2, B8 storage & B8 Distribution uses. The floor area is the upper level of the potential development for this use.

Table 9.3: Proposed Employment Uses (Total 51,096sqm) All Vehicles

	Arrivals		Departures		Two-Way	
	Trip Rate	No Trips	Trip Rates	No Trips	Trip Rates	No Trips
AM Peak						
B1 (c) Use	0.899	114	0.155	20	1.054	134
B2 Use	0.318	40	0.071	9	0.389	49
B8 Warehouse Distribution	0.459	58	0.973	124	1.432	182
B8 Storage	0.116	14	0.066	8	0.182	22
Total		226		161		387
PM Peak						
B1 (c) Use	0.114	15	0.768	98	0.882	113
B2 Use	0.034	4	0.267	34	0.301	38
B8 Warehouse Distribution	0.865	110	0.770	98	1.635	208
B8 Storage	0.038	4	0.100	12	0.138	16
Total		133		242		375

Table 9.4: Proposed 2FE Primary School (420 pupils) All Vehicles

	Arrivals		Departures		Two-Way	
	Trip Rate	No Trips	Trip Rates	No Trips	Trip Rates	No Trips
AM Peak (08:00 – 09:00)	0.270	113	0.182	76	0.452	189
PM Peak (17:00 – 18:00)	0.016	7	0.019	8	0.035	15

Table 9.5: Proposed Public House (725sqm) All Vehicles

	Arrivals		Departures		Two-Way	
	Trip Rate	No Trips	Trip Rates	No Trips	Trip Rates	No Trips
PM Peak (17:00 – 18:00)	1.849	13	1.238	9	3.087	22

- 9.9 Some of the above trips will be trips included as part of the residential trips, therefore to reduce the level of double counting a reduction of trips has been made to account for internalised trips and the level of internal & external trips are identified in the table below.

Table 9.6: Predicted Internal/ External Trips – AM Peak (Two-way)

Use	Internal	External
Residential	-	1056
Employment (75% External)	97	290
Primary School (25% External)	142	47
PH (50% External)	0	0
Total	239	1393

Table 9.7: Predicted Internal/ External Trips – PM Peak (Two-way)

Use	Internal	External
Residential	-	1289
Employment (75% External)	94	281
Primary School (25% External)	11	4
PH (50% External)	11	11
Total	116	1585

9.10 The above identifies that the development is likely to result in 1,393 new two-way external trips on the local road network in the AM Peak and 1,585 new two-way trips in the PM Peak. This level of traffic is considered to be robust as the trip rates provided in the Derby Urban Areas Modelling report are based on 85th percentile trips and no discount has been made for trips to the Local Centre uses which would also be included in the residential trip rates. Also no discount has been applied for the Travel Plan which will seek to reduce predicted single occupancy car trips by 10%.

9.11 In addition to the above, background growth has been applied to the local highway network which predicts that between 2018 and 2025 there will be a 10-11% growth in traffic and between 2018 and 2030 there will be a 14-15% increase. These growth factors will include for developments included for within the Local Plans such as the Infinity Garden Village proposal and also the committed development sites off Wragley Way and Deep Dale Lane resulting in double counting of some trips. It is therefore considered that this TA provides an overly robust assessment.

Summary

9.12 The trip rates used as part of this Transport Assessment as based on those used in the South Derby Growth Zone (SDGZ) Model. The trip rates used within the model are based on 85th percentile trips which are considered overly robust for a development of this size as it will include for both internal and external trips given the onsite facilities proposed.

9.13 The number of new trips external to the site are expected to be 1,393 two-way in the AM Peak and 1,583 two-way in the PM Peak. This includes trips associated with the employment use, primary school and Public House. Trips associated with the Petrol Filling Station, drive through restaurant and local facilities within the site are considered to be already on the local highway network or included for as part of the residential trips.

9.14 The use of the 85th percentile trips together with the additional of background growth and committed development traffic is considered to provide an overly robust assessment, in addition no reduction is made in respect to the targets identified in the Framework Travel Plan.

10 TRAFFIC IMPACT AND JUNCTION ANALYSIS

Traffic Impact

10.1 This section provides details of the assessment of impact on the local highway network using the surveyed traffic flows and informed by the SDGZ Model prepared by Systra for the new A50 junction. The extent of network assessed was identified in the scoping report issued to SDDC, DCC and HE and includes the following junctions;

- Stenson Road/Warwick Avenue
- Sinfin Lane/ Osmaston Park
- Stenson Road/ Blagreaves Lane
- Sinfin Lane/ Wilmore Road
- Grampian Way/ Arleston Lane/ Asda Superstore
- Grampian Way/ Lynwood Road/ Sinfin Lane
- Wragley Way/ Arleston Lane
- Stenson Road/ A5132
- Sinfin Lane/ A5132 junction
- A5132/A514
- Stenson Road/ Grampian Way
- Stenson Road/ Wragley Way
- A50 / Swarkestone Road/ Infinity Park Way

10.2 In addition to the above, the two new key internalised junctions have been modelled.

10.3 A review of the above junctions has also been carried out using the Systra SDGZ Model which is included in Section 11.

Assessment Years

10.4 The modelling undertaken includes for two future assessment years; 2025 and 2030 as well as the base 2018 year. The modelling assumes that the Wragley Way development is completed by 2030 in line with South Derbyshire's Local Plan period. In terms of phasing, it is predicted that phases 1 and 2 will be completed by 2025 (749 dwellings) and the full development of 1,850 dwellings will be completed by 2030.

10.5 For background growth, the following growth rates have been obtained from Temprow V7.2. The site is included within the local plan and as such will be including as part of the growth rate, however to provide a robust assessment, no discounts to the growth rates have been applied.

- 2018 – 2025 AM Peak = 1.113
- 2018 – 2025 PM Peak = 1.106
- 2018 – 2030 AM Peak = 1.153

- 2018 – 2030 PM Peak = 1.144
- 10.6 Details of these growth rates are provided in **Appendix O** and the 2018, 2025 and 2030 traffic flows are included in **Appendix P**.
- 10.7 For the predicted traffic movements associated with the new highway infrastructure including the new A50 junction and the Infinity Park part of the SDITL, the SDGZ modelling data has been used. This data was extracted from the TA prepared by BWB Consulting on behalf of Derbyshire County Council for the new A50 junction & link road scheme. The BWB TA includes for a base 2020 scenario which includes the infrastructure only and a 2030 scenario which includes all of the allocated developments in this area including the proposed application site.
- 10.8 The proposed 2025 scenario included in this TA includes the '2020 infrastructure only' traffic movements identified for the A50 junction and for the future 2030 scenario the '2030 full development' traffic movements identified in the BWB TA have been used. It is assumed that the A50 and Infinity Park part of the SDITL will be completed upon completion of phases 1 and 2 of the development proposal.
- 10.9 Details have also been provided by Derby City Council of the modelling outputs for the various junctions assessed in this report a review of which is provided in Section 11, however the results below are based a predominately Manual assessment with assistance from the model as to the likely traffic movements predicted at the new A50 junction and the new highway infrastructure proposed as part of the SDITL.
- 10.10 In addition to the above, this TA includes for scenarios that excluded the employment use on land to the east of the SDITL in the 2030 scenario.
- 10.11 The above junctions have been assessed for the following scenarios in the AM and PM Peak periods;
- 2018 Base – No Committed Development;
 - 2025 – Including Committed Dev, No Proposed Development, No Proposed Infrastructure/ A50 junction;
 - 2025 – Including Committed Dev, No Proposed Development, With the Proposed Highway Infrastructure/ A50 junction
 - 2025 – Including Committed Dev + Phases 1 & 2 + Proposed Highway Infrastructure/ A50 Junction.
 - 2030 – Including Committed Dev, No Proposed Development, No Proposed Infrastructure/ A50 junction;
 - 2030 – Including Committed Dev, No Proposed Development, With the Proposed Highway Infrastructure/ A50 junction
 - 2030 – Including Committed Dev + Full Development + Proposed Highway Infrastructure/ A50 Junction.
 - 2030 – Including Committed Dev + Full Development (Excluding Employment) + Proposed Highway Infrastructure/ A50 Junction.
- 10.12 Details of the proposed traffic flows are included in **Appendix Q**.

Impact Analysis

- 10.13 The following junctions have been assessed using the industry standard computer modelling software Junctions 9 for priority junctions & roundabouts and LINSIG for signalised junctions. The full outputs are provided in **Appendix R** and the results are summarised in the tables below. The References provided are linked to the flow diagrams included in **Appendix Q**.

Stenson Road/ Warwick Avenue (Ref: 1)

- 10.14 This is an existing four arm roundabout junction arrangement and has been assessed using Junctions 9 software, the results are provided in **Table 10.1 & 10.2** below.

Table 10.1: Summary Table – Stenson Road/ Warwick Avenue Junction – AM PEAK

Scenario	Stenson Road (N)		Kenilworth Avenue		Stenson Road (S)		Warwick Avenue	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Observed Queue (Max Ave)		6		8		11		14
Base 2018	0.88	6	0.87	6	0.89	7	0.94	12
2025 Inc. Committed, No Dev, No A50 Junction	1.03	23	0.99	20	1.08	52	1.07	64
2025 Inc. Committed, No Dev, With A50 Junction.	1.17	58	1.04	35	1.04	36	1.12	91
2025 Inc. Committed. With Phased Dev, with A50 Junction	1.07	32	1.02	27	1.16	100	1.09	75
2030 Inc. Committed, No Dev, No A50 Junction	1.07	32	1.03	31	1.13	79	1.11	90
2030 Inc. Committed, No Dev, With A50 Junction.	1.21	70	1.06	46	1.09	61	1.13	98
2030 Inc. Committed. With Full Dev, with A50 Junction	1.38	154	1.17	101	1.77	863	1.16	122
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.27	100	1.13	78	1.72	750	1.14	114

Table 10.2: Summary Table – Stenson Road/ Warwick Avenue Junction – PM PEAK

Scenario	Stenson Road (N)		Kenilworth Avenue		Stenson Road (S)		Warwick Avenue	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Observed Q (Max Ave)		12		32		6		10
Base 2018	0.91	8	1.02	29	0.83	4	0.92	10
2025 Inc. Committed, No Dev, No A50 Junction	1.08	40	1.17	97	0.92	9	1.05	55
2025 Inc. Committed, No Dev, With A50 Junction.	1.14	63	1.20	117	0.90	7	1.08	77
2025 Inc. Committed. With Phased Dev, with A50 Junction	1.17	72	1.20	118	0.97	15	1.09	80
2030 Inc. Committed, No Dev, No A50 Junction	1.12	54	1.21	122	0.96	13	1.09	86
2030 Inc. Committed, No Dev, With A50 Junction.	1.18	78	1.24	147	0.93	10	1.13	111
2030 Inc. Committed. With Full Dev, with A50 Junction	1.41	221	1.56	400	1.66	571	1.16	134
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.37	192	1.52	359	1.54	416	1.16	133

- 10.15 The above results show that this junction is currently operating over its design capacity on all arms and as such will see increased delay with or without the proposed development. The level of traffic assessed at this junction is greater than that identified in the SDGZ Model and as such has also been assessed in Section 11. The results identified in Section 11 also show that this junction is likely to operate above its design capacity with the full development in place.
- 10.16 A potential improvement to this junction would be to change this from a roundabout to a four arm signalised junction, a potential arrangement is included in **Appendix S**. The analysis of this proposed junction will follow as part of the supplementary TA.

Sinfin Lane / Osmaston Park Road (Ref: 2)

- 10.17 This is a four arm signal controlled junction and has been assessed using the LINsig software, the results are provided in **Table 10.3 & 10.4** below.

Table 10.3: Summary Table – Sinfin Lane/ Osmaston Park Road Junction – AM PEAK

Scenario	Balaclava Road		Osmaston Park Road		Sinfin Lane		Newdigate Street		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
Observed (Max Ave)		9		12		16		16	
Base 2018	92.6%	14	74.6%	13	90.4%	16	93.0%	26	-3.3%
2025 Inc. Committed, No Dev, No A50 Junction	103.9%	23	85.5%	16	101.5%	27	102.1%	46	-15.5%
2025 Inc. Committed, No Dev, With A50 Junction.	103.9%	23	85.5%	16	101.5%	27	102.1%	46	-15.5%
2025 Inc. Committed. With Phased Dev, with A50 Junction	104.2%	24	86.5%	16	103.3%	43	104.1%	54	-15.8%
2030 Inc. Committed, No Dev, No A50 Junction	107.4%	28	88.6%	17	105.3%	33	105.4%	60	-19.3%
2030 Inc. Committed, No Dev, With A50 Junction.	107.4%	28	88.6%	17	105.3%	33	105.4%	60	-19.3%
2030 Inc. Committed. With Full Dev, with A50 Junction	121.0%	52	117.4%	55	119.2%	65	119.3%	106	-34.4%
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	114.2%	38	113.8%	47	113.2%	55	113.8%	91	-26.9%

Table 10.4: Summary Table – Sinfin Lane/ Osmaston Park Road Junction – PM PEAK

Scenario	Balaclava Road		Osmaston Park Road		Sinfin Lane		Newdigate Street		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
Observed (Max Ave)		10		16		11		9	
Base 2018	92.1%	14	82.2%	22	91.8%	14	85.6%	29	-4.1%
2025 Inc. Committed, No Dev, No A50 Junction	97.8%	18	94.5%	29	97.2%	18	96.9%	32	-8.7%
2025 Inc. Committed, No Dev, With A50 Junction.	97.8%	18	94.5%	29	97.2%	18	96.9%	32	-8.7%
2025 Inc. Committed. With Phased Dev, with A50 Junction	99.0%	19	96.0%	31	101.0%	22	100.5%	39	-12.2%

2030 Inc. Committed, No Dev, No A50 Junction	96.4%	17	100.0%	38	100.7%	22	101.1%	40	-12.3%
2030 Inc. Committed, No Dev, With A50 Junction.	96.4%	17	100.0%	38	100.7%	22	101.1%	40	-12.3%
2030 Inc. Committed. With Full Dev, with A50 Junction	120.5%	54	118.7%	98	121.0%	55	114.1%	34	-34.5%
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	118.7%	51	118.4%	97	116.8%	47	112.6%	39	-31.9%

- 10.18 The above tables show that based on the observed queues, the junction is currently operating more efficiently than the base modelling suggests especially on Newdigate Street and Osmaston Park Road. This is likely to be because this junction currently has MOVA installed which will make the operation of this junction more efficient.
- 10.19 Once an arm on the junction exceeds 100% the model shows queues significantly increasing which in reality would not occur. In terms of impact associate with the proposed development, it is anticipated that there will be a 4% increase in vehicle movements compared to the base situation, this is not a significant increase but as the junction is exceeding its design capacity without the development in place, any slight increase will exacerbate the results in the model.
- 10.20 This junction is very constrained, although it may be appropriate that as part of this development proposal that an upgrade to the existing MOVA system is provided which will further improve the operation of this junction.

Stenson Road/ Blagreaves Lane (Ref: 3)

- 10.21 This is three arm signalised junction arrangement and has been assessed using Linsig software, the results are provided in **Table 10.5 & Table 10.6** below.

Table 10.5: Summary Table – Stenson Road/ Blagreaves Lane Junction – AM PEAK

Scenario	Stenson Road (South)		Stenson Road (North)		Blagreaves Lane		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
Observed Queues (Max Ave)		7		8		9	
Base 2018	74.2%	21	74.2%	16	73.5%	15	21.2%
2025 Inc. Committed, No Dev, No A50 Junction	79.4%	23	91.0%	20	91.7%	21	-1.9%
2025 Inc. Committed, No Dev, With A50 Junction.	119.3%	135	117.6%	82	119.3%	82	-32.6
2025 Inc. Committed. With Phased Dev, with A50 Junction	88.9%	31	119.4%	77	118.8%	76	-32.7
2030 Inc. Committed, No Dev, No A50 Junction	81.0%	24	97.9%	26	97.7%	29	-8.7

2030 Inc. Committed, No Dev, With A50 Junction.	123.5%	158	121.9%	96	123.7%	96	-37.4
2030 Inc. Committed. With Full Dev, with A50 Junction	176.0%	534	174.8%	254	176.7%	227	-96.3
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	162.4%	458	162.3%	205	161.7%	176	-80.5

Table 10.6: Summary Table – Stenson Road/ Blagreaves Lane Junction – PM PEAK

Scenario	Stenson Road (South)		Stenson Road (North)		Blagreaves Lane		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
Observed Queues (Max Ave)		11		5		8	
Base 2018	73.9%	20	77.6%	20	77.3%	13	16.0%
2025 Inc. Committed, No Dev, No A50 Junction	105.9%	63	105.3%	55	106.0%	35	-17.8%
2025 Inc. Committed, No Dev, With A50 Junction.	112.5%	88	112.5%	91	111.9%	55	-25.0
2025 Inc. Committed. With Phased Dev, with A50 Junction	115.9%	110	115.6%	104	114.6%	58	-28.8
2030 Inc. Committed, No Dev, No A50 Junction	109.3%	79	108.9%	70	109.7%	44	-21.9
2030 Inc. Committed, No Dev, With A50 Junction.	116.2%	104	116.3%	109	115.7%	65	-29.3
2030 Inc. Committed. With Full Dev, with A50 Junction	187.6%	662	188.7%	405	188.5%	229	-109.7
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	176.3%	558	177.5%	358	174.9%	201	-97.2

- 10.22 The above tables show that based on the observed queues, this junction operates significantly better than the model is showing, this is likely to be because this is a new junction arrangement with MOVA installed. The impact of the development traffic is unlikely make any material difference to the operation during the initial phases of development. However with the full development in place, the tables above suggest that there will be a material impact.
- 10.23 The junction is constrained with limited scope for improvement. The review using the SDGZ in section 11 identifies that during the AM Peak this junction will operate well within its design capacity, although will still exceed capacity in 2030 with the full development & full allocations during the PM Peak although this level of PRC reduces to -29.9% as opposed to -109.7% shown above.
- 10.24 A potential option for mitigation would be to remove the existing pedestrian crossing on the northern arm of the junction, this would remove the 'all red' phase of the junction and improve the junction's operation. A separate signalised crossing could instead be provided separate to the junction.

Sinfin Lane/ Wilmore Road (Ref: 4)

10.25 This is a three armed signal controlled junction arrangement and has been assessed using the LINSig programme, the results are provided in **Table 10.7 & 10.8** below.

Table 10.7: Summary Table – Sinfin Lane/ Wilmore Road Junction – AM PEAK

Scenario	Sinfin Lane (North)		Wilmore Road		Sinfin Lane (South)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
Observed Queues (Max Ave)		7		5		17	
Base 2018	78.1%	10	79.8%	7	78.8%	12	12.8%
2025 Inc. Committed, No Dev, No A50 Junction	83.3%	11	82.8%	9	84.3%	16	6.7%
2025 Inc. Committed, No Dev, With A50 Junction.	83.3%	11	82.8%	9	84.3%	16	6.7%
2025 Inc. Committed. With Phased Dev, with A50 Junction	86.8%	12	82.8%	9	86.9%	18	3.6%
2030 Inc. Committed, No Dev, No A50 Junction	90.5%	13	92.0%	11	91.8%	25	-2.2%
2030 Inc. Committed, No Dev, With A50 Junction.	90.5%	13	92%	11	91.8%	25	-2.2%
2030 Inc. Committed. With Full Dev, with A50 Junction	109.1%	45	76.6%	6	112.4%	134	-24.8%
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	106.7%	34	107.1%	26	105.9%	93	-19.0%

Table 10.8: Summary Table – Sinfin Lane/ Wilmore Road Junction – PM PEAK

Scenario	Sinfin Lane (North)		Wilmore Road		Sinfin Lane (South)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
Observed Queues (Max Ave)		11		10		6	
Base 2018	71.9%	16	71.7%	12	71.6%	7	25.2%
2025 Inc. Committed, No Dev, No A50 Junction	80.1%	20	78.4%	15	79.6%	9	12.4%
2025 Inc. Committed, No Dev, With A50 Junction.	80.1%	20	79.4%	15	79.6%	9	12.4%
2025 Inc. Committed. With Phased Dev, with A50 Junction	82.3%	21	80.7%	16	83.2%	10	8.2%
2030 Inc. Committed, No Dev, No A50 Junction	82.8%	21	82.1%	16	82.3%	10	8.6%

2030 Inc. Committed, No Dev, With A50 Junction.	82.8%	21	82.1%	16	82.3%	10	8.6%
2030 Inc. Committed. With Full Dev, with A50 Junction	105.3%	66	100.4%	37	105.6%	55	-17.4%
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	102.0%	53	101.8%	40	99.7%	30	-13.3%

- 10.26 As can be seen this junction is currently operating within capacity and will not be materially affected by the development traffic during phases 1 & 2, however with the full development in place this junction is likely to exceed its design capacity on some arms.
- 10.27 This junction is believed to be on fixed cycle timings, as such it is proposed that this junction is upgraded to include MOVA which will provide a significant improvement to the operation of this junction and mitigate the impact of the development traffic.
- 10.28 MOVA stands for 'Microprocessor Optimised Vehicle Actuation', many signal junctions are operated on a 'Fixed' cycle time which means that each arm of a junction is given a set length of green time during set time periods. MOVA allows for the green times to vary depending upon the demands of traffic and can, if required, vary each cycle. This adaption of changes to respond to the demands of traffic will improve the junction's operation and efficiency. TRL/Department of Transport carried out a number of Trials and on average delays were shown to be 13% less than the standard fixed time operation (Traffic Advisory Leaflet 3/97).
- 10.29 On this basis it is considered that the provision of MOVA at this junction will mitigate the impact of the development traffic.

Grampian Way/ Arlestone Lane/ Asda Supermarket (Ref: 6)

- 10.30 This is a five arm elongated roundabout junction arrangement and has been assessed using the Junctions 9 software, the results are provided in **Table 10.9 and 10.10** below.

Table 10.9: Summary Table – Grampian Way/ Arlestone Lane Junction – AM PEAK

Scenario	Grampian Way (North)		Arlestone Lane		Asda Access		Grampian Way (South)		Inveraray Close	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Observed Queues (Max Ave)		3		2		2		1		2
Base 2018	0.79	4	0.61	2	0.54	1	0.43	1	0.03	0
2025 Inc. Committed, No Dev, No A50 Junction	0.91	8	0.70	2	0.63	2	0.51	1	0.04	0
2025 Inc. Committed, No Dev, With A50 Junction.	1.01	20	0.80	4	0.66	2	0.53	1	0.04	0
2025 Inc. Committed. With Phased Dev, with A50 Junction	1.03	24	0.82	4	0.67	2	0.54	1	0.04	0

2030 Inc. Committed, No Dev, No A50 Junction	0.95	11	0.73	3	0.67	2	0.53	1	0.04	0
2030 Inc. Committed, No Dev, With A50 Junction.	1.04	26	0.79	4	0.68	2	0.54	1	0.04	0
2030 Inc. Committed. With Full Dev, with A50 Junction	1.43	174	1.13	65	0.82	4	0.61	2	0.08	0
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.27	99	1.08	43	0.8	4	0.60	2	0.06	0

Table 10.10: Summary Table – Grampian Way/ Arlestone Lane Junction – PM PEAK

Scenario	Grampian Way (North)		Arlestone Lane		Asda Access		Grampian Way (South)		Inveraray Close	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Observed Queues (Max Ave)		3		2		5		0		2
Base 2018	0.86	6	0.62	2	0.69	2	0.46	1	0.02	0
2025 Inc. Committed, No Dev, No A50 Junction	0.99	19	0.72	3	0.80	4	0.54	1	0.02	0
2025 Inc. Committed, No Dev, With A50 Junction.	1.04	32	0.87	6	0.83	4	0.55	1	0.02	0
2025 Inc. Committed. With Phased Dev, with A50 Junction	1.06	41	0.90	7	0.83	5	0.56	1	0.02	0
2030 Inc. Committed, No Dev, No A50 Junction	1.03	29	0.75	3	0.84	5	0.56	1	0.02	0
2030 Inc. Committed, No Dev, With A50 Junction.	1.09	51	0.89	7	0.86	5	0.57	1	0.03	0
2030 Inc. Committed. With Full Dev, with A50 Junction	1.50	293	1.61	237	0.94	11	0.62	2	0.04	0
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.45	256	1.34	107	0.93	10	0.62	2	0.03	0

- 10.31 Tables 9.11 and 9.12 show that this junction currently operates within its design capacity and will continue to operate within its design capacity during phases 1 and 2. However with the full development in place, Grampian Way north and Arlestone Lane will be exceed capacity.
- 10.32 To mitigate the impact of the development traffic, improvements are proposed on both Grampian Way north and Arlestone Lane which includes widening of the entry to two lanes, details of these measures are identified in **Appendix S**. The results with these measures are identified in the tables below.

Table 10.11: Summary Table – Grampian Way/ Arlestone Lane Junction (IMPROVED) – AM PEAK

Scenario	Grampian Way (North)		Arlestone Lane		Asda Access		Grampian Way (South)		Inveraray Close	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.79	4	0.60	2	0.62	2	0.54	1	0.04	0
2030 Inc. Committed. With Full Dev, with A50 Junction	1.08	41	0.84	5	0.83	4	0.64	2	0.09	0
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.96	14	0.80	4	0.78	3	0.62	2	0.06	0

Table 10.12: Summary Table – Grampian Way/ Arlestone Lane Junction (IMPROVED) – PM PEAK

Scenario	Grampian Way (North)		Arlestone Lane		Asda Access		Grampian Way (South)		Inveraray Close	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.81	4	0.64	2	0.78	3	0.56	1	0.02	0
2030 Inc. Committed. With Full Dev, with A50 Junction	1.12	79	1.23	82	0.98	15	0.65	2	0.04	0
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.09	60	1.03	22	0.97	13	0.64	2	0.04	0

- 10.33 The above tables show that with the proposed mitigation, this junction will operate within capacity and the impact of the development traffic mitigated.

Grampian Way/ Lynwood Road/ Sinfin Lane (Ref: 7)

10.34 This is a four arm roundabout junction arrangement and has been assessed using the Junctions 9 software, the results are provided in **Table 10.13 & 10.14** below.

Table 10.13: Summary Table – Grampian Way/ Lynwood Road Junction – AM PEAK

Scenario	Sinfin Lane (N)		Lynwood Road		Sinfin Lane (S)		Grampian Way	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Observed Queues (Max. Ave)		3		1		1		5
Base 2018	0.75	3	0.45	1	0.19	0	0.61	2
2025 Inc. Committed, No Dev, No A50 Junction	0.85	5	0.52	1	0.20	0	0.65	2
2025 Inc. Committed, No Dev, With A50 Junction.	0.85	5	0.52	1	0.20	0	0.65	2
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.89	7	0.53	1	0.24	0	0.74	3
2030 Inc. Committed, No Dev, No A50 Junction	0.88	6	0.54	1	0.22	0	0.73	3
2030 Inc. Committed, No Dev, With A50 Junction.	0.91	8	0.54	1	0.23	0	0.73	3
2030 Inc. Committed. With Full Dev, with A50 Junction	1.33	151	0.58	1	0.46	1	1.06	54
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.18	72	0.58	1	0.35	1	1.05	47

Table 10.14: Summary Table – Grampian Way/ Lynwood Road Junction – PM PEAK

Scenario	Sinfin Lane (N)		Lynwood Road		Sinfin Lane (S)		Grampian Way	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Observed Queues (Max. Ave)		3		1		1		2
Base 2018	0.72	3	0.35	1	0.25	0	0.31	0
2025 Inc. Committed, No Dev, No A50 Junction	0.80	4	0.41	1	0.29	0	0.34	1
2025 Inc. Committed, No Dev, With A50 Junction.	0.80	4	0.41	1	0.29	0	0.34	1

2025 Inc. Committed. With Phased Dev, with A50 Junction	0.85	5	0.42	1	0.54	1	0.38	1
2030 Inc. Committed, No Dev, No A50 Junction	0.83	5	0.43	1	0.3	0	0.36	1
2030 Inc. Committed, No Dev, With A50 Junction.	0.83	5	0.43	1	0.30	0	0.36	1
2030 Inc. Committed. With Full Dev, with A50 Junction	1.18	123	0.48	1	0.81	4	0.59	1
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.15	106	0.49	1	0.80	3	0.53	1

- 10.35 The above tables show that this junction currently operates within its design capacity and during the initial phases of development this junction will continue to operate within capacity. However with the full development in place, the Sinfin Lane north arm of the junction is predicted to operate over capacity.
- 10.36 To mitigate the impact of the development, the proposal is to widen the Sinfin Lane north arm and Grampian Way arm to provide increased flare and wider entry. The results with these improvements are identified in the tables below.

Table 10.15: Summary Table – Grampian Way/ Lynwood Road Junction IMPROVED – AM PEAK

Scenario	Sinfin Lane (N)		Lynwood Road		Sinfin Lane (S)		Grampian Way	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.78	3	0.54	1	0.24	0	0.65	2
2030 Inc. Committed. With Full Dev, with A50 Junction	1.17	75	0.62	2	0.48	1	0.93	11
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.03	27	0.62	2	0.36	1	0.92	10

Table 10.16: Summary Table – Grampian Way/ Lynwood Road Junction IMPROVED – PM PEAK

Scenario	Sinfin Lane (N)		Lynwood Road		Sinfin Lane (S)		Grampian Way	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.74	3	0.43	1	0.54	1	0.34	1
2030 Inc. Committed. With Full Dev, with A50 Junction	1.03	39	0.54	1	0.87	5	0.51	1
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	1.01	29	0.54	1	0.86	4	0.47	1

- 10.37 The above table shows that with the proposed mitigation the impact will be reduced, mitigating the developments impact at this junction.

Wragley Way/ Arleston Lane (Ref: 9)

- 10.38 This is a simple priority junction arrangement and has been assessed using the Junctions 9 software, the results are provided in **Table 10.17 & 10.18** below. This junction has only been assessed for the initial phases of development as the road alignment/ junction layout will change with the full development in place. The assessment of the proposed signalised junction arrangement is shown in tables 10.41 & 10.42.

Table 10.17: Summary Table – Wragley Way/ Arleston Lane Junction – AM PEAK

Scenario	Wragley Way (West) right turn to Arleston Lane		Arleston Lane	
	RFC	Q	RFC	Q
Observed Queues (Max Ave)		1		2
Base 2018	0.00	0	0.11	0
2025 Inc. Committed, No Dev, No A50 Junction	0.00	0	0.13	0
2025 Inc. Committed, No Dev, With A50 Junction.	0.01	0	0.32	0
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.01	0	0.42	1
2030 Inc. Committed, No Dev, No A50 Junction	0.00	0	0.13	0
2030 Inc. Committed, No Dev, With A50 Junction.	0.01	0	0.36	0

Table 10.18: Summary Table – Wragley Way/ Arleston Lane Junction – PM PEAK

Scenario	Wragley Way (West) right turn to Arleston Lane		Arleston Lane	
	RFC	Q	RFC	Q
Observed Queues (Max Ave)		0		2
Base 2018	0.00	0	0.26	0
2025 Inc. Committed, No Dev, No A50 Junction	0.00	0	0.30	0
2025 Inc. Committed, No Dev, With A50 Junction.	0.00	0	0.66	1
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.01	0	0.74	1
2030 Inc. Committed, No Dev, No A50 Junction	0.00	0	0.32	0
2030 Inc. Committed, No Dev, With A50 Junction.	0.01	0	0.76	1

- 10.39 As can be seen this junction currently operates well within capacity and will continue to operate within capacity during the initial phases of development.

Stenson Road/ A5132 (Ref: 11)

- 10.40 This is a simple priority junction arrangement and has been assessed using the Junctions 9 software, the results are provided in **Table 10.19 & 10.20** below.

Table 10.19: Summary Table – Stenson Road/ A5132 Junction – AM PEAK

Scenario	A5132 (west) right turn into Stenson Road		Stenson Road	
	RFC	Q	RFC	Q
Observes Queues (Max Ave)		0		2
Base 2018	0.16	0	0.70	2
2025 Inc. Committed, No Dev, No A50 Junction	0.18	0	0.87	5
2025 Inc. Committed, No Dev, With A50 Junction.	0.18	0	0.98	10
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.18	0	0.98	10
2030 Inc. Committed, No Dev, No A50 Junction	0.19	0	0.91	7
2030 Inc. Committed, No Dev, With A50 Junction.	0.19	0	0.91	7
2030 Inc. Committed. With Full Dev, with A50 Junction	0.19	0	0.91	7
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.19	0	0.91	7

Table 10.20: Summary Table – Stenson Road/ A5132 Junction – PM PEAK

Scenario	A5132 (west) right turn into Stenson Road		Stenson Road	
	RFC	Q	RFC	Q
Observed Queues (Max Ave)		1		3
Base 2018	0.20	0	0.75	3
2025 Inc. Committed, No Dev, No A50 Junction	0.24	0	0.88	6
2025 Inc. Committed, No Dev, With A50 Junction.	0.24	0	0.94	9
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.24	0	0.94	9
2030 Inc. Committed, No Dev, No A50 Junction	0.25	0	0.92	8
2030 Inc. Committed, No Dev, With A50 Junction.	0.25	0	0.92	8
2030 Inc. Committed. With Full Dev, with A50 Junction	0.25	0	0.92	8
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.25	0	0.92	8

- 10.41 The above tables show that this junction currently operates within its design capacity and will continue to operate within capacity with the full development in place.

Sinfin Lane/ A5132 Junction (Ref: 12)

- 10.42 This is a simple priority junction arrangement and has been assessed using the Junctions 9 software, the results are provided in **Table 10.21 & 10.22** below.

Table 10.21: Summary Table – Sinfin Lane/ A5132 Junction – AM PEAK

Scenario	A5132 (west) right turn into Sinfin Lane		Sinfin Lane	
	RFC	Q	RFC	Q
Observed Queues (Max Ave)		2		2
Base 2018	0.46	1	0.70	2
2025 Inc. Committed, No Dev, No A50 Junction	0.53	1	0.88	5
2025 Inc. Committed, No Dev, With A50 Junction.	1.42	213	0.85	3
2025 Inc. Committed. With Phased Dev, with A50 Junction	1.26	119	0.88	5
2030 Inc. Committed, No Dev, No A50 Junction	0.55	1	0.92	5
2030 Inc. Committed, No Dev, With A50 Junction.	1.43	220	0.87	3

2030 Inc. Committed. With Full Dev, with A50 Junction	0.57	2	0.68	2
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.51	1	0.55	1

Table 10.22: Summary Table – Sinfin Lane/ A5132 Junction – PM PEAK

Scenario	A5132 (west) left turn into Sinfin Lane		Sinfin Lane	
	RFC	Q	RFC	Q
Observed Queues (Max Ave)		3		3
Base 2018	0.62	2	0.77	3
2025 Inc. Committed, No Dev, No A50 Junction	0.74	4	0.91	5
2025 Inc. Committed, No Dev, With A50 Junction.	1.17	90	0.88	4
2025 Inc. Committed. With Phased Dev, with A50 Junction	1.07	48	0.87	4
2030 Inc. Committed, No Dev, No A50 Junction	0.77	4	0.95	6
2030 Inc. Committed, No Dev, With A50 Junction.	1.16	86	0.87	4
2030 Inc. Committed. With Full Dev, with A50 Junction	0.85	7	0.83	3
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.85	7	0.67	2

- 10.43 As can be seen, based on the modelling data from the A50 proposed junction, this junction is likely to exceed capacity without the full development, however with the development in place the traffic flows south of the A50 are predicted to lighten and in turn improve the capacity of this junction. Therefore no mitigation measures are proposed to this junction.

A5132 Barrow Lane/ A514 Swarkestone Road Junction (Ref:13)

- 10.44 This is a simple priority junction arrangement and has been assessed using the Junctions 9 software, the results are provided in **Table 10.23 & 10.24** below.

Table 10.23: Summary Table –A5132 Barrow Lane/ A514 Swarkestone Road Junction – AM PEAK

Scenario	A514 (Swarkestone Road) right turn into A5132		A5132 Barrow Lane	
	RFC	Q	RFC	Q
Observed Queues (Max Ave)		5		3
Base 2018	0.67	2	0.85	4
2025 Inc. Committed, No Dev, No A50 Junction	0.81	4	1.20	23

2025 Inc. Committed, No Dev, With A50 Junction.	0.83	4	0.76	3
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.67	2	0.74	3
2030 Inc. Committed, No Dev, No A50 Junction	0.86	5	1.33	31
2030 Inc. Committed, No Dev, With A50 Junction.	0.78	3	0.78	3
2030 Inc. Committed. With Full Dev, with A50 Junction	0.59	1	0.71	2
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.70	2	0.86	5

Table 10.24: Summary Table –A5132 Barrow Lane/ A514 Swarkestone Road Junction – PM PEAK

Scenario	A514 (Swarkestone Road) right turn into A5132		A5132 Barrow Lane	
	RFC	Q	RFC	Q
Base 2018	0.84	5	0.91	7
2025 Inc. Committed, No Dev, No A50 Junction	1.01	15	1.08	21
2025 Inc. Committed, No Dev, With A50 Junction.	0.79	4	0.62	2
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.7	2	0.65	2
2030 Inc. Committed, No Dev, No A50 Junction	1.06	23	1.21	24
2030 Inc. Committed, No Dev, With A50 Junction.	0.77	3	0.65	2
2030 Inc. Committed. With Full Dev, with A50 Junction	0.81	4	0.87	6
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.4	1	0.90	6

- 10.45 As can be seen, with the development in place and the new A50 junction, this junction will operate within its design capacity. Without the proposed highway infrastructure, this junction is likely to see additional delays forming.

Stenson Road/ Grampian Way (Ref: 14)

- 10.46 This is a three arm roundabout junction and has been assessed using the Junctions 9 software, the results are provided in **Table 10.25 & 10.26** below.

Table 10.25: Summary Table – Stenson Road/ Grampian Way Junction – AM PEAK

Scenario	Stenson Road (N)		Grampian Way		Stenson Road (S)	
	RFC	Q	RFC	Q	RFC	Q
Observed Queues (Max Ave)		4		7		8
Base 2018	0.48	1	0.47	1	0.72	2
2025 Inc. Committed, No Dev, No A50 Junction	0.55	1	0.54	1	0.88	6
2025 Inc. Committed, No Dev, With A50 Junction.	0.71	2	0.73	3	1.19	76
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.72	3	0.75	3	1.34	182
2030 Inc. Committed, No Dev, No A50 Junction	0.58	1	0.56	1	0.93	8
2030 Inc. Committed, No Dev, With A50 Junction.	0.75	3	0.8	4	1.3	152
2030 Inc. Committed. With Full Dev, with A50 Junction	0.74	3	0.7	2	1.71	450
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.69	2	0.65	2	1.56	336

Table 10.26: Summary Table – Stenson Road/ Grampian Way Junction – PM PEAK

Scenario	Stenson Road (N)		Grampian Way		Stenson Road (S)	
	RFC	Q	RFC	Q	RFC	Q
Observed Queues (Max average)		7		8		5
Base 2018	0.46	1	0.54	1	0.53	2
2025 Inc. Committed, No Dev, No A50 Junction	0.54	1	0.63	1	0.63	6
2025 Inc. Committed, No Dev, With A50 Junction.	0.73	2	0.63	3	1.03	19
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.78	3	0.7	3	1.03	19
2030 Inc. Committed, No Dev, No A50 Junction	0.56	1	0.65	1	0.66	8
2030 Inc. Committed, No Dev, With A50 Junction.	0.81	3	0.74	1	1.13	53
2030 Inc. Committed. With Full Dev, with A50 Junction	0.76	3	0.75	2	2.02	727
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.73	2	0.72	2	1.9	628

- 10.47 As can be seen this junction is likely to exceed its design capacity with the full development in place. To mitigate the impact, improvements are proposed to widen the approach width on all arms to provide two lanes on the approach to the junction. Details of this proposal are provided in **Appendix S**, the results with this mitigation are provided in the tables below.

Table 10.27: Summary Table - Stenson Road/ Grampian Way Junction IMPROVED – AM PEAK

Scenario	Stenson Road (NB)		Grampian Way		Stenson Road (SB)	
	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.63	2	0.46	1	0.65	2
2030 Inc. Committed. With Full Dev, with A50 Junction	0.67	2	0.43	1	0.83	4
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.61	2	0.40	1	0.75	3

Table 10.28: Summary Table - Stenson Road/ Grampian Way Junction IMPROVED – PM PEAK

Scenario	Stenson Road (N)		Grampian Way		Stenson Road (S)	
	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.65	2	0.43	1	0.51	1
2030 Inc. Committed. With Full Dev, with A50 Junction	0.71	2	0.46	1	1.0	21
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.68	2	0.44	1	0.94	11

- 10.48 As can be seen, the proposed improvements will mitigate the developments impact at this junction.

Stenson Road/ Wragley Way (existing) (Ref: 15)

- 10.49 This is a simple priority junction and has been assessed using the Junctions 9 software, the results are provided in **Table 10.29 & 10.30** below.

Table 10.29: Summary Table –Stenson Road/ Wragley Way (existing) Junction – AM PEAK

Scenario	Stenson Road South right turn into Wragley Way		Wragley Way Right Turn	
	RFC	Q	RFC	Q
Observed Queues (Max Average)		0		4
Base 2018	0.12	0	0.79	3
2025 Inc. Committed, No Dev, No A50 Junction	0.16	0	1.1	21
2025 Inc. Committed, No Dev, With A50 Junction.	0.2	0	1.98	249
2030 Inc. Committed, No Dev, No A50 Junction	0.17	0	1.16	29
2030 Inc. Committed, No Dev, With A50 Junction.	0.22	1	2.28	325

Table 10.30: Summary Table –Stenson Road/ Wragley Way (existing) Junction – PM PEAK

Scenario	Stenson Road South right turn into Wragley Way		Wragley Way Right Turn	
	RFC	Q	RFC	Q
Observed Queues (Max Average)		0		3
Base 2018	0.17	0	0.58	1
2025 Inc. Committed, No Dev, No A50 Junction	0.25	1	0.79	3
2025 Inc. Committed, No Dev, With A50 Junction.	0.28	1	1.97	254
2030 Inc. Committed, No Dev, No A50 Junction	0.26	1	0.83	4
2030 Inc. Committed, No Dev, With A50 Junction.	0.31	1	2.28	329

- 10.50 As can be seen the above tables show that prior to the development being implemented, this junction is likely to exceed its design capacity with or without the A50 junction in place. As part of the development proposal, this junction will be upgraded to a 50m ICD roundabout and the results of which are provided in tables 10.31 and 10.32 below.

Stenson Road/ Wragley Way (Proposed) (Ref: 15)

- 10.51 As part of the development proposal, this junction will be changed into a 50m ICD five arm roundabout. This junction and has been assessed using the Junctions 9 software, the results are provided in **Table 10.31 & 10.32** below.

Table 10.31: Summary Table – Stenson Road/ Wragley Way (Proposed) Junction – AM PEAK

Scenario	Stenson Road (North)		Wragley Way (SDITL)		Development Access (East)		Stenson Road (South)		Development Access (West)	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.75	3	0.53	1	0.15	0	0.43	1	0	0
2030 Inc. Committed. With Full Dev, with A50 Junction	0.62	2	0.52	1	0.09	0	0.44	1	0.21	0
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.58	1	0.48	1	0.08	0	0.42	1	0.20	0

Table 10.32: Summary Table – Stenson Road/ Wragley Way (Proposed) Junction – PM PEAK

Scenario	Stenson Road (North)		Wragley Way (SDITL)		Development Access (East)		Stenson Road (South)		Development Access (West)	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.79	4	0.46	1	0.08	0	0.34	1	0	0
2030 Inc. Committed. With Full Dev, with A50 Junction	0.67	2	0.88	7	0.1	0	0.58	1	0.16	0
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.65	2	0.85	5	0.09	0	0.56	0	0.16	0

- 10.52 The above tables show that the proposed junction arrangement will operate within its design capacity.

New Infinity Park junction (North of the A50 junction) (Ref: 19)

- 10.53 A new four arm roundabout junction is proposed as part of the Infinity Park SDITL north of the A50 junction. The table below provided the results of the northern roundabout and has been assessed junction using the Junctions 9 software, the results are provided in **Table 10.33 & 10.34** below.

Table 10.33: Summary Table – New Infinity Park Junction (North of New A50 Junc) – AM PEAK

Scenario	SDITL (North)		SDITL (East)		SDITL (South)		Development Access	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction	0.22	0	0.38	1	0.60	1	0.3	1
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.21	0	0.36	1	0.51	1	0.39	1

Table 10.34: Summary Table – New Infinity Park Junction (North of New A50 Junc) – PM PEAK

Scenario	SDITL (North)		SDITL (West)		SDITL (South)		Development Access	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction	0.52	1	0.43	1	0.37	1	0.24	0
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.52	1	0.43	1	0.37	1	0.24	0

- 10.54 As can be seen this junction will operate within its design capacity with the full development in place.

New A50 Junction (Northern Roundabout) (Ref: 20a/b)

- 10.55 A new junction is proposed off the A50 and will include the development of two new roundabouts either side of the A50. During the initial phases of development, this junction will serve Deep Dale Lane as it is currently (Ref: 20a), in the proposed 2030 scenario, this junction will serve the proposed development and Deep Dale Lane will be downgraded in part to a footway/cycleway link (Ref: 20b). The table below provided the results of the northern five arm roundabout which has been assessed junction using the Junctions 9 software, the results are provided in **Table 10.35 – 10.38** below.

Table 10.35: Summary Table – New A50 Junction (northern roundabout) (20a) – AM PEAK

Scenario	Link to other rdbt		A50 West Entry		SDITL (Wragley Way Side)		SDITL (IP Side)	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed, No Dev, With A50 Junction.	0.47	1	0.63	2	0.69	2	0.44	1
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.48	1	0.65	2	0.78	3	0.47	1
2030 Inc. Committed, No Dev, With A50 Junction.	0.52	1	0.74	3	0.81	4	0.46	1

Table 10.36: Summary Table – New A50 Junction (northern roundabout) (20a) – PM PEAK

Scenario	Link to other rdbt		A50 West Entry		SDITL (Wragley Way Side)		SDITL (IP Side)	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed, No Dev, With A50 Junction.	0.43	1	0.67	2	0.73	3	0.55	1
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.48	1	0.71	2	0.78	4	0.57	1
2030 Inc. Committed, No Dev, With A50 Junction.	0.48	1	0.78	3	0.86	6	0.66	2

Table 10.37: Summary Table – New A50 Junction (northern roundabout) (20b) – AM PEAK

Scenario	Link to other rdbt		A50 West Entry		SDITL (Wragley Way Side)		SDITL (IP Side)	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction	0.39	1	0.58	1	0.46	1	0.84	5
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.35	1	0.55	1	0.44	1	0.81	4

Table 10.38: Summary Table – New A50 Junction (northern roundabout) (20b) – PM PEAK

Scenario	Link to other rdbt		A50 West Entry		SDITL (Wragley Way Side)		SDITL (IP Side)	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction	0.54	1	0.63	2	0.32	1	0.99	23
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.52	1	0.62	2	0.31	1	0.94	12

- 10.56 As can be seen this junction will operate within its design capacity with the full development in place.

New A50 Junction (Southern Roundabout) (Ref: 21)

- 10.57 The table below provided the results of the southern four arm roundabout which has been assessed using the Junctions 9 software, the results are provided in **Table 10.39 & 10.40** below.

Table 10.39: Summary Table – New A50 Junction (Southern roundabout) – AM PEAK

Scenario	A50 East Entry		Deepdale Lane S		Link to northern rdbt	
	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed, No Dev, With A50 Junction.	0.28	0	0.86	6	0.64	2
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.30	0	0.89	7	0.67	2
2030 Inc. Committed, No Dev, With A50 Junction.	0.33	1	1.03	35	0.71	3
2030 Inc. Committed. With Full Dev, with A50 Junction	0.57	1	0.7	2	0.33	1
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.55	1	0.64	2	0.29	0

Table 10.40: Summary Table – New A50 Junction (Southern roundabout) – PM PEAK

Scenario	A50 East Entry		Deepdale Lane S		Link to northern rdbt	
	RFC	Q	RFC	Q	RFC	Q
2025 Inc. Committed, No Dev, With A50 Junction.	0.34	1	0.77	3	0.75	3
2025 Inc. Committed. With Phased Dev, with A50 Junction	0.39	1	0.83	5	0.77	3
2030 Inc. Committed, No Dev, With A50 Junction.	0.40	1	0.93	10	0.84	5
2030 Inc. Committed. With Full Dev, with A50 Junction	0.63	2	0.90	8	0.56	1
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	0.60	2	0.85	5	0.54	1

- 10.58 As can be seen this junction will operate within its design capacity with the full development in place.

Proposed Arleston Lane/ SDITL/ Local Centre junction (Ref: 23)

- 10.59 As part of the development proposal, a new staggered signalised junction will be constructed at the location of the Wragley Way/ Arleston Lane junction. This junction will also serve the proposed local centre & primary school. This junction has been assessed junction using the LINSig software, the results are provided in **Table 10.41 & 10.42** below.

Table 10.41: Summary Table – Proposed Arlestone Lane/ SDITL junction – AM PEAK

Scenario	Arlestone Lane (North)		SDITL (East)		Arlestone Lane (South)		SDITL (West)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction	78.5%	22	79.6%	35	70.1%	6	79.6%	32	13.0%
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	72.3%	17	71.8%	31	70.1%	6	71.3%	28	24.5%

Table 10.42: Summary Table – Proposed Arlestone Lane/ SDITL junction – PM PEAK

Scenario	Arlestone Lane (North)		SDITL (East)		Arlestone Lane (South)		SDITL (West)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction	109.6%	43	110.2%	145	31.9%	3	108.8%	59	-22.4%
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	105.2%	36	105.2%	114	31.9%	3	105.6%	51	-17.3%

- 10.60 As can be seen during the AM Peak, this junction is predicted to operate within its design capacity, although during the PM Peak, this junction is likely to see delays forming. Additional lanes could be provided at this junction to increase the level of throughput, however in reviewing the SDGZ modelling data included in Section 11, the review of this junction shows that this junction will operate well within its design capacity as the model predicts fewer movements than the TA manual assessment. On this basis it is considered that taking a view that the traffic flows will be between those predicted in the SDGZ model and the manual TA analysis, this junction will operate within its design capacity in 2030. In addition all new signal controlled junctions along the SDITL will include MOVA.

Proposed Internalised Junction (Ref. 25)

- 10.61 A new signalised junction is proposed within the development site west of the new A50 northern roundabout junction. The table below provided the results of the northern roundabout and has been assessed junction using the LinSig software, the results are provided in **Table 10.43 & 10.44** below.

Table 10.43: Summary Table – Proposed Internal SDITL junction – AM PEAK

Scenario	Access Road (North)		SDITL (East)		SDITL (West)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction	53.0%	6	44.8%	10	53.9%	11	66.8%
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	48.4%	5	42.9%	9	48.0%	10	85.8%

Table 10.44: Summary Table – Proposed Internal SDITL junction – PM PEAK

Scenario	Access Road (North)		SDITL (East)		SDITL (West)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction	83.6%	7	88.9%	34	41.4%	6	1.3%
2030 Inc. Committed. With Full Dev, Excluding Employment, with A50 Junction	69.7%	4	85.7%	31	38.2%	6	5.0%

- 10.62 As can be seen this proposed junction will operate well within its design capacity with the full development in place.

Summary

- 10.63 In summary, the analysis results provided in this section are considered to represent an overly robust assessment and as such some junctions are shown to exceed their design capacity even without the proposed development in place. The junctions identified for improvement are as follows;
- Stenson Road/ Warwick Avenue (Junction Ref.1) – Potential Mitigation by changing the existing roundabout junction to a new signalised junction arrangement.
 - Sinfin Lane/ Osmaston Park Road (Junction Ref. 2) – This junction currently operates better than identified as it already has MOVA installed. This junction is currently constrained with limited scope for improvement, given the actual level of likely impact which is predicted to be around 4% it is proposed that an upgrade to the existing MOVA system is provided.
 - Stenson Road/ Blagreaves Lane (Junction Ref.3) – This junction currently operates better than is identified. Whilst the Manual TA assessment identifies that the impact of traffic with the development will have a material impact on this junction especially during the PM Peak, the SDGZ modelling data shows fewer vehicles travelling through this junction and as such the impact is significantly lower. Opportunities to improve the operation of this junction are limited although by removing the crossing on the Stenson Road north arm and

providing an isolated crossing, this would improve the junction's operation as the 'all red' phase would be removed.

- Sinfin Lane/Wilmore Road (Junction Ref. 4) - Proposed Mitigation is to upgrade this junction to include MOVA.
- Grampian Way/ Arlestone Lane/ Asda (Junction Ref. 6) – Proposed mitigation includes widening on both the Arlestone Lane and Grampian Way north arms.
- Grampian Way/ Lynwood Road (Junction Ref.7) – Proposed mitigation includes widening on the Sinfin Lane (north) and Grampian Way arms.
- Stenson Road/ Grampian Way (Junction Ref. 13) – Proposed Mitigation includes the widening of all arms at the junction.

10.64 The proposed junctions are shown to operate within their design capacity with the exception of the proposed Arlestone Lane/ SDITL junction which, using the TA robust figures is shown to operate over capacity in the PM Peak although operates well within capacity during the AM Peak. A review of this junction has also been carried out using the SDGZ modelling data which shows lower movements along the SDITL and the junction will operate well within its design capacity during both peak periods. Taking both scenarios into account, it is considered that this junction will operate within capacity and to ensure optimum performance is provided, MOVA will also be installed at all of the new junctions.

11 SDGZ MODEL REVIEW

- 11.1 As part of pre-application discussions with SDCC, SDDC and Derby City Council, it was agreed that the SDGZ Model would be used in the first instance, however further work is likely to be required using the Derby County Council's Gateway Model; this will form part of supplementary work to this TA. This section reviews the data obtained from the Systra SDGZ Model for the junctions assessed in this TA and compares the traffic movements to the manual assessment that has been undertaken. Where traffic flows identified in this TA are less than the Systra Model, re-analysis of those junctions are carried out.
- 11.2 The table below identifies the total through movements for each of the junctions assessed in section 10 from the Systra Model and those used in this TA.

Table 11.1: Traffic Flow Review (Junction Total through movements) – AM PEAK

Ref	Junction	Systra 2030 With Development (Stage C5)	2036 Proposed Traffic Flows	Difference of TA flows compared to Systra Model
1	Stenson Road/ Warwick Avenue	3801	5361	+1560
2	Sinfin Lane/ Osmaston Park Road	3837	3898	+61
3	Stenson Road/ Blagreaves Lane	1526	3260	+1734
4	Sinfin Lane/ Wilmore Road	2689	2864	+175
6	Grampian Way/ Arleston Lane/ Asda Supermarket	376	2561	+2185
7	Grampian Way/ Lynwood Road/ Sinfin Lane	1300	3649	+2349
23	Wragley Way / Arleston Lane/ SDITL	888	1523	+635
11	Stenson Road/ A5132	840	934	+94
12	Sinfin Lane/ A5132	1251	979	-272
13	A5132 Barrow Lane/ A514 Swarkestone Road junction	3008	2121	-887
15	Stenson Road/ Wragley Way/ SDITL	927	2112	+1185

Table 11.2: Traffic Flow Review (Junction Total through movements) – PM PEAK

Ref	Junction	Systra 2030 With Development (Stage C5)	2036 Proposed Traffic Flows	Difference of TA flows compared to Systra Model
1	Stenson Road/ Warwick Avenue	3757	5388	+1631
2	Sinfin Lane/ Osmaston Park Road	3693	3959	+266
3	Stenson Road/ Blagreaves Lane	2491	3805	+1314
4	Sinfin Lane/ Wilmore Road	2531	3101	+570

6	Grampian Way/ Arleston Lane/ Asda Supermarket	423	2963	+2540
7	Grampian Way/ Lynwood Road/ Sinfin Lane	992	2452	+1460
23	Wragley Way / Arleston Lane/ SDITL	1134	2024	+890
11	Stenson Road/ A5132	763	1122	+359
12	Sinfin Lane/ A5132	1490	1349	-141
13	A5132 Barrow Lane/ A514 Swarkestone Road junction	3100	2115	-985
15	Stenson Road/ Wragley Way/ SDITL	945	2516	+1571

- 11.3 The above tables show that the analysis undertaken in this TA is suitably robust with the majority of the junctions being assessed using higher traffic flows than predicted in the Systra SDGZ Model. The reason for the differences in traffic flows is likely to be due to the changes in traffic flows associated with the new road infrastructure and also the model will re-distribute traffic depending upon road capacity, whereas in the Manual assessment, the trips have simply been added onto the network.
- 11.4 Notwithstanding the above, where the differences in flows are +/- 500 or more trips, these junctions have been re-modelled using the Systra SDGZ Model data which includes:
- Stenson Road/ Warwick Avenue - AM & PM Peaks
 - Stenson Road/ Blagreaves Lane - AM & PM Peaks
 - Sinfin Lane/ Wilmore Road – PM Peak
 - Grampian Way/ Lynwood Road/ Sinfin Lane – AM & PM Peaks
 - Wragley Way/ Arleston Lane / SDITL – AM & PM Peaks
 - A5132 Barrow Lane/ A514 Swarkestone Road Junction – AM & PM Peaks
 - Stenson Road/ Wragley Way/ SDITL – AM & PM Peaks
- 11.5 The Grampian Way/ Arleston Lane junction is not being re-assessed as the base 2018 flows are significantly higher than those identified in the Model for the proposed 2030 scenario.
- 11.6 The results of the re-assessed junctions are identified in the tables below.

Table 11.3: Summary Table - Stenson Road/ Warwick Avenue Junction – AM PEAK (SDGZ Model)

Scenario	Stenson Road (N)		Kenilworth Avenue		Stenson Road (S)		Warwick Avenue	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction (Stage C5)	1.17	81	1.18	93	0.71	3	0.87	7

Table 11.4: Summary Table - Stenson Road/ Warwick Avenue Junction – PM PEAK (SDGZ Model)

Scenario	Stenson Road (N)		Kenilworth Avenue		Stenson Road (S)		Warwick Avenue	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction (Stage C5)	1.28	158	0.58	1	0.96	14	0.8	4

- 11.7 As can be seen the assessment of this junction with the SDGZ data also show that this junction will be exceeding its design capacity although not as greatly as identified in Section 10 with the TA traffic flows.

Table 11.5: Summary Table – Stenson Road/ Blagreaves Lane Junction – AM PEAK (SDGZ Model)

Scenario	Stenson Road (South)		Stenson Road (North)		Blagreaves Lane		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction (Stage C5)	64.4%	17	50.3%	8	63.4%	6	39.7%

Table 11.6: Summary Table – Stenson Road/ Blagreaves Lane Junction – PM PEAK (SDGZ Model)

Scenario	Stenson Road (South)		Stenson Road (North)		Blagreaves Lane		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction (Stage C5)	116.9%	162	116.0%	139	108.8%	20	-29.9%

- 11.8 As can be seen the review of this junction identifies that in the PM Peak, this junction is likely to be exceeding its design capacity, although the impact identified in the tables above are less than those using the manual TA flows. The assessment using LINSIG does not however reflect the operation of a junction that uses MOVA and as such this junction operates more efficiently than shown. Due to the constraints at this junction, there is limited opportunity to further improve this junction, however the option identified in Section 10, to move the existing crossing facility on the northern arm could help to improve the operation of this junction further and the level of improvement is considered sufficient to mitigate the impact of the development traffic.

Table 11.7: Summary Table – Sinfin Lane/ Wilmore Road Junction – AM PEAK (SDGZ Model)

Scenario	Sinfin Lane (North)		Wilmore Road		Sinfin Lane (South)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction	59.7%	9	94.4%	12	94.9%	39	-5.4%

Table 11.8: Summary Table – Sinfin Lane/ Wilmore Road Junction – PM PEAK (SDGZ Model)

Scenario	Sinfin Lane (North)		Wilmore Road		Sinfin Lane (South)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction	97.3%	30	96.9%	30	66.5%	14	-8.1%

- 11.9 The above tables show that this junction is likely to exceed capacity in the future years with or without the development traffic, although the degree of impact is identified as being significantly less with the SDGZ model data than compared to the TA flows. It is proposed that MOVA is provided at this junction to help improve this junction's operation and mitigate the impact of the development traffic.

Table 11.9: Summary Table –A5132 Barrow Lane/ A514 Swarkestone Road Junction – AM PEAK (SDGZ Model)

Scenario	A514 (Swarkestone Road) right turn into A5132		A5132 Barrow Lane	
	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction	0.88	5	1.09	26

Table 11.10: Summary Table –A5132 Barrow Lane/ A514 Swarkestone Road Junction – PM PEAK (SDGZ Model)

Scenario	A514 (Swarkestone Road) right turn into A5132		A5132 Barrow Lane	
	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction	0.77	3	1.04	10

- 11.10 As can be seen the SDGZ modelling data suggests that this junction is likely to reach its design capacity in 2030 with the full development and site allocations, although using the more robust TA flows, the results are slightly less. This level of impact is still below that which would be reached if there was no A50 junction or proposed development, as such it is not considered that any mitigation measures are required at this junction.

Table 11.11: Summary Table – Grampian Way/ Lynwood Road Junction – AM PEAK (SDGZ Model)

Scenario	Sinfin Lane (N)		Lynwood Road		Sinfin Lane (S)		Grampian Way	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction (Stage C5)	0.20	0	1.12	39	1.00	16	0.24	0

Table 11.12: Summary Table – Grampian Way/ Lynwood Road Junction – PM PEAK (SDGZ Model)

Scenario	Sinfin Lane (N)		Lynwood Road		Sinfin Lane (S)		Grampian Way	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction (Stage C5)	0.52	1	0.44	1	0.66	2	0.04	0

- 11.11 As can be seen using the SDGZ model flows, all arms except the Lynwood Road arm during the AM Peak will operate well within capacity. The impact of the development traffic will be on Sinfin Lane (N) and Grampian Way as such it is considered that the impact on Lynwood Road is not as a result of the proposed development traffic. Measures to mitigate the impact of the development traffic are identified in Section 10.

Table 11.13: Summary Table – Stenson Road/ Wragley Way (Proposed) Junction – AM PEAK (SDGZ Model)

Scenario	Stenson Road (North)		Wragley Way (SDITL)		Development Access (East)		Stenson Road (South)		Development Access (West)	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction	0.28	0	0.12	0	0.13	0	0.22	0	0	0

Table 11.14: Summary Table – Stenson Road/ Wragley Way (Proposed) Junction – PM PEAK (SDGZ Model)

Scenario	Stenson Road (North)		Wragley Way (SDITL)		Development Access (East)		Stenson Road (South)		Development Access (West)	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
2030 Inc. Committed. With Full Dev, with A50 Junction	0.16	0	0.27	0	0.1	0	0.2	0	0	0

- 11.12 As can be seen this junction will operate well within its design capacity.

Table 11.15: Summary Table – Proposed Arlestone Lane/ SDITL junction – AM PEAK (SDGZ Model)

Scenario	Arlestone Lane (North)		SDITL (East)		Arlestone Lane (South)		SDITL (West)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction	9.8%	1	51%	17	0%	0	51.3%	24	75.5%

Table 11.16: Summary Table – Proposed Arlestone Lane/ SDITL junction – PM PEAK (SDGZ Model)

Scenario	Arlestone Lane (North)		SDITL (East)		Arlestone Lane (South)		SDITL (West)		PRC (%)
	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	Deg of Sat (%)	Q	
2030 Inc. Committed. With Full Dev, with A50 Junction	39.5%	3	63.4%	32	39.5%	3	63.7%	18	41.2%

- 11.13 The above tables show that this proposed junction will operate within its design capacity using the SDGZ modelling flows.

Summary

- 11.14 The SDGZ model shows mostly fewer traffic movements than the manual TA assessment, this is likely to be because the model can re-distribute traffic based on areas of congestion and also re-route traffic based on the infrastructure proposed whereas the TA simply adds the development traffic onto a specific route and assumptions are made in the distribution of traffic on the new highway infrastructure. Neither the TA or the SDGZ take into account any discount for the provision of a site based Travel Plan which will seek to reduce single occupancy car trips.
- 11.15 It is considered that with the proposed infrastructure that is being proposed in this area the SDGZ Model is likely to provide a more realistic account of the traffic movements in the future as the distribution of traffic with new link roads and major junctions is not something that can easily be undertaken manually. Notwithstanding this, the mitigation measures proposed within this TA are considered appropriate to ensure that traffic movements through this area are not adversely affected.

12 SUMMARY & CONCLUSION

- 12.1 This Transport Assessment (TA) has been prepared on behalf of Hallam Land Management Limited to provide sufficient information for the highway authority to determine the impact the proposed Infinity Garden Village development on Land south of Wragley Way and west of Stenson Road, Derby.
- 12.2 The proposed development will include up to 1,850 dwellings a 2 form entry Primary School, Local Centre, Public House, drive through restaurant, Petrol Filling Station and employment development, as well as providing part of the South Derby Integrated Transport Link (SDITL). The site is largely identified as Housing Policy site ref 15 within South Derbyshire Local Plan.
- 12.3 The provision of the employment use is to be submitted as a separate planning application, although still forms part of the overall Infinity Garden Village proposal and as such is included for as part of this TA.
- 12.4 The area of the site allocation included for as part of this application sits within the South Derbyshire boundary. Three separate planning applications have already been submitted for other sections of the overall site allocation, two of which have been approved and all are included for in this TA. The site will also incorporate part of the SDITL which will link with Infinity Park to the east and up to the railway line to the west.
- 12.5 Modelling work undertaken by the TWG, included in the SDGZ Model demonstrates that the provision of the new A50 junction will enable the SDGZ development area to come forward. A planning application has been submitted for part of the SDITL that extends from Infinity Park to the new A50 junction by Derbyshire County council together with detailed impact assessment and design work undertaken by BWB Consultants Ltd. The modelling of the junctions on the SDITL and new A50 junction using the SDGZ Model shows that these junctions will operate within their design capacity accommodating the development allocations identified within the Local Plans
- 12.6 The site sits adjacent to the A50 and Stenson Road which provides links to Derby City Centre. Base line traffic surveys have been carried out in 2018 covering a wide area so that the impact of the development proposal can be ascertained.
- 12.7 The site benefits from being adjacent to an existing residential area and local facilities including an ASDA food store which is within easy cycling distance of the site. There are currently no formalised cycle routes adjacent to the site, however Sustrans NCN Rout 66 is accessible via Arleston Lane.
- 12.8 There are also four bus routes that currently pass the site on Wragley Way, providing access to schools and Derby City Centre. Route 38 provides a very frequent service and will be within 500m of a large proportion of new residents.
- 12.9 The 2011 Census data shows that 67% of existing residents in this part of Derby travel to work by car and 12% will use Public Transport and 18% cycle. The proposed development will adopt a Framework Travel Plan which will aim to further reduce the level of single occupancy vehicles during the busier peak periods.
- 12.10 Accident Data has been obtained from Derbyshire Constabulary covering the extent of area being assessed within this TA. The review concludes that the pattern of accidents occurring do

not identify any particular safety issues with the existing highway layout and are considered primarily related to driver or pedestrian/cyclist error. It is considered that the level of traffic proposed by the development is unlikely to exasperate the existing level of accidents occurring.

- 12.11 This application includes the design of three key junctions within the development of which two are identified for detailed planning approval. In addition new accesses will be provided onto the SDITL Infinity Park Link Road roundabout and New A50 northern roundabout, details of these links are also included for detailed submission.
- 12.12 The proposed geometry has been carried out to accord with DMRB/ 6C's Design Guidance (Now Leicestershire Design Guidance) / MfS. Parking within the development will conform to South Derbyshire DC's parking standards.
- 12.13 The proposed development will be undertaken in a number of phases with the construction of the SDITL being completed as part of the phased works.
- 12.14 In order to improve accessibility, the following measures are proposed:
 - New off road cycle routes both along the SDITL and internal to the site;
 - New network of footways throughout the site linking with the existing footway network;
 - Downgrade of Deep Dale Lane (in part) to provide a 'Green Way' route for pedestrians and cyclists;
 - New controlled and uncontrolled crossing facilities at key locations;
 - Improvement to existing bus stops along Wragley Way to include raised kerbs, digital timetable information and if room; shelters and seating;
- 12.15 The use of non-car modes will also be encouraged through the provision of a Framework Travel Plan which will encompass all uses within the Village.
- 12.16 The trip rates used as part of this Transport Assessment as based on those used in the South Derby Growth Zone (SDGZ) Model. The trip rates used within the model are based on 85th percentile trips which are considered overly robust for a development of this size as it will include for both internal and external trips given the onsite facilities proposed.
- 12.17 The number of new trips external to the site are expected to be 1,393 two-way in the AM Peak and 1,583 two-way in the PM Peak. This includes trips associated with the employment use, primary school and Public House. Trips associated with the Petrol Filling Station, drive through restaurant and local facilities within the site are considered to be already on the local highway network or included for as part of the residential trips.
- 12.18 The use of the 85th percentile trips together with the additional of background growth and committed development traffic is considered to provide an overly robust assessment, in addition no reduction is made in respect to the targets identified in the Framework Travel Plan and PT provision.
- 12.19 The Impact Assessments undertaken on the local highway network show that the initial phases of development can be suitably accommodated on the local road network without additional mitigation being required, however with the full development in place and the new SDITL & A50 junction, mitigation is identified to be required. It is demonstrated within this report that whilst an overly robust assessment has been carried out, suitable mitigation can be provided.

- 12.20 This report identifies that the site is situated adjacent to an existing residential district and is within easy walking/cycling distance of the facilities that are available within Sinfen as well as being within walking/cycling distance of the proposed facilities that will be available within the site. The impact of the development on the local highway network is demonstrated as being able to be suitably mitigated. The provision of a Framework Travel Plan will further assist in encouraging the use of non-car modes and reducing the overall impact of the development on the local highway network. On this basis it is considered that the site conforms to the transport related policies set out in NPPF, Derby City Local Plan and South Derbyshire District Council Local Plan.

Appendices

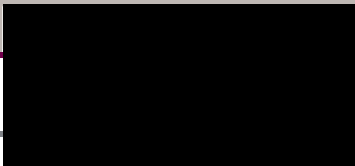
Appendix A –Scoping Report

WRAGLEY WAY, DERBY

Transport Scoping Report

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Transport Scoping Report
01
April 2019

Document Status					
Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
01	Transport Scoping Report	Melanie A'Lee	Brian Plumb	Brian Plumb	April 2019

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Brian Plumb		2019-04-09

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APPENDICES

APPENDIX A – PROPOSED ACCESS LAYOUT

1 INTRODUCTION

Report Brief

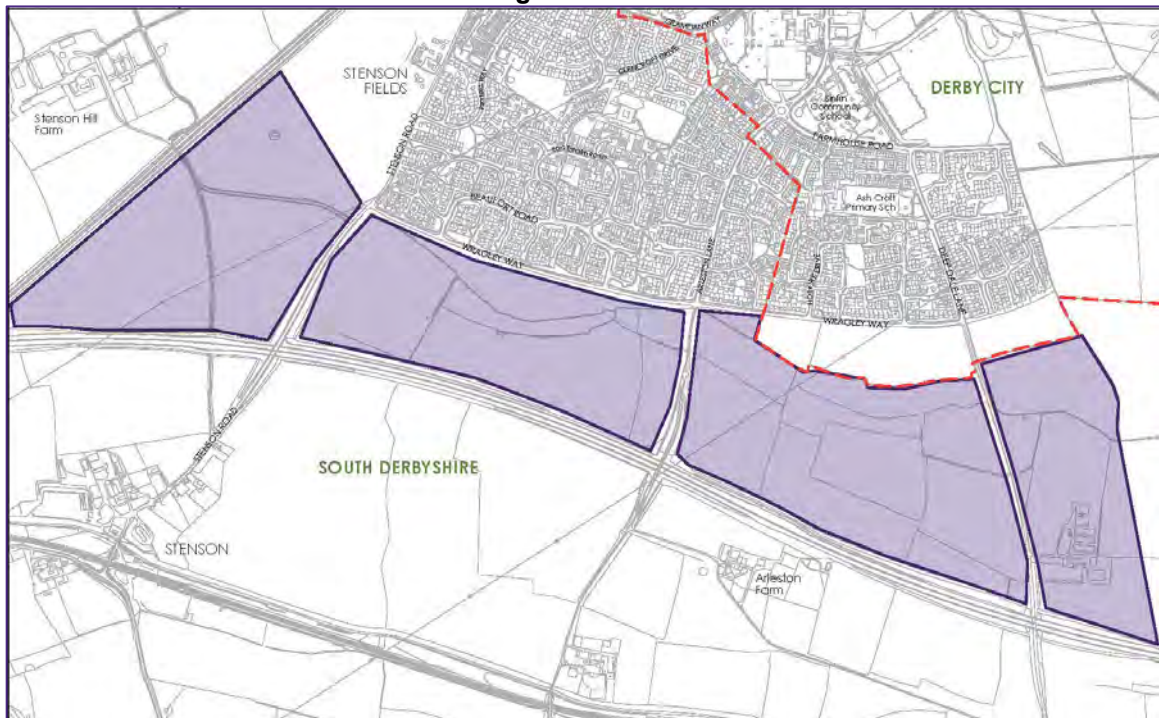
- 1.1 RPS has been commissioned by Hallam Land Management Ltd, to provide a Scoping Report to set out the key elements of a Transport Assessment to be submitted in support of a planning application for the site at Wragley Way, Derbyshire. In addition the report outlines the assessments being undertaken within the South Derby Growth Zone Model, (SDGZ) which is to be included within the TA.
- 1.2 This report sets out the main chapters that will be provided within the Transport Assessment and a brief description of what information will be included in each chapter.
- 1.3 The proposed development is on land south of Wragley Way within the District of South Derbyshire and will include part of the South Derby Integrated Transport Link (SDITL). The development is identified as Policy Site H15 in the South Derbyshire District Council Local Plan and will include up to 1,950 dwellings a primary school and local centre.
- 1.4 A planning application Ref 9/2017/0922 has been submitted separately and includes for 100 dwellings which forms part of this allocation. Should this application being approved prior to finalising the TA this element of the site will be considered as committed, if this is not approved, it will be considered as part of the overall quantum on the site.
- 1.5 The TA will also make reference to the sites that have been approved in this area including application ref: 05/13/00596 (130 Dwellings, Wragley Way) and application ref: 02/15/00211 (50 Dwellings, Deep Dale Lane).
- 1.6 Derby City Council, South Derbyshire District Council, Derbyshire County Council and Highways England have been involved in the allocation of this site and will be consulted re the scope of the TA. Separate to this development proposal, Derbyshire County Council have submitted an application for the proposed A50 junction and Infinity Link Road, both of which will be included in the assessment work undertaken in the TA.
- 1.7 Assessment of the impact of the Wragley Way site allocation has been included in the modelling undertaken for the proposed A50 junction and Infinity Park Link Road using the Derby City Systra Model. The TA supporting the site allocation at Wragley Way will include detailed analysis focusing on the impact associated with the application site including phasing and off site measures required to be implemented as part of these proposals and will also compare the predicted traffic movements identified in the SDGZ Model with the manual impact assessment.

2 EXISTING SITE AND SURROUNDING HIGHWAY NETWORK

2.1 This chapter will include:

- A review of the site's location and a description of the existing local highway network. The site is identified in **Figure 1** below;

Figure 1: Site Location



- **Description of the Sites location:** The site is to the south of Derby City Centre situated to the south of Wragley Way and north of the A50. The site falls within South Derbyshire District Council Boundary. The extent of the site identified in the SDLP allocation Policy ref H15 includes application ref: 9/2017/0922 (100 Dwellings) which has been submitted as a sperate planning application.
- **A review of travel modes and work place destinations.** The site lies partly within the Stenson ward and partly within the Arleston Ward, both of these wards will be used to ascertain the existing travel to work modes and destinations using the 2011 Census database. This data will be compared with the census data for the neighbouring areas within Derby City and also the overall statistics for Derby and South Derbyshire;

- **Traffic Surveys:** Manual Traffic Surveys have been undertaken at the following junctions in 2018:
 - Stenson Road/Warwick Avenue
 - Sinfin Lane/ Osmaston Park
 - Stenson Road/ Blagreaves Lane
 - Sinfin Lane/ Wilmore Road
 - Stenson Bridge over railway line
 - Grampian Way/ Arleston Lane/ Asda Superstore
 - Grampian Way/ Lymwood Road/ Sinfin Lane
 - Merrill Way/ Chellaston Road/ Boulton Lane
 - Wragley Way/ Arleston Lane
 - A50 / Swarkestone Road/ Infinity Park Way
 - Stenson Road/ A5132
 - Sinfin Lane/ A5132/ Brookfield junction
 - A5132/A514
 - Stenson Road/ Grampian Way
 - Stenson Road/ Wragley Way
 - Wragley Way/ Deep Dale Lane
- In addition, ATC surveys have been carried out on Stenson Road, Wragley Way and Deep Dale Lane recording daily traffic movements over a week period including full classifications and speeds.
- **Growth:** The growth on the local road network will be obtained from TEMPro 7.2 to establish a base and future year assessment. The TEMPro growth will be applied together with traffic associated with committed developments in the local area which are likely to have a material impact. The sites that are considered applicable and will be included as part of the TA include application ref: 05/13/00596 (130 Dwellings, Wragley Way) and application ref: 02/15/00211 (50 Dwellings, Deep Dale Lane). Any other applications that the highway authority considered necessary to include, need to advise RPS as part of this scoping.
- The future growth and traffic movements will also be informed by the results provided in the Systra SDGZ SATURN Model which includes assessment with the proposed A50 link road and the Infinity Park Link road which forms part of the SDITL.
- **Incident Review:** Within the Transport Assessment a review of existing accidents in the local area will be undertaken. This will be based upon data to be obtained from Derbyshire Police covering a 5 year period and will include the full area over which it is considered the development proposals will influence the effect of traffic.

3 ACCESSIBILITY

- 3.1 This chapter will review the site's existing level of accessibility to modes other than the private car and will include the following:
- A review of the existing walking and cycling routes within close proximity to the site including public rights of way/bridleways etc.;
 - A review of local facilities that are currently available outside of the site especially services that are unlikely to be included within the proposed development and the time to walk/cycle to these facilities.
 - Details of the existing bus services that are within close proximity to the site and connections to the closest railway stations.
- 3.2 This assessment will also include measures being promoted through other committed development which may be beneficial to the proposed scheme including Infinity Park.

4 PLANNING POLICY

4.1 This chapter will review the transport related policies that are pertinent to the development site. This will include the following:

- National Planning Policy Framework;
- Derby City Local Plan;
- South Derbyshire Local Plan
- Derbyshire Local Transport Plan 2011 - 2026;
- Design Manual for Roads and Bridges; and
- Manual for Streets 1 and 2.

5 DEVELOPMENT PROPOSALS AND ACCESS

5.1 This chapter will provide details of the scheme proposals and will include the following:

- A description of the development proposal;
- Details of the proposed access to the site;
- Details of the proposed parking provision within the development;
- Details of the internal road layout design and pedestrian/cycle routes within the site and also how these connect to the wider network etc.;
- Details of proposed accessibility to the site by modes other than the private car;
- An overview of the Travel Plan. A Framework Travel Plan will be submitted as a separate report;
- Details of the proposed Public Transport Strategy for the site and how the existing and proposed services will connect with the site and be accessible to new residents of the development.
- Details of proposed off site improvement measures.

5.2 The proposal includes for the development of 1,950 residential dwellings a 2FE Primary School, a local centre (including retail and other local services and facilities), and strategic highway network which will form part of the South Derby Link Road.

5.3 An application for 100 dwellings off Deep Dale Lane has been submitted separately to this proposal although forms part of this sites allocation and as such will be included as part of the assessment work.

5.4 A review of the phasing of development will be provided together with the associated highway infrastructure required to deliver the number of houses in each phase. This will include any assessment necessary to justify the levels of development and associated infrastructure measures.

5.5 As part of the development proposals the use and nature of Wragley Way and Deep Dale lane will change, Wragley Way will in part form an element of the SDITL and Deep Dale Lane will in part be changed to a Greenway.

5.6 Furthermore, the TA will include a review of the new A50 junction and Infinity Park Link Road TA which has been submitted as a separate planning application by BWB on behalf of Derbyshire County Council.

5.7 The primary accesses into the development will be from Stenson Road in the form of a five arm roundabout, Wragley Way in the form of Priority junctions, Arleston Lane in the form of a signalised junction and from the New A50 junction. A plan showing the initial access arrangements is provided in **Appendix A**.

5.8 The access arrangements to the site will be subject to an independent Stage 1 Road Safety Audit and the plans for these accesses would be application plans which would be conditioned as part of any consent, subject to the necessary Section 278 and Section 38 agreements.

- 5.9 Beyond these vehicular accesses, the development will provide pedestrian and cycle links to the surrounding network, as well as the provision of such measures alongside the proposed road infrastructure for pedestrians and cyclists.
- 5.10 Reference within this chapter will be made to Manual for Streets and Design Manual for Roads and Bridges as appropriate, in the context of the accesses and also in relation to any off site mitigation measures that are considered necessary.

6 TRIP GENERATION AND DISTRIBUTION

- 6.1 This chapter will review the predicted traffic movements to be generated by the development site and the distribution on the surrounding highway network. This will be informed by the SDGZ Model or the Derby and Nottingham 'Gateway' model, subject to agreement with the local highway authorities. The SDGZ Model identifies the following Trip Rates for Wragley Way;

Peak Hour	Arrivals	Departures	Two-way
AM Peak	0.177	0.523	0.699
PM Peak	0.463	0.296	0.759

- 6.2 These trip rates have been used for the approved development sites off Wragley Way and Deep Dale Lane and are based on 85th percentile trip rates obtain from TRICS which are very considered very robust.
- 6.3 These trips are considered to include all trip purposes including access to local facilities, schools etc as well as work related trips. A review will therefore be included in the TA of the type of trips made during the peak hours and based on the facilities being provided within the site, the number of internalised trips and externalised trips.
- 6.4 The distribution of traffic movements will be informed by the 2011 Census data base 'Journey to Work' data and reviewed against the SDGZ or Derby & Nottingham Gateway Model. The distribution of traffic associated with the proposed development will assume that the proposed A50 junction and new Infinity Park link road will be in place post 2020.

7 TRAFFIC IMPACT

7.1 This section of the TA will review the developments impact on the local highway network.

Phasing

7.2 The phasing of the development will be considered up to 2030 in line with the SDGZ Model which includes 2020 and 2030 assessment years. It is considered that based on a potential planning approval being granted by the end of 2019/ early 2020, construction on site could start by the end of 2020. The following predicted build out includes the applications off Wragley Way (130 dwellings) and Deep Dale Lane (150 Dwellings).

- 2020 – 250 Dwellings (130 Wragley Way, 120 Deep Dale Lane);
- 2025 – 1200 Dwellings (190 dwellings PA); and
- 2030 – 2130 Dwellings (186 dwellings PA).

TA Assessment

7.3 The impact assessment will include a manual assessment on the surrounding highway network, using TEMpro growth, 2011 Census Data and existing traffic surveys etc., and also a comparison review will be undertaken of the SDGZ modelling. Reviewing both versions of impact will ensure a robust assessment of the development impacts is undertaken.

7.4 The TA will assess the developments impact on the surrounding highway network. The junctions to be assessed include the following together with the proposed access arrangements and new link onto the A50:

- Stenson Road/Warwick Avenue
- Sinfin Lane/ Osmaston Park
- Stenson Road/ Blagreaves Lane
- Sinfin Lane/ Wilmore Road
- Stenson Bridge over railway line
- Grampian Way/ Arleston Lane/ Asda Superstore
- Grampian Way/ Lymwood Road/ Sinfin Lane
- Merrill Way/ Chellaston Road/ Boulton Lane
- Wragley Way/ Arleston Lane
- A50 / Swarkestone Road/ Infinity Park Way
- Stenson Road/ A5132
- Sinfin Lane/ A5132/ Brookfield junction
- A5132/A514
- Stenson Road/ Grampian Way
- Stenson Road/ Wragley Way

- Wragley Way/ Deep Dale Lane
- 7.5 The above junctions will be reviewed based on the predicted traffic distribution and level of impact.
- 7.6 The assessment years will be as follows:
- 2018 Base (Observed Traffic Surveys); and
 - 2020 / 2025 / 2030 – Future Year Assessments.
- 7.7 The assessments included in the TA will include for phasing of the development and related highway infrastructure considered necessary to accommodate the traffic movements.
- 7.8 The junctions will be assessed using Junctions 9 software which is the industry standard software used for modelling the capacity of priority junctions and roundabouts and LINSIG for signalised junctions.
- 7.9 A Highway Delivery Strategy based on the findings of the TA will also be included which will identify the offsite works required to be implemented and when they should come forward.

8 SUMMARY AND CONCLUSION

- 8.1 This section will provide a summary of the report's findings and provide a conclusion in terms of the sites impact.

Appendices

Appendix A – Proposed Access Layout



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Rev	Description	Date	Initial	Checked
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Client **Hallam land Management**

Project **Wragley Way, Derby**

Title **Road Layout Overview**

Status	Drawn By	Checked by
Preliminary	AJ	MRA
Project Number	Scale @ A0	Date Created
JNY9033	1:2500	25.07.17

Drawing Number	Rev
JNY9033-04 (A0)	

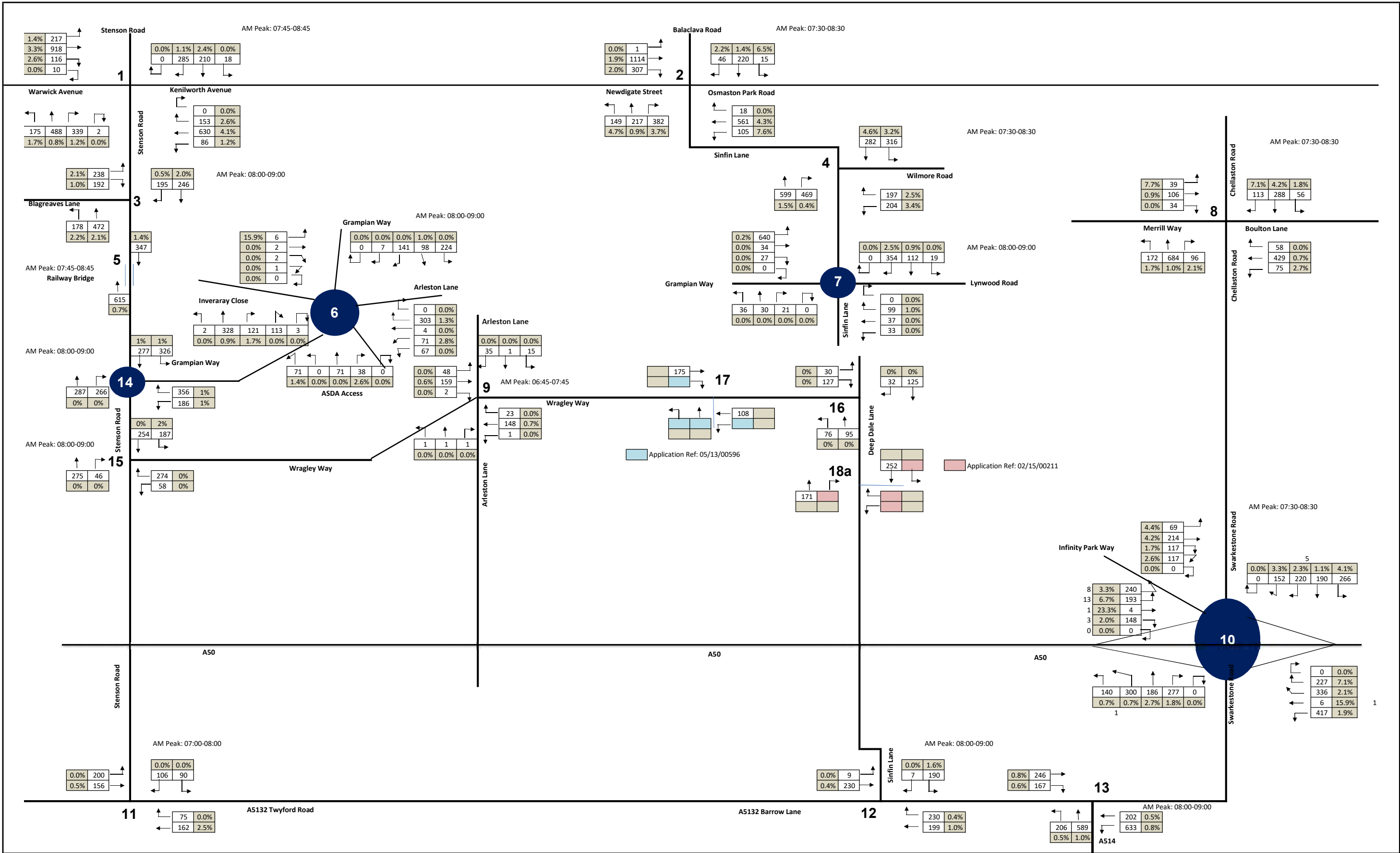
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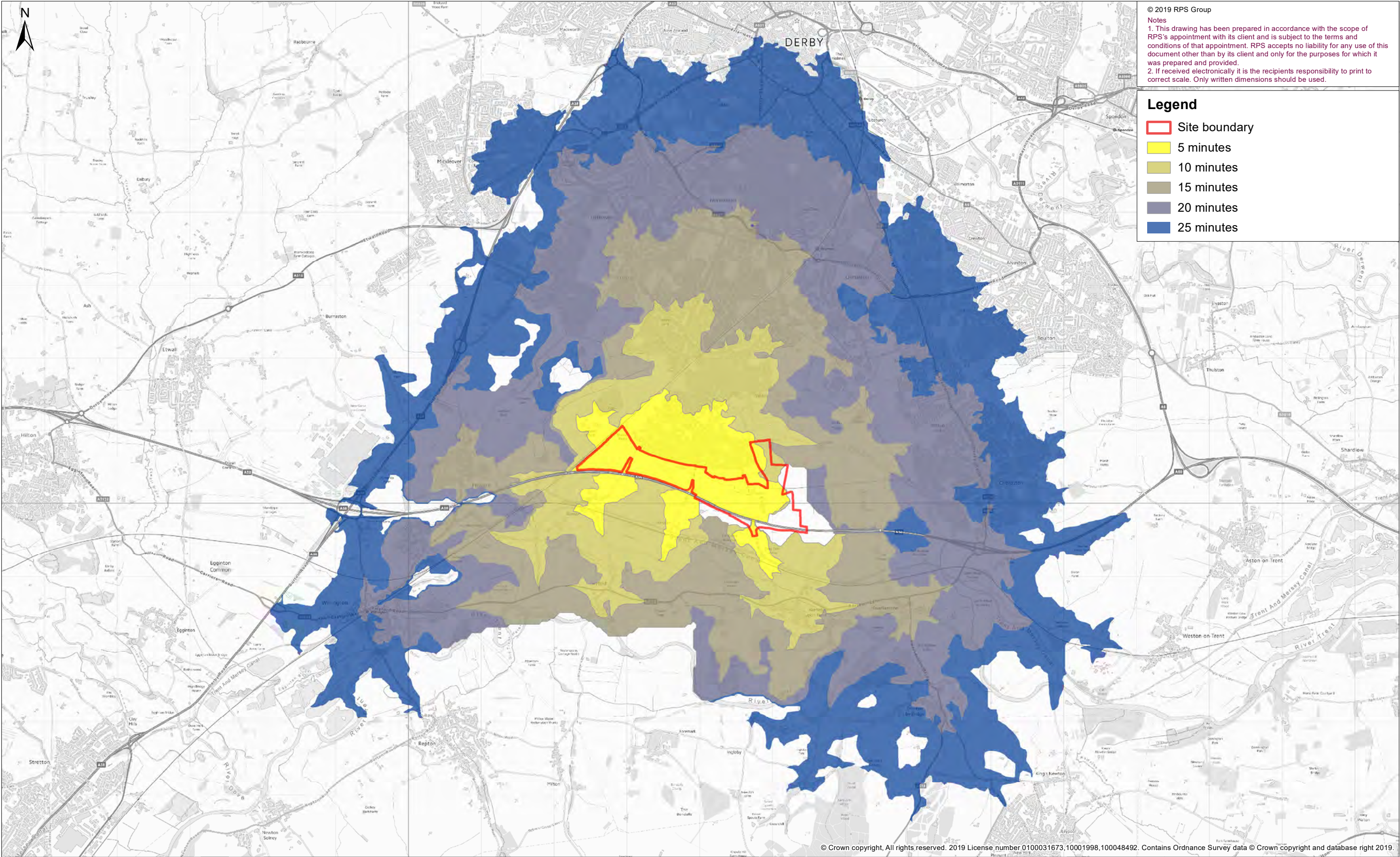
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Appendix B – Base Traffic Survey Data



Appendix C – Existing Walking & Cycle and Cycle Catchment Plan



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- Legend**
- Site boundary
 - 5 minutes
 - 10 minutes
 - 15 minutes
 - 20 minutes
 - 25 minutes

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Rev	Description	By	CB	Date
Figure Number				Rev
4				-
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Project Wragley Way, Derby

Title Cycling Isochrone

0 500 1,000 m

Note:
Total end to end journey time using
Basemap TRACC
with Cycle speed of 16km/hr

Status
FINAL

Project Number
JNY99033

Drawn By
CR/BG

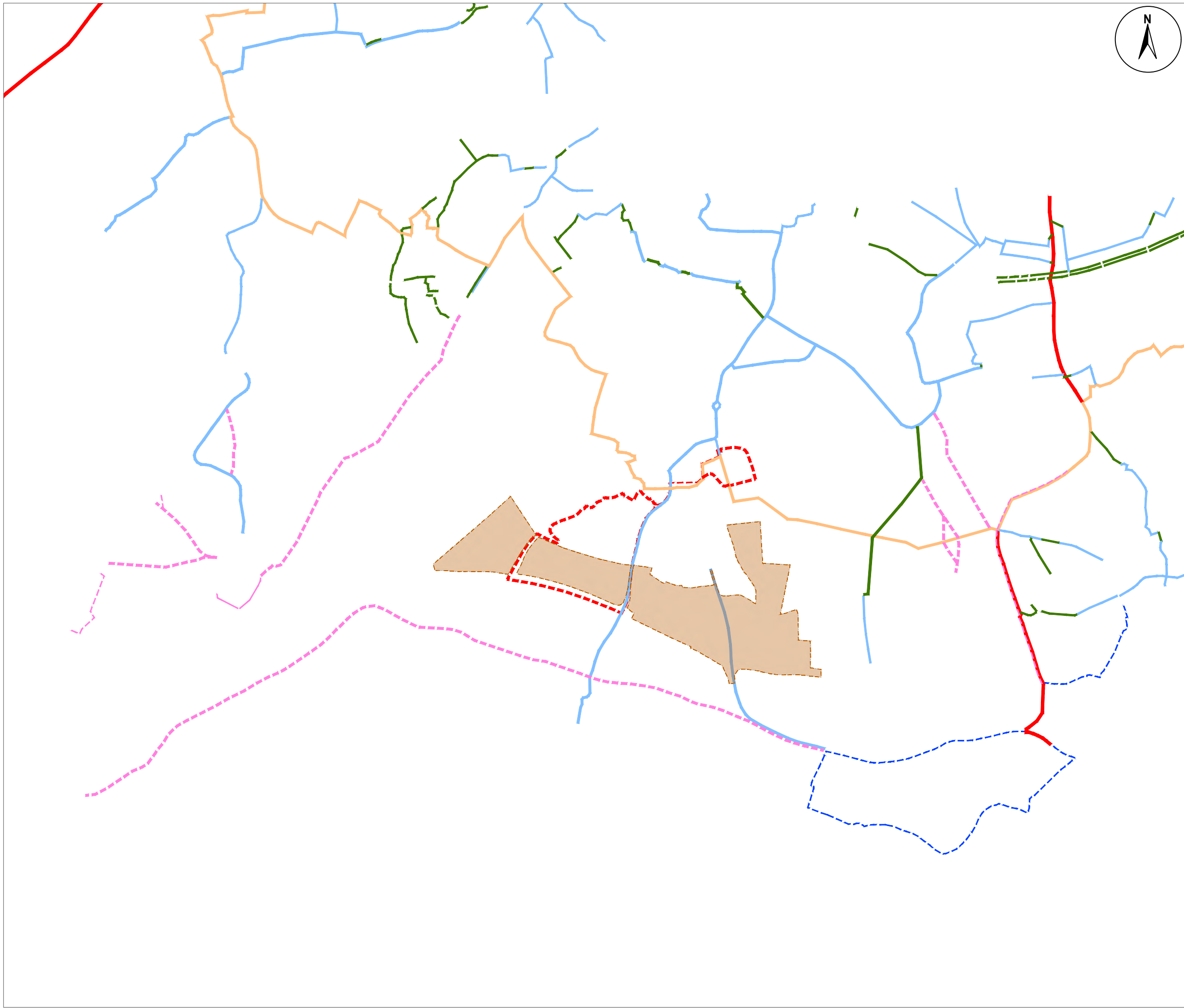
Scale @ A3
1:48,000

PM/Checked By
CM

Date Created
MAY 2019

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- Key:
- Footpath
 - Circular Walk - Sinfin & Stenson
 - Circular Walk - Swarkstone
 - Cycle Route - Recommended Unmarked
 - Cycle Path - Traffic free
 - Cycle Route - Orbital 66
 - National Cycle Route
 - Site

Rev	Description	By	CB	Date
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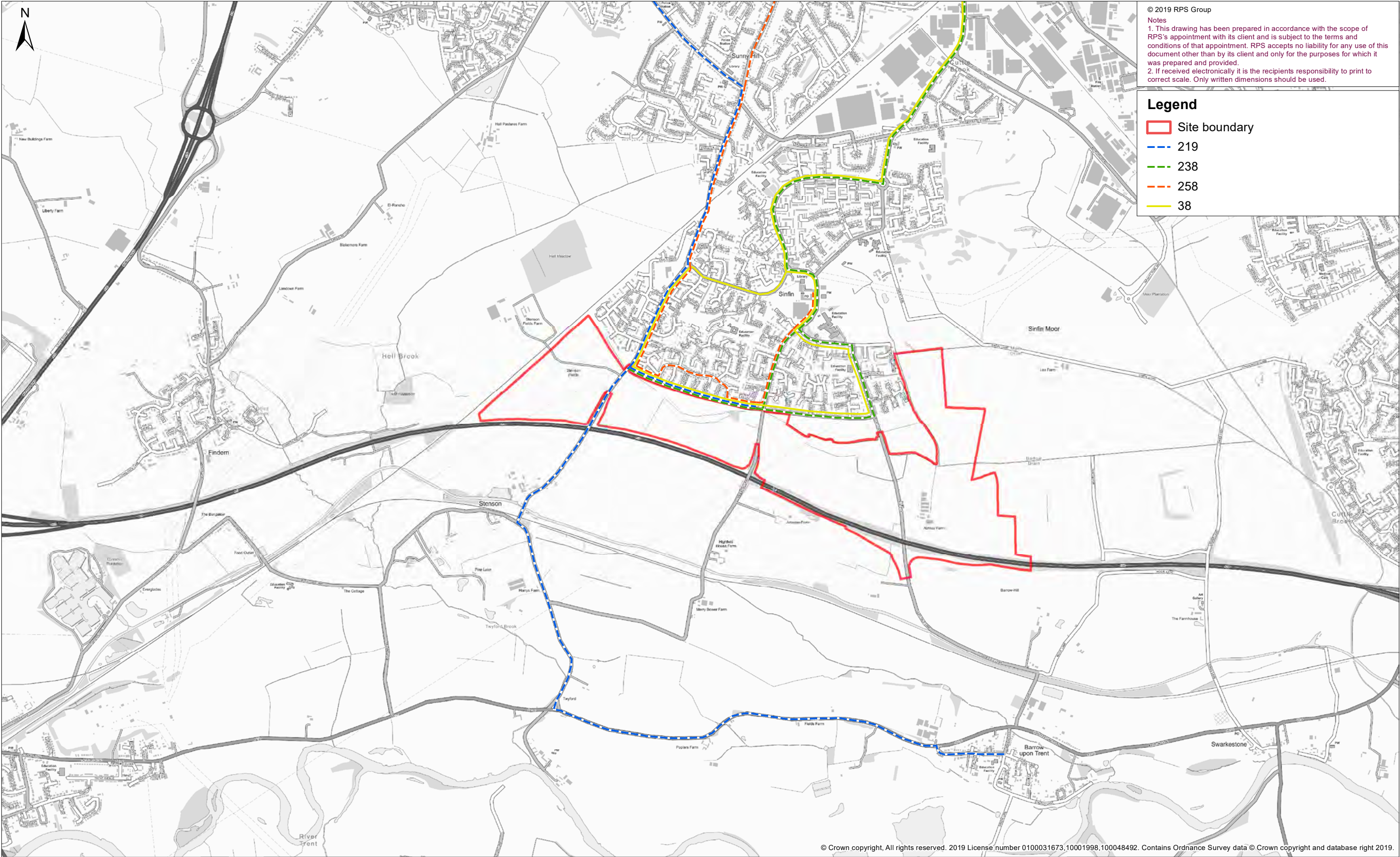
Project Wragley Way, Derby

Title Existing Walking / Cycling Routes

Status	Drawn By	PM/Checked by
INFORMATION	AJ	MRA
Project Number	Scale @ A3	Date Created
JNY9033	1:30,000	06.06.18
RPS Drawing/Figure Number		Rev
JNY9033-06		-

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Appendix D – Existing Bus Route Plan



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- Legend**
- Site boundary
 - 219
 - 238
 - 258
 - 38

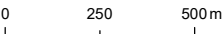
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Rev	Description	By	CB	Date
Figure Number				Rev
3				-
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Client Hallam Land Management

Project Wragley Way, Derby

Title Bus Routes



Status	Drawn By	PM/Checked By
FINAL	CR/BG	CM
Project Number	Scale @ A3	Date Created
JNY9033	1:20,000	MAY 2019

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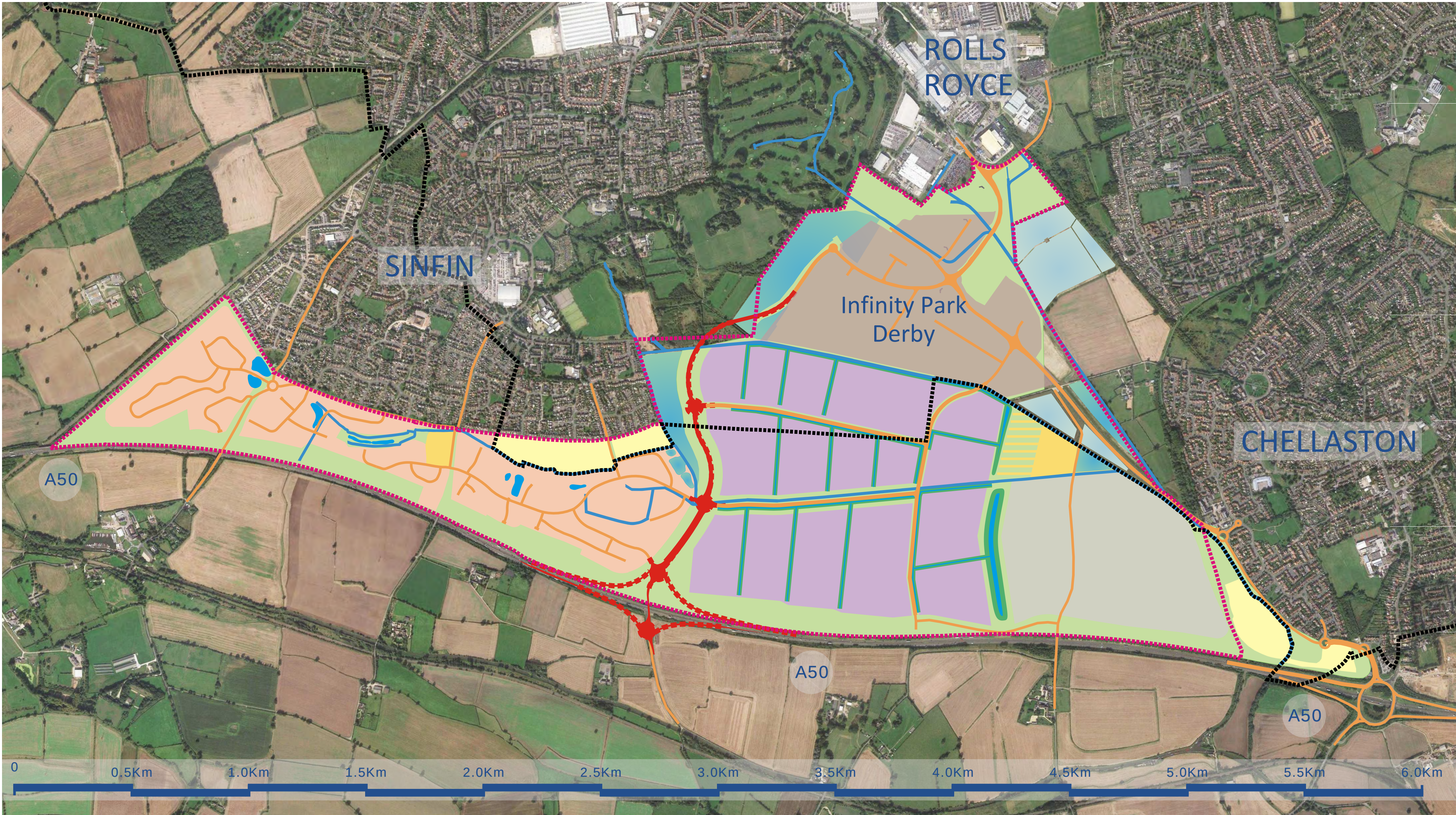


Appendix E – Wider Area Masterplan Layout

CONCEPT MASTERPLAN

..... Derby City - South Derbyshire Boundary

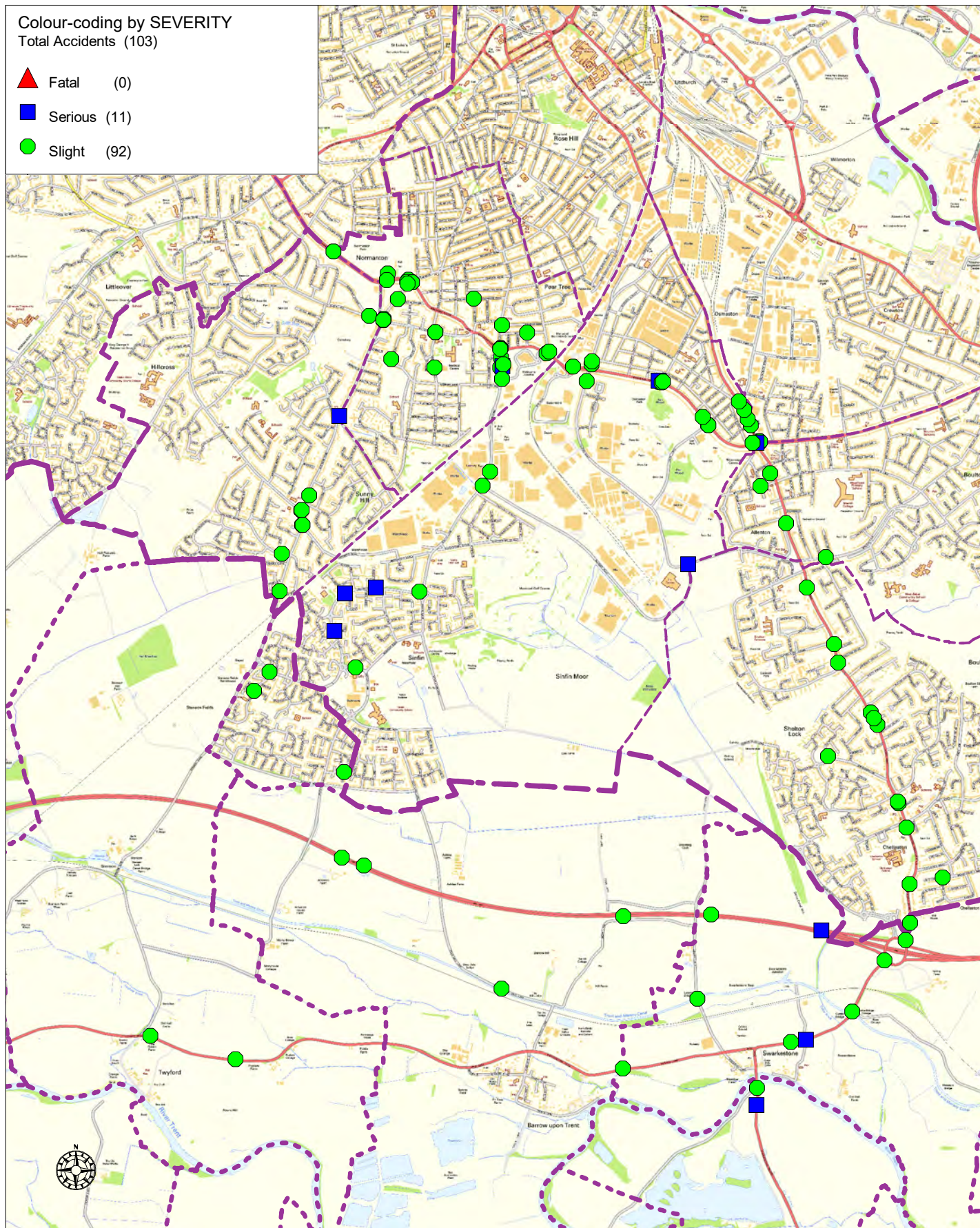
..... Infinity Garden Village Boundary



Appendix F – Accident Data

Colour-coding by SEVERITY
Total Accidents (103)

- ▲ Fatal (0)
- Serious (11)
- Slight (92)



Selected Range of Accidents between dates 01/02/2015 and 31/01/2016
Selected using Manual Selection

Chellaston area 01022015 to 31012016

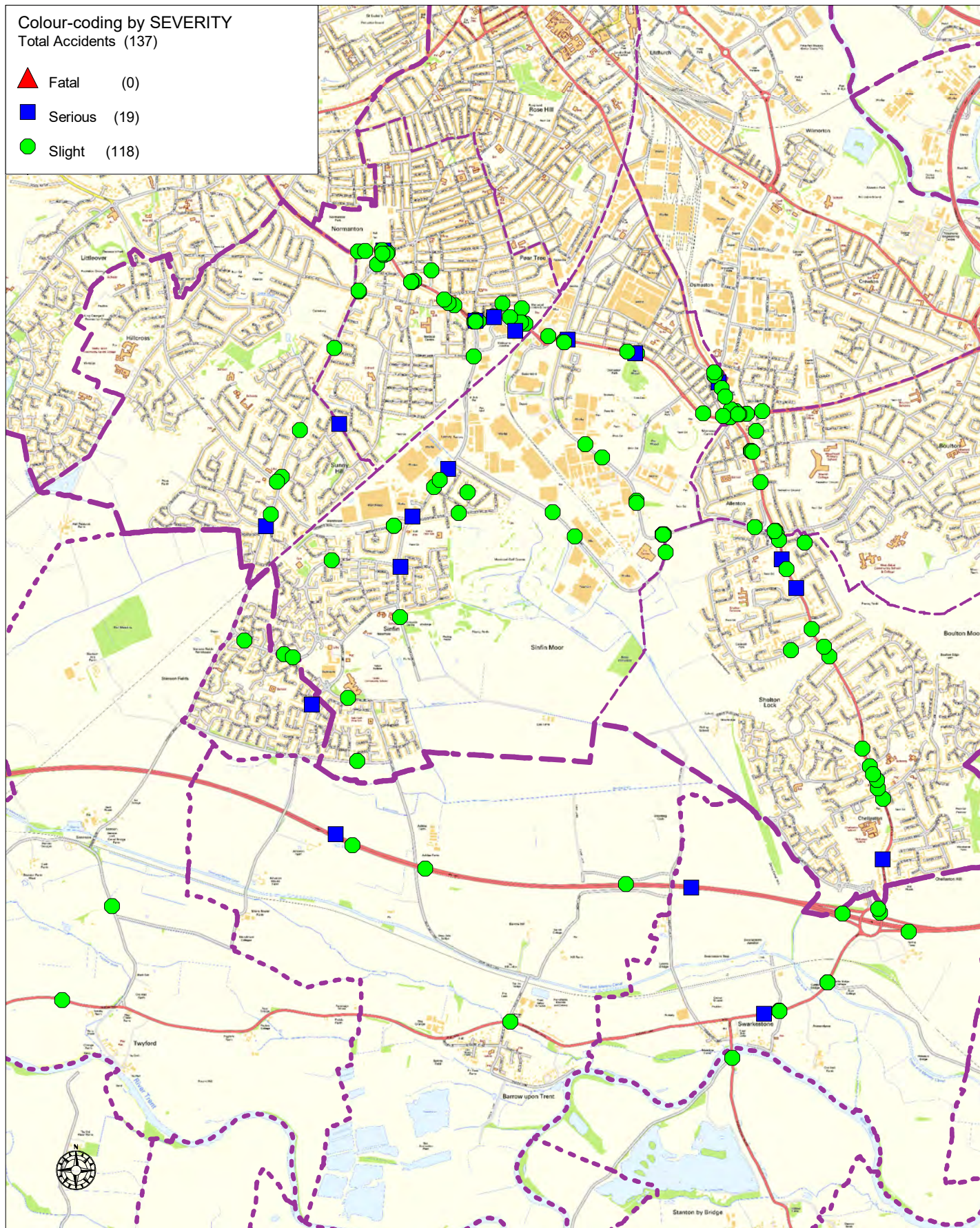
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alison.morse.5144@derbyshire.pnn.police.uk

SCALE	1 : 35430
DATE	23/05/2018
DRAWING No.	
DRAWN BY	Alison Morse

Colour-coding by SEVERITY
Total Accidents (137)

- ▲ Fatal (0)
- Serious (19)
- Slight (118)



Selected Range of Accidents between dates 01/02/2014 and 31/01/2015
Selected using Manual Selection

Chellaston area 01022014 to 31012015

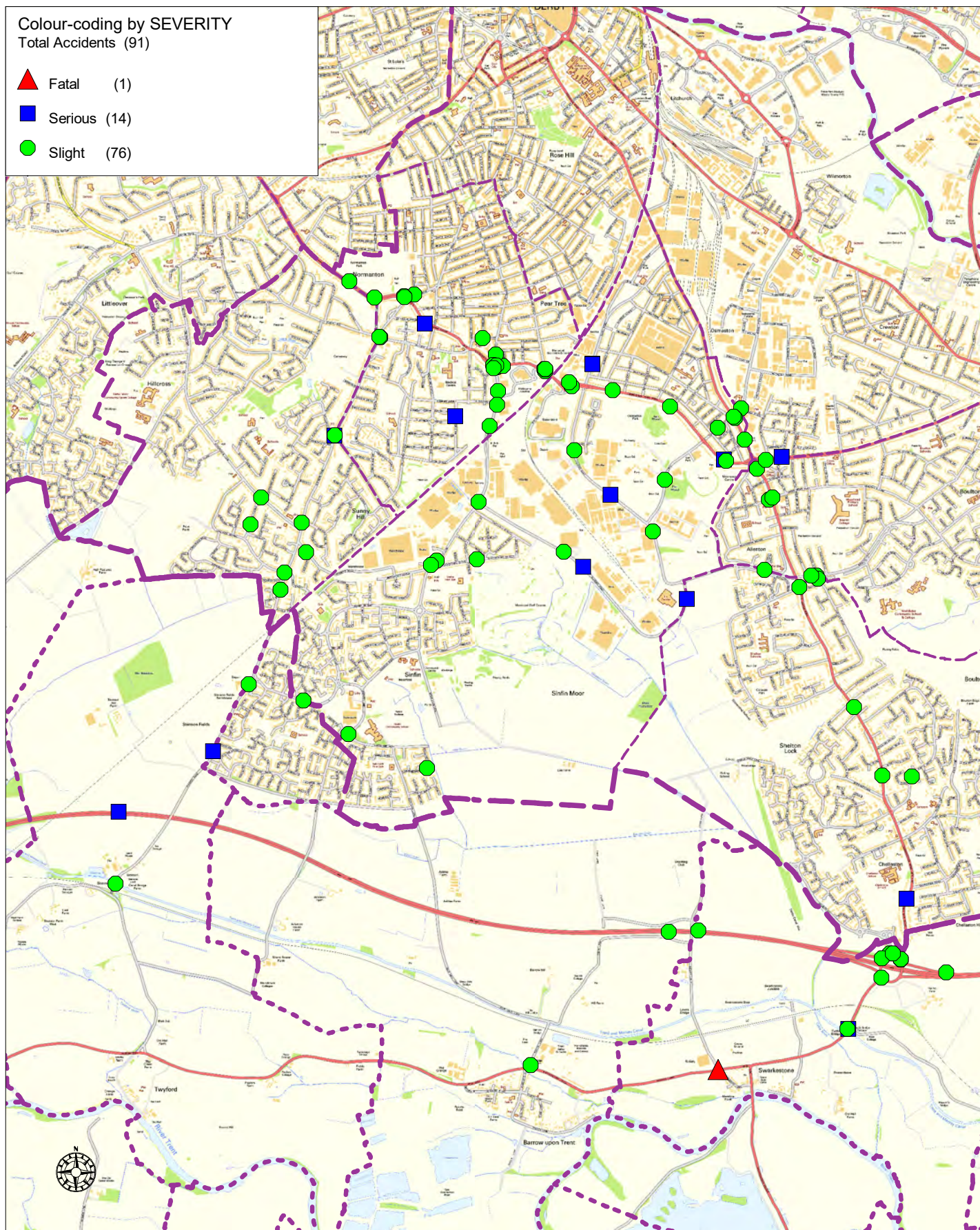
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SCALE	1 : 35430
DATE	23/05/2018
DRAWING No.	
DRAWN BY	Alison Morse

Colour-coding by SEVERITY
Total Accidents (91)

- ▲ Fatal (1)
- Serious (14)
- Slight (76)



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Selected Range of Accidents between dates 01/02/2017 and 31/01/2018
Selected using Manual Selection

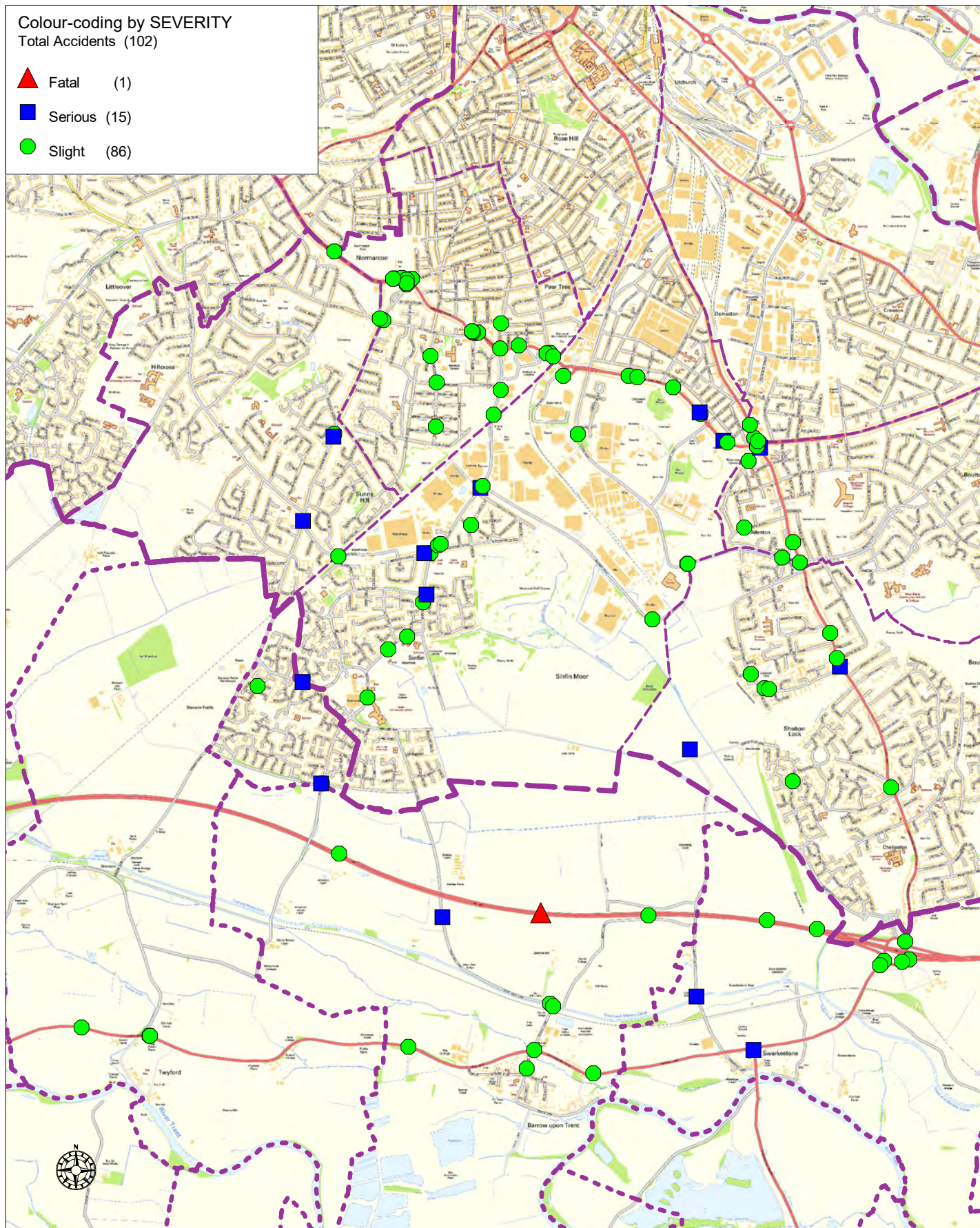
Chellaston area 01022017 to 31012018

alison.morse.5144@derbyshire.pnn.police.uk

SCALE	1 : 35430
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DRAWING No.	
DRAWN BY	Alison Morse

Colour-coding by SEVERITY
Total Accidents (102)

- ▲ Fatal (1)
- Serious (15)
- Slight (86)



Selected Range of Accidents between dates 01/02/2016 and 31/01/2017
Selected using Manual Selection

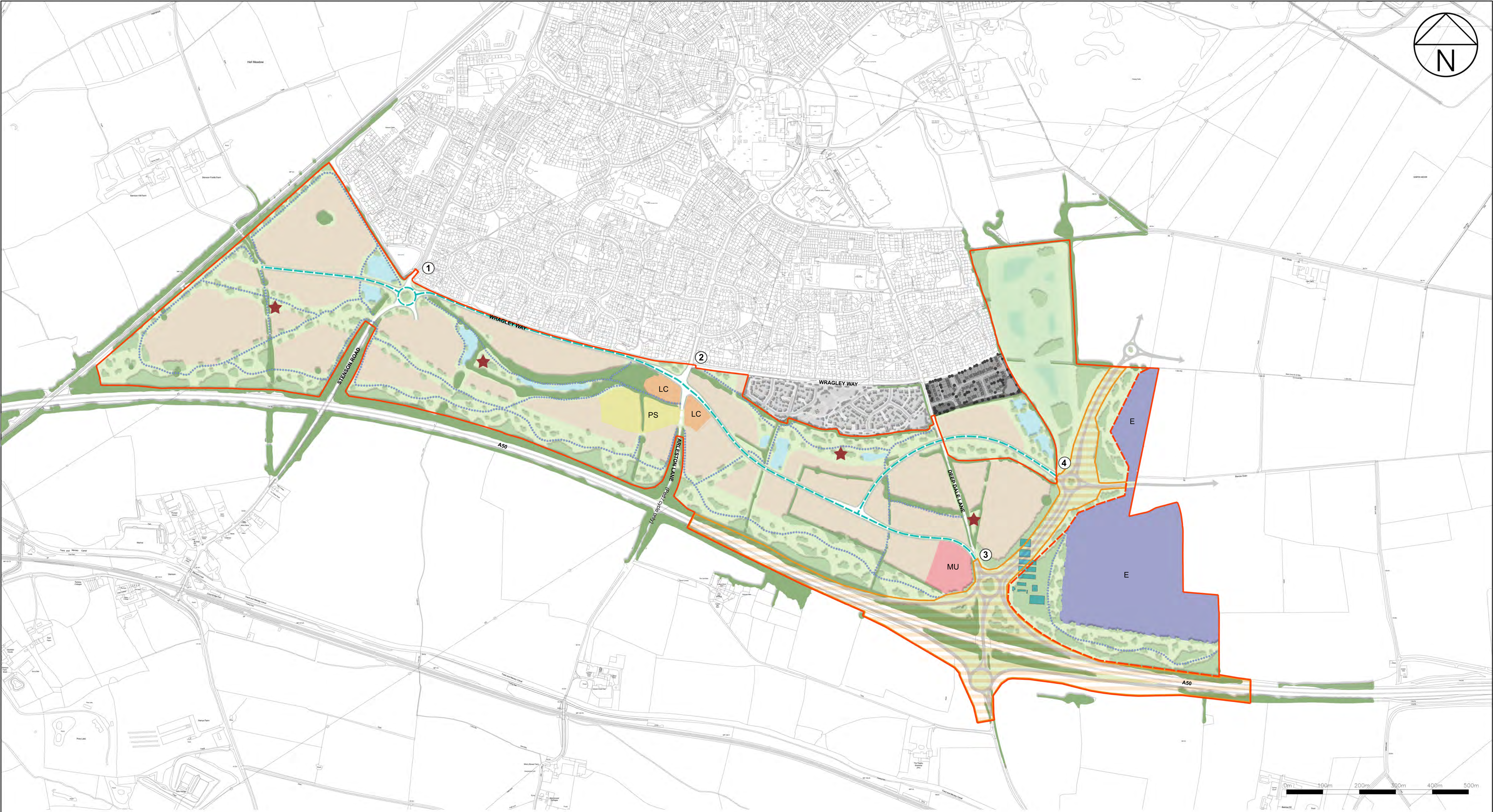
Chellaston area 01022016 to 31012017

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SCALE	1 : 35430
DATE	23/05/2018
DRAWING No.	
DRAWN BY	Alison Morse

Appendix G – Masterplan Layout



KEY

- EIA site boundary

149ha

Boundary between 'residential' and 'employment' planning applications

Built Development

Residential

44.03ha

Consent sought for up to 1,850 dwellings

LC

Proposed Local Centre

1.02ha

Including community hall, retail and other local services and facilities of up to 1,858 sqm gross floor area

MU

Proposed mixed use

1.40ha

Public house, 750 sqm gross floor area; Drive-through restaurant, 450 sqm gross floor area; Petrol filling station, 450 sqm gross floor area
- E

Proposed employment

14.41ha

Use Classes B1, B2 and B8, minimum of 46,500 sqm gross floor area, up to 51,100 sqm gross floor area
- PS

Proposed Primary School

1.98ha

Provision for 2 form entry school on between 1.6 and 2 hectares site
- Buildings to be demolished
- Access and Movement**
- New junction on A50 and South Derby Integrated Transport Link towards Infinity Park
- ①

New roundabout at Stenson Road/Wragley Way junction
- ②

Revised junction at Wragley Way/Arleston Lane junction

③

New A50 off-ramp roundabout/western spur to SDITL at Deep Dale Lane

④

New SDITL roundabout western spur

South Derby Integrated Transport Link (indicative alignment between fixed access points)

Multi user routes (general alignment and nodes)

Green and Blue Infrastructure

Existing trees and hedgerows to be retained

Greenspace (includes retained vegetation, ponds and watercourses, new tree and hedgerow planting, grassland, habitat creation, open space and play areas, allotments, surface water and flood attenuation basins)

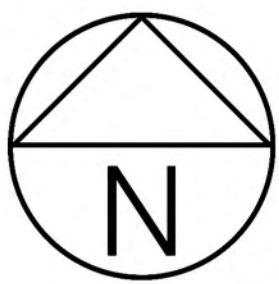
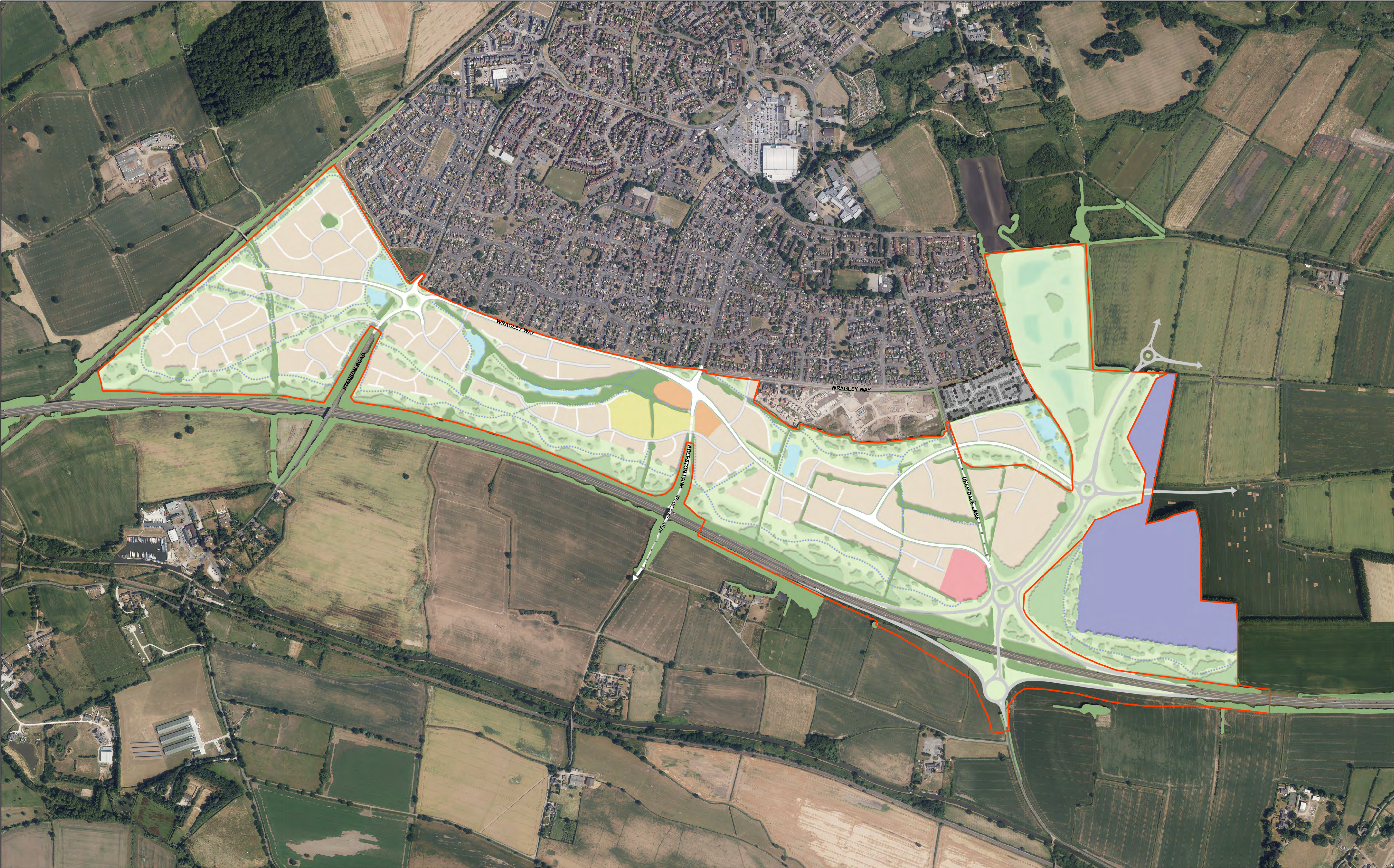
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Equipped Areas for Play

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Revision Detail / Date		Date	05/2019		

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KEY

- | | | | | | |
|--|-----------------------------|--|---------------------------------|--|-------------------------------------|
| | Application site boundaries | | Proposed employment area | | Proposed link road |
| | Proposed residential | | Proposed attenuation pond | | Proposed secondary road |
| | Proposed primary school | | Existing vegetation | | Proposed minor road |
| | Proposed local centre | | Proposed vegetation | | Proposed A50 junction and link road |
| | Proposed mixed use | | Proposed pedestrian/cycle route | | |

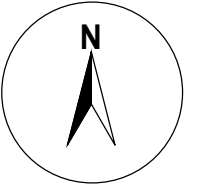
0m 100m 200m 300m 400m 500m

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Appendix H – Proposed Highway Layout



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C	Internal road alignment amended	MA	MA	15/05/19
B	Stenson Road junction & internal junctions adjusted	AJ	MA	10/05/19
A	Latest Layout adjust (RPS-BW6-HGN-X4-AQ-D-102, Chelation Road Layout 2D Model) proposals adjusted to match	AJ	MA	10/04/19
Rev	Description	By	CB	Date



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Client **Hallam Land Management**

Project **Wragley Way, Derby**

Title **Proposed Road Layout Overview**

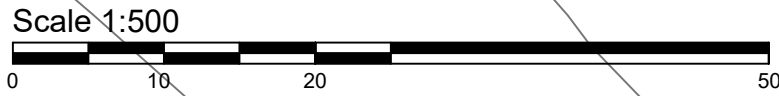
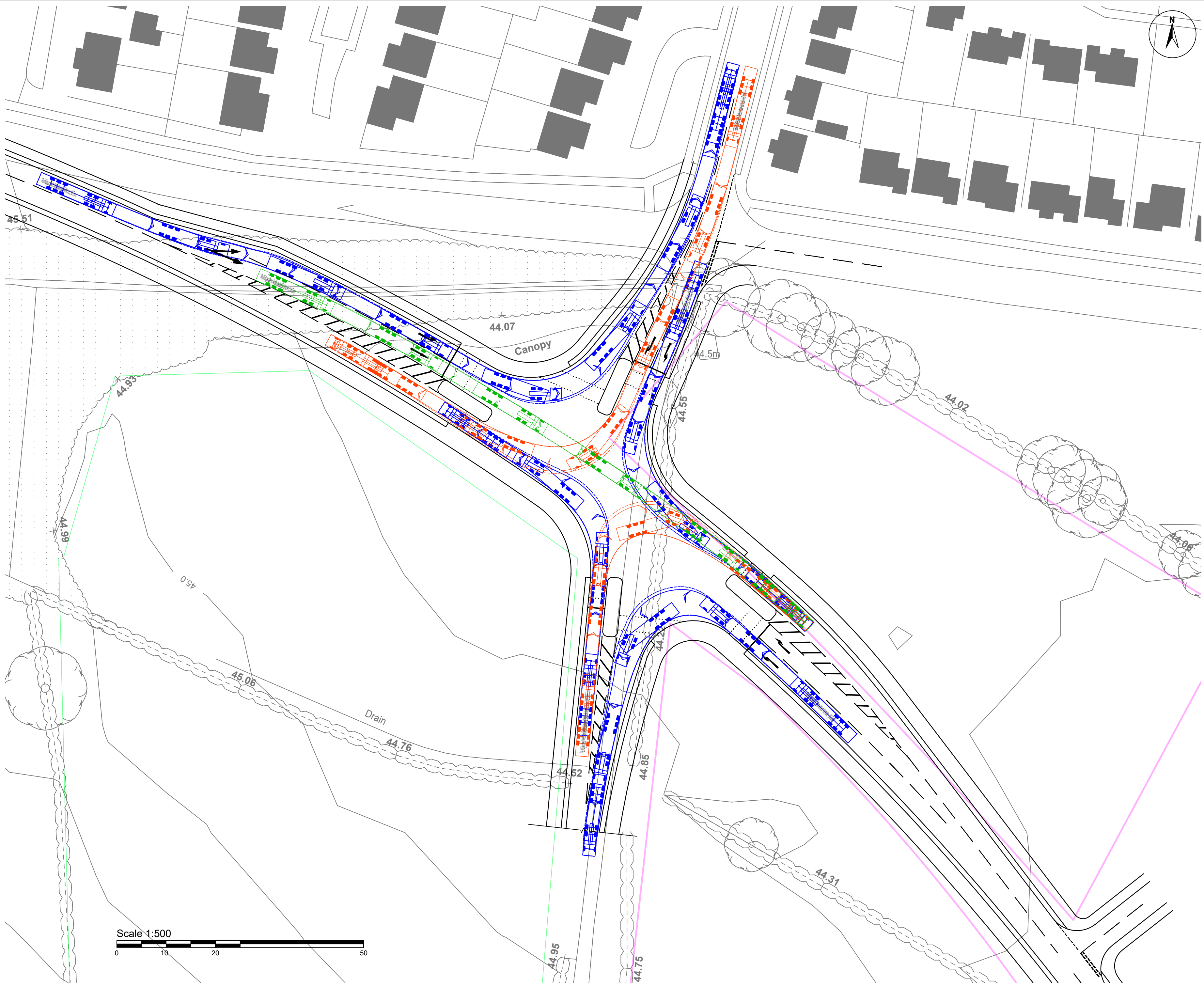
Status **INFORMATION** Drawn By **AJ** PM/Checked by **APPROVED**

Project Number **JNY9033** Scale @ A0 **1:2500** Date Created **25.07.17**

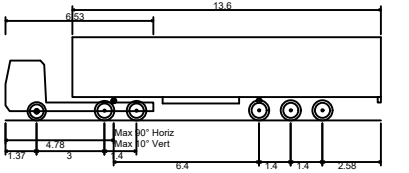
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Drawing Ref: P1JNY9033 - Wragley Way, DerbyHighway/Drawings/JNY9033-04C.dwg



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Refrigerated Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.600m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

Rev	Description	By	CB	Date
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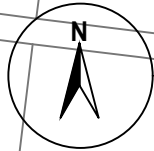
Client Hallam land Management

Project Wragley Way, Derby

Title Proposed Highway Improvements
Junction 23 Swept Path Analysis

Status	Drawn By	PM/Checked By
PRELIMINARY	AJ	MA
Project Number	Scale @ A2	Date Created
JNY9033	1:500	May 2019
RPS Drawing/Figure Number		Rev
JNY9033-11		

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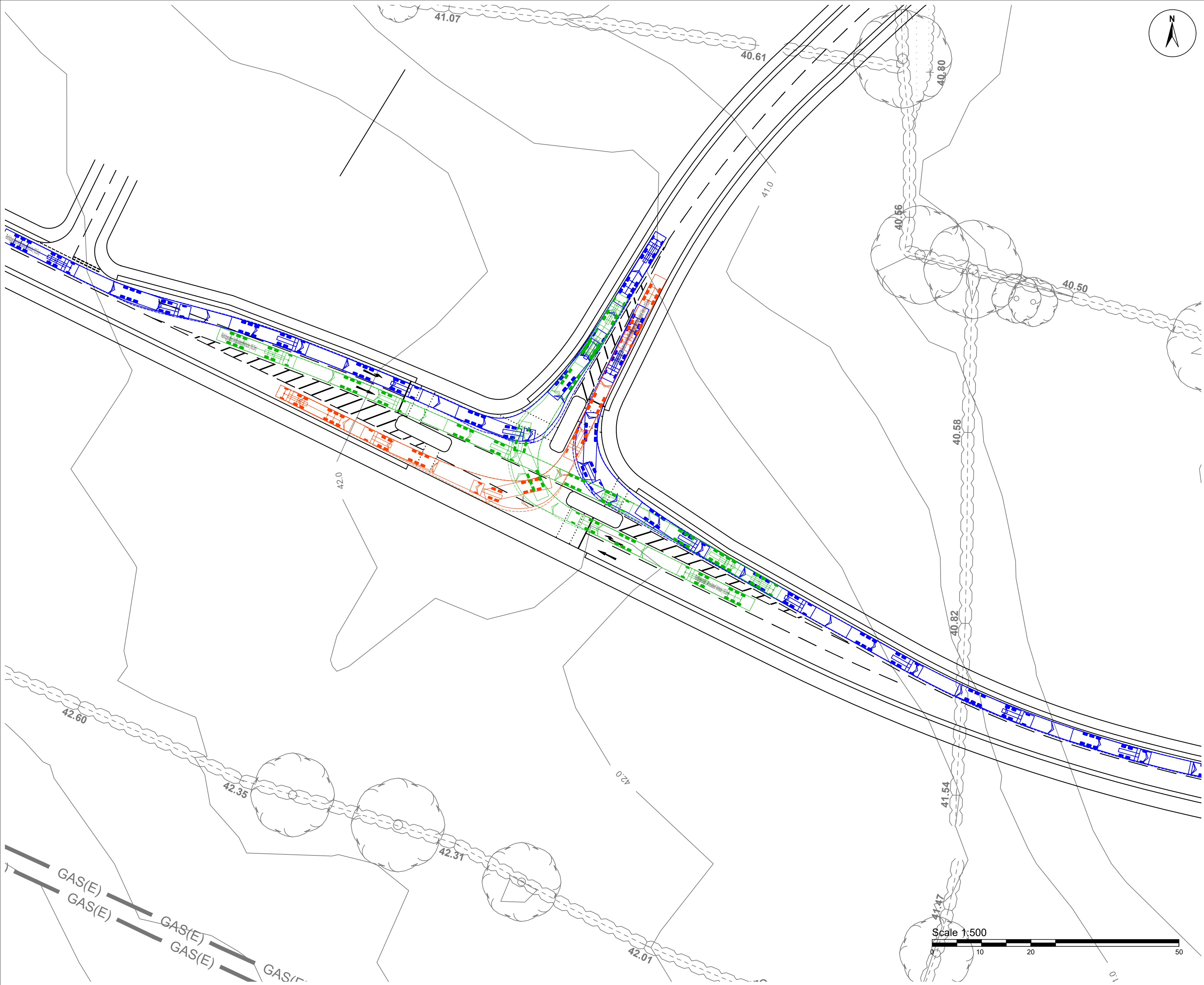
Project Wragley Way, Derby

Title	Proposed Highway Improvements Junction 23
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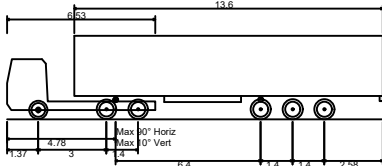
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Project Number	Scale @ A2	Date Created
JNY9033	1:500	May 2019

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Refrigerated Articulated Vehicle (16.5m)	16.500m
Overall Length	2.600m
Overall Width	3.681m
Overall Body Height	0.411m
Min Body Ground Clearance	2.500m
Max Track Width	6.00s
Lock to lock time	6.530m
Kerb to Kerb Turning Radius	

Rev	Description	By	CB	Date
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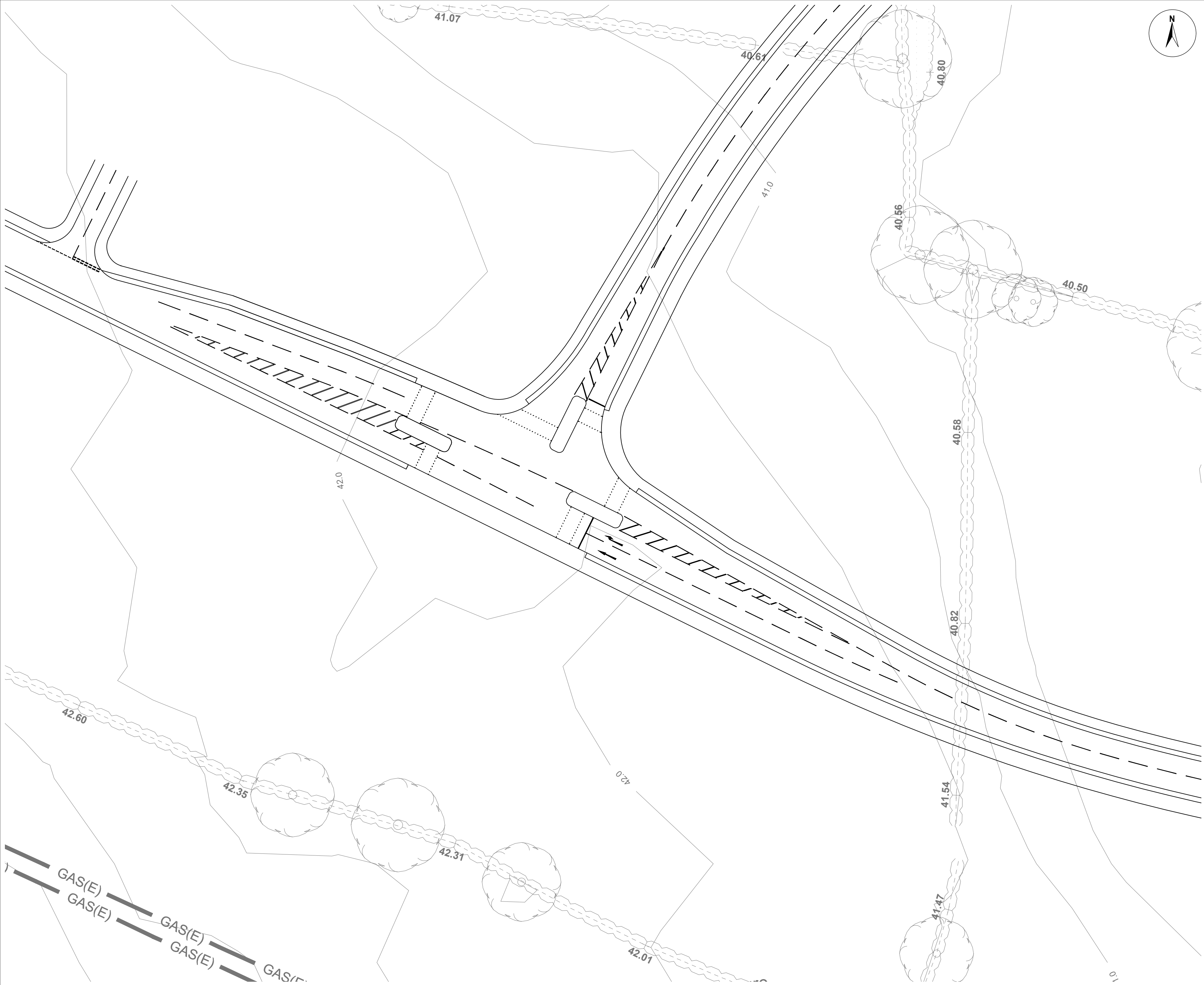
Client Hallam land Management

Project Wragley Way, Derby

Title Proposed Highway Improvements
Junction 25 Swept Path Analysis

Status	Drawn By	PM/Checked by
PRELIMINARY	AJ	MA
Project Number	Scale @ A2	Date Created
JNY9033	1:500	May 2019
RPS Drawing/Figure Number		Rev
JNY9033-12		

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Rev	Description	By	CB	Date
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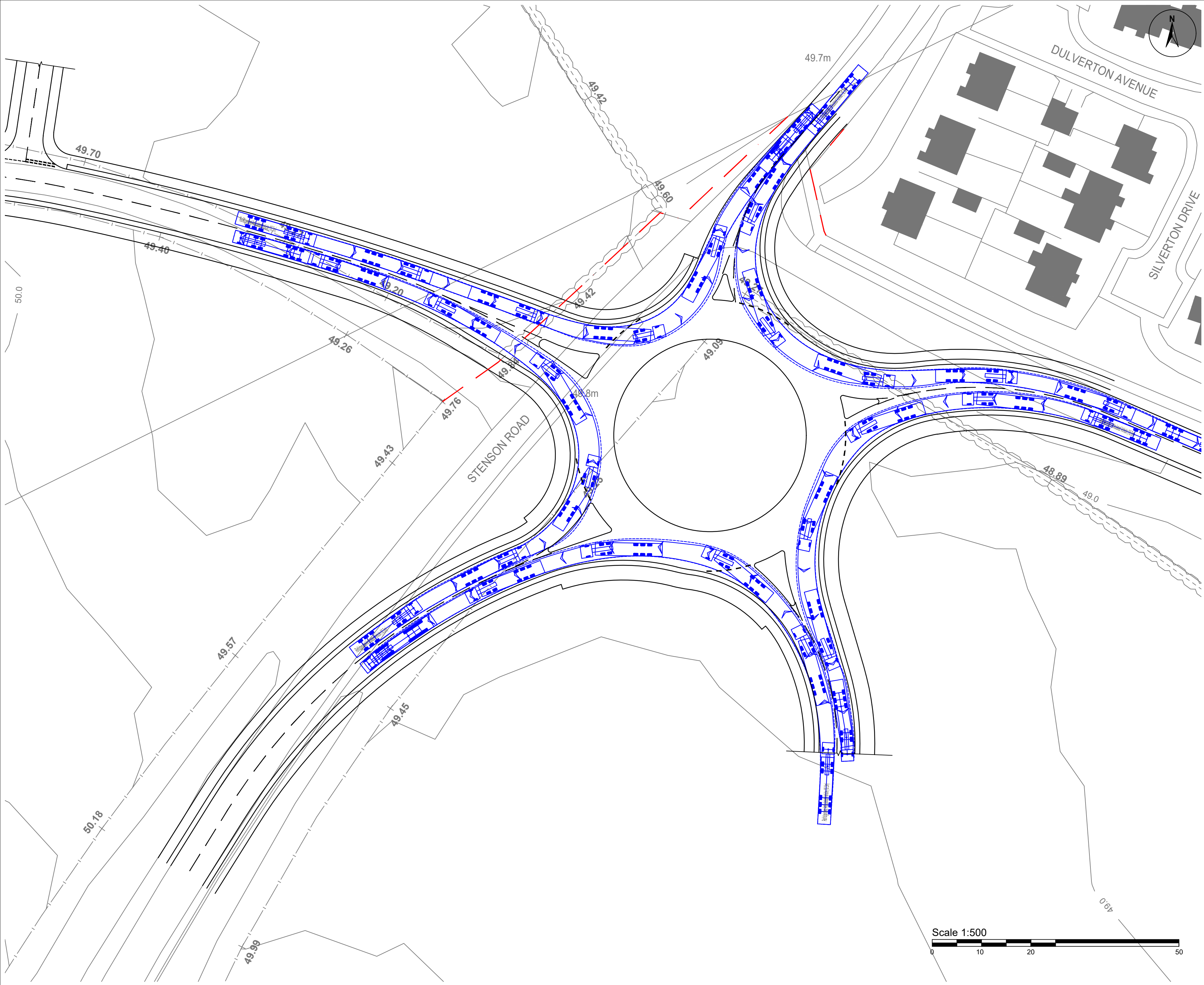
Client Hallam land Management

Project Wragley Way, Derby

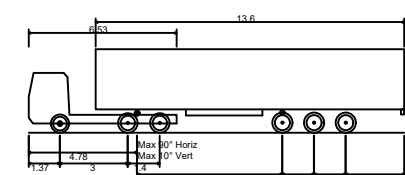
Title Proposed Highway Improvements
Junction 25

Status PRELIMINARY	Drawn By AJ	PM/Checked by MA
Project Number JNY9033	Scale @ A2 1:500	Date Created May 2019
RPS Drawing/Figure Number JNY9033-12	Rev	

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Refrigerated Articulated Vehicle (16.5m)	
Overall Length	16.560m
Overall Width	2.500m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

Rev	Description	By	CB	Date
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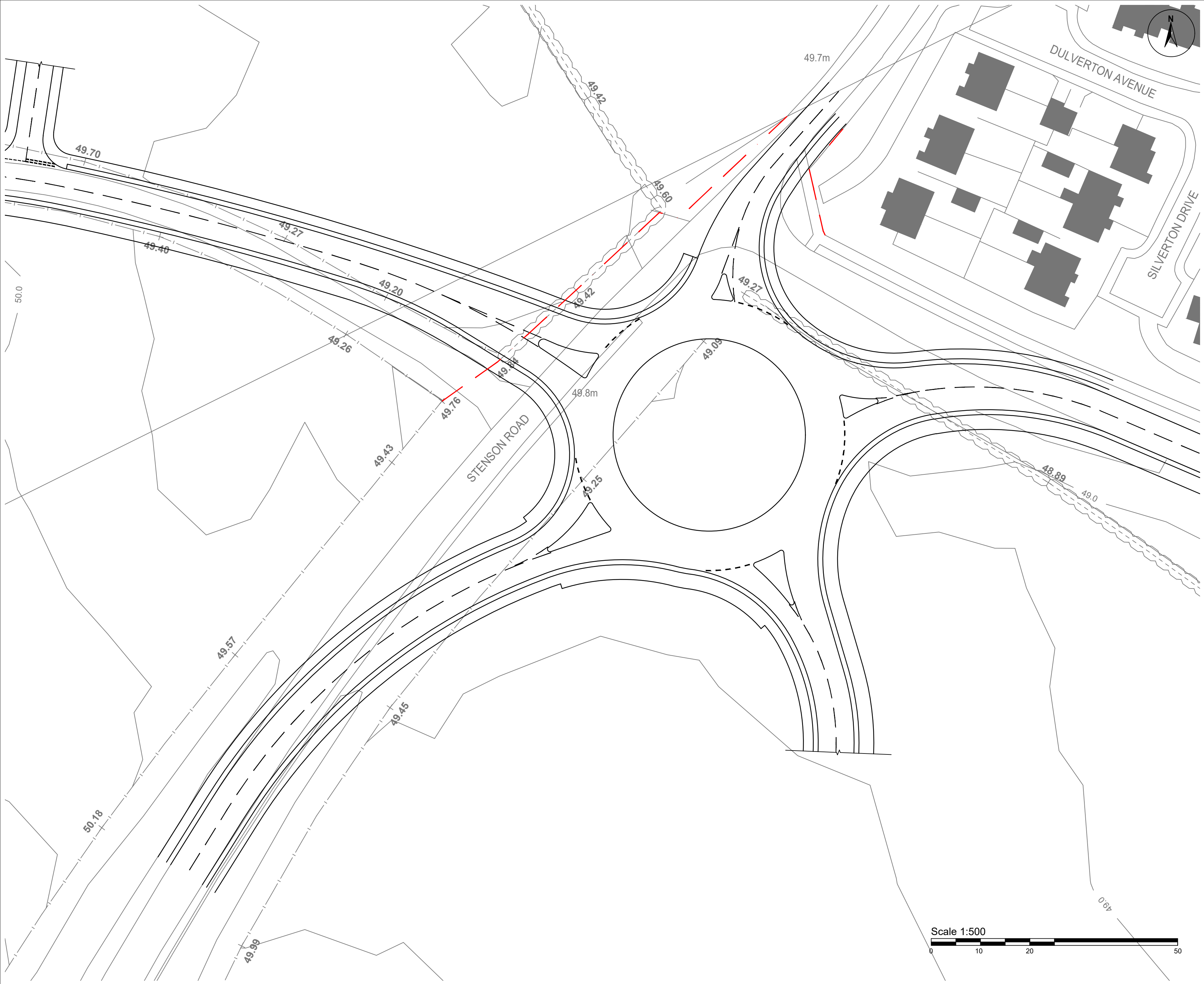
Project Wragley Way, Derby

Title Proposed Highway Improvements
Junction 15 Swept Path Analysis

Status	Drawn By	PM/Checked By
PRELIMINARY	AJ	MA
Project Number	Scale @ A2	Date Created
JNY9033	1:500	May 2019
RPS Drawing/Figure Number		Rev
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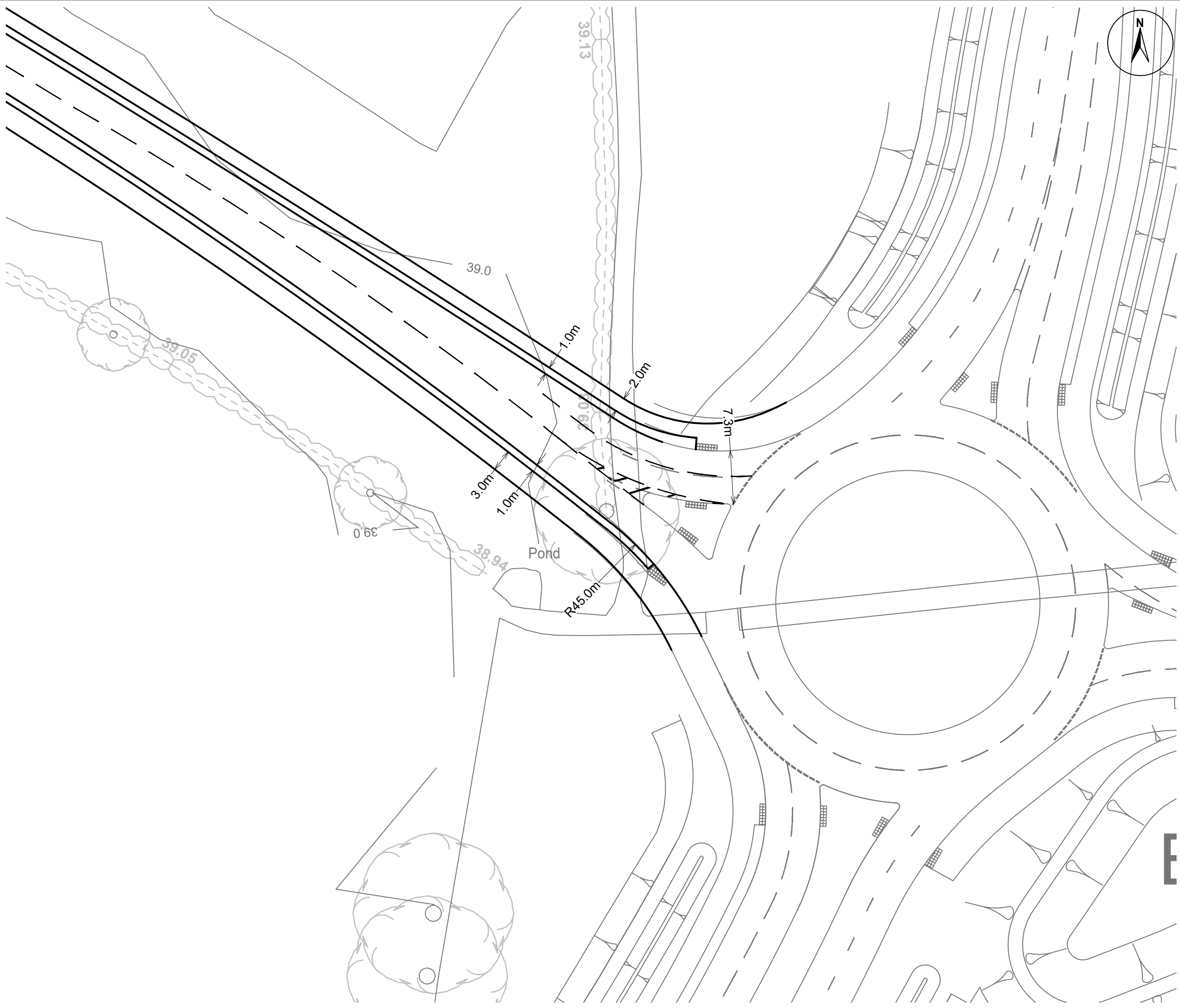
Project Wragley Way, Derby

Title Proposed Highway Improvements
Junction 15

Status	Drawn By	PM/Checked by
PRELIMINARY	AJ	MA
Project Number	Scale @ A2	Date Created
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Drawing based upon BWB drawing ref
IFP-BWB- HGN-XX-M2-D-102_Chellaston
Road Layout 2D Model

Rev	Description	By	CB	Date
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Client Hallam Land Management

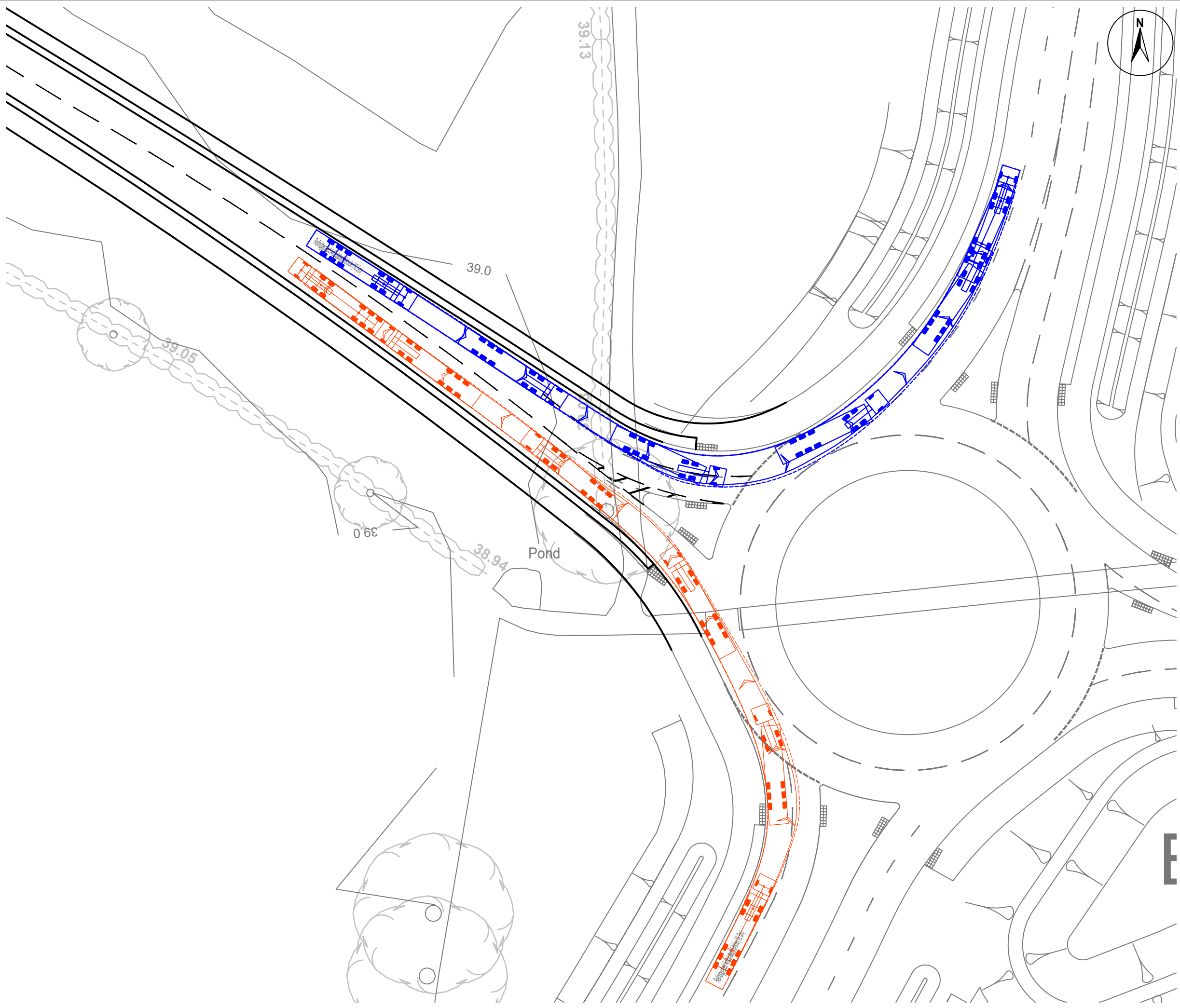
Project Wragley Way, Derby

Title New SDITL Road Junction and
Access to Development Site
(Junction ref 19)

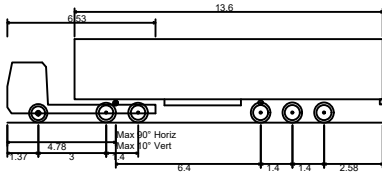
Status	Drawn By	PM/Checked by
PRELIMINARY	AJ	MA
Project Number	Scale @ A3	Date Created
JNY9033	1:500	May 2019

RPS Drawing/Figure Number	Rev
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Refrigerated Articulated Vehicle (16.5m)	16.560m
Overall Length	2.600m
Overall Width	3.681m
Overall Body Height	0.411m
Min Body Ground Clearance	2.500m
Max Track Width	6.00s
Lock to lock time	6.530m
Kerb to Kerb Turning Radius	

Drawing based upon BWB drawing ref
IFP-BWB- HGN-XX-M2-D-102_Chellaston
Road Layout 2D Model

Rev	Description	By	CB	Date
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Client Hallam Land Management

Project Wragley Way, Derby

Title New SDITL Road Junction and
Access to Development Site
Swept Path Analysis

Status	Drawn By	PM/Checked by
INFORMATION	AJ	-

Project Number	Scale @ A3	Date Created
JNY9033	1:500	May 2019

RPS Drawing/Figure Number	Rev
JNY9033-20	

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Road Layout 2D Model

Rev	Description	By	CB	Date
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Client Hallam Land Management

Project Wragley Way, Derby

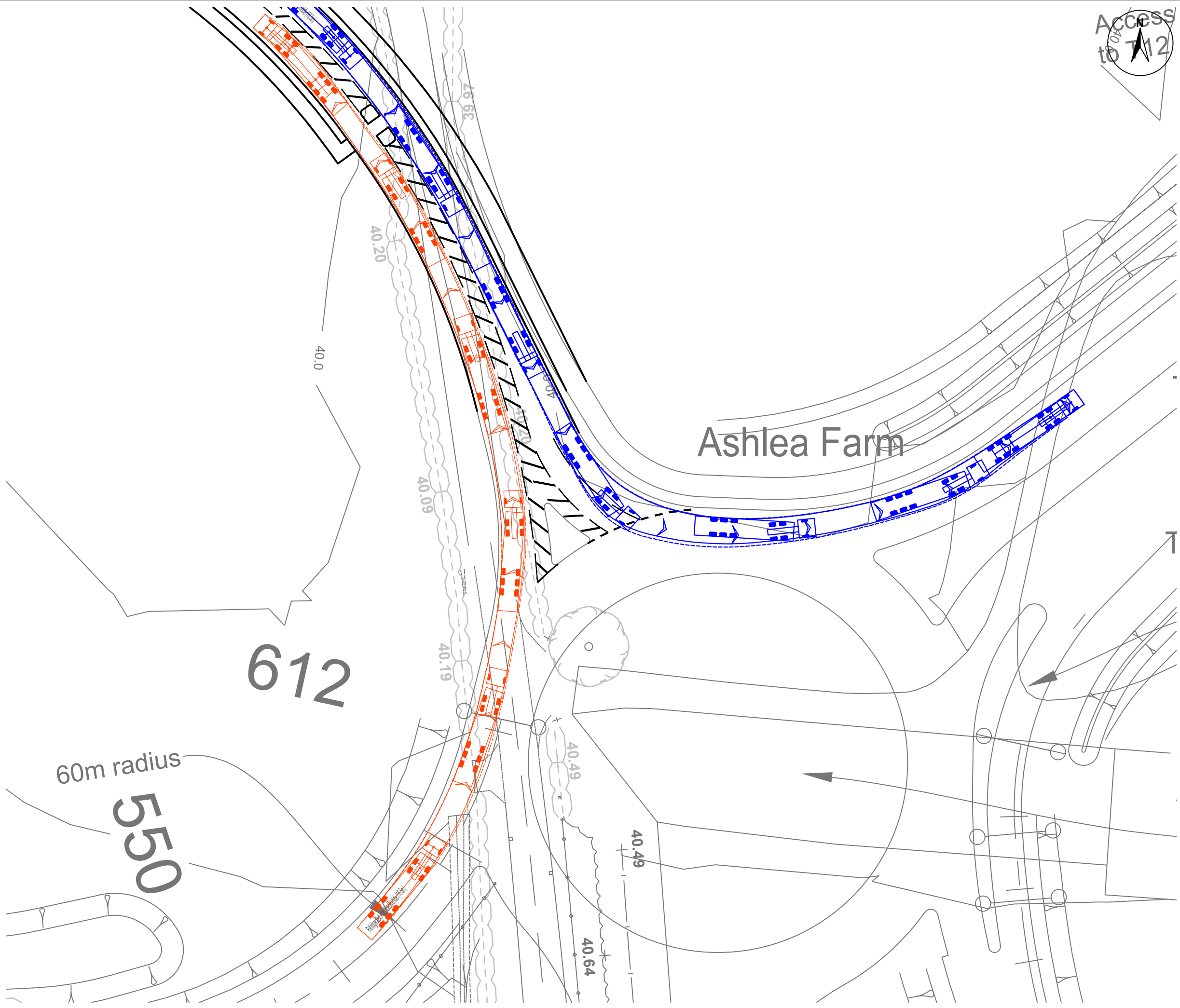
Title New A50 Northern Junction and
Access to Development Site
(Junction ref 20B)

Status	Drawn By	PM/Checked by
PRELIMINARY	AJ	MA

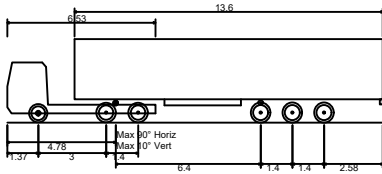
Project Number	Scale @ A3	Date Created
JNY9033	1:500	May 2019

RPS Drawing/Figure Number	Rev
JNY9033-21	

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Refrigerated Articulated Vehicle (16.5m)	16.560m
Overall Length	2.600m
Overall Width	3.681m
Overall Body Height	0.411m
Min Body Ground Clearance	2.500m
Max Track Width	6.00s
Lock to lock time	6.530m
Kerb to Kerb Turning Radius	

Drawing based upon BWB drawing ref
IFP-BWB- HGN-XX-M2-D-102_Chellaston
Road Layout 2D Model

Rev	Description	By	CB	Date
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Client Hallam Land Management

Project Wragley Way, Derby

Title New A50 Northern Junction and
Access to Development Site
Swept Path Analysis

Status	Drawn By	PM/Checked by
INFORMATION	AJ	MA
Project Number	Scale @ A3	Date Created
JNY9033	1:500	May 2019

RPS Drawing/Figure Number
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Appendix I – Proposed Speed limits Plan



Key:

- 20 mph
- 30 mph
- 40 mph

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Client Hallam Land Mangement

Project Wragley Way, Derby

Title Proposed Speed Limit Plan

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Rev	Description	By	CB	Date

Status	Drawn By	PM/Checked by
INFORMATION	AJ	MA
Project Number	Scale @ A3	Date Created
JNY9033	NTS	May 2019
RPS Drawing/Figure Number	Rev	
JNY9033-25		
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Appendix J – Phased Highway infrastructure



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Client Hallam Land Mangement

Project Wragley Way, Derby

Title Proposed Road Layout
Phase 1

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Rev	Description	By	CB	Date

Status	Drawn By	PM/Checked by
INFORMATION	AJ	MA
Project Number	Scale @ A3	Date Created
JNY9033	NTS	May 2019
RPS Drawing/Figure Number	Rev	
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Client Hallam Land Mangement

Project Wragley Way, Derby

Title Proposed Road Layout
Phase 2

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Rev	Description	By	CB	Date

Status	Drawn By	PM/Checked by
INFORMATION	AJ	MA
Project Number	Scale @ A3	Date Created
JNY9033	NTS	May 2019
RPS Drawing/Figure Number	Rev	
JNY9033-28		
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Client Hallam Land Mangement

Project Wragley Way, Derby

Title Proposed Road Layout
Phase 3

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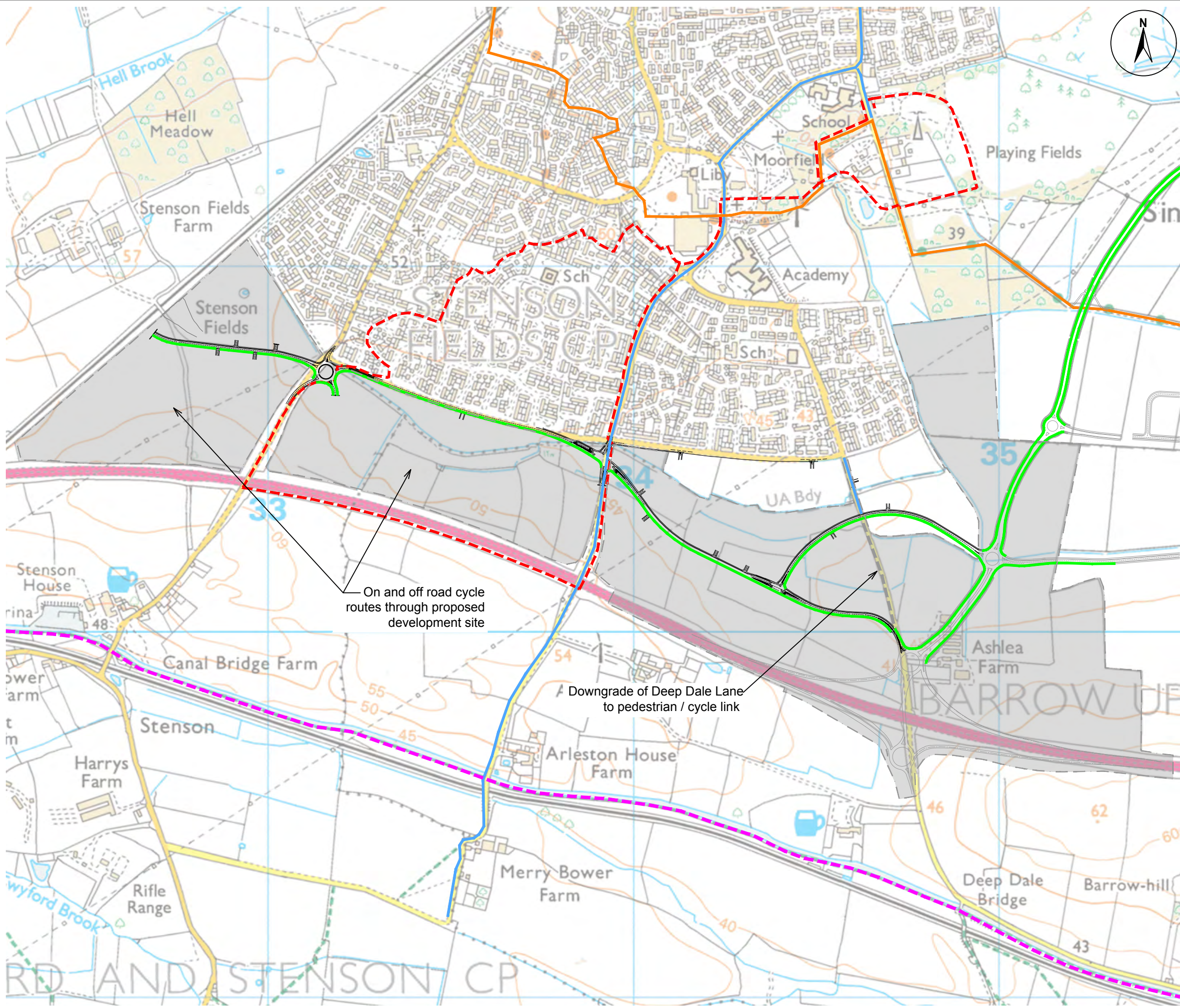
NOTES

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Rev	Description	By	CB	Date

Status	Drawn By	PM/Checked by
INFORMATION	AJ	MA
Project Number	Scale @ A3	Date Created
JNY9033	NTS	May 2019
RPS Drawing/Figure Number	Rev	
JNY9033-29		
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Appendix K – Proposed Walking/Cycling routes



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- Footpath
 - Circular Walk - Sinfin & Stenson
 - Circular Walk - Swarkstone
 - Cycle Route - Recommended
 - Unmarked
 - Cycle Route - Orbital 66
 - Proposed new off road cycle route
- Site

Rev	Description	By	CB	Date
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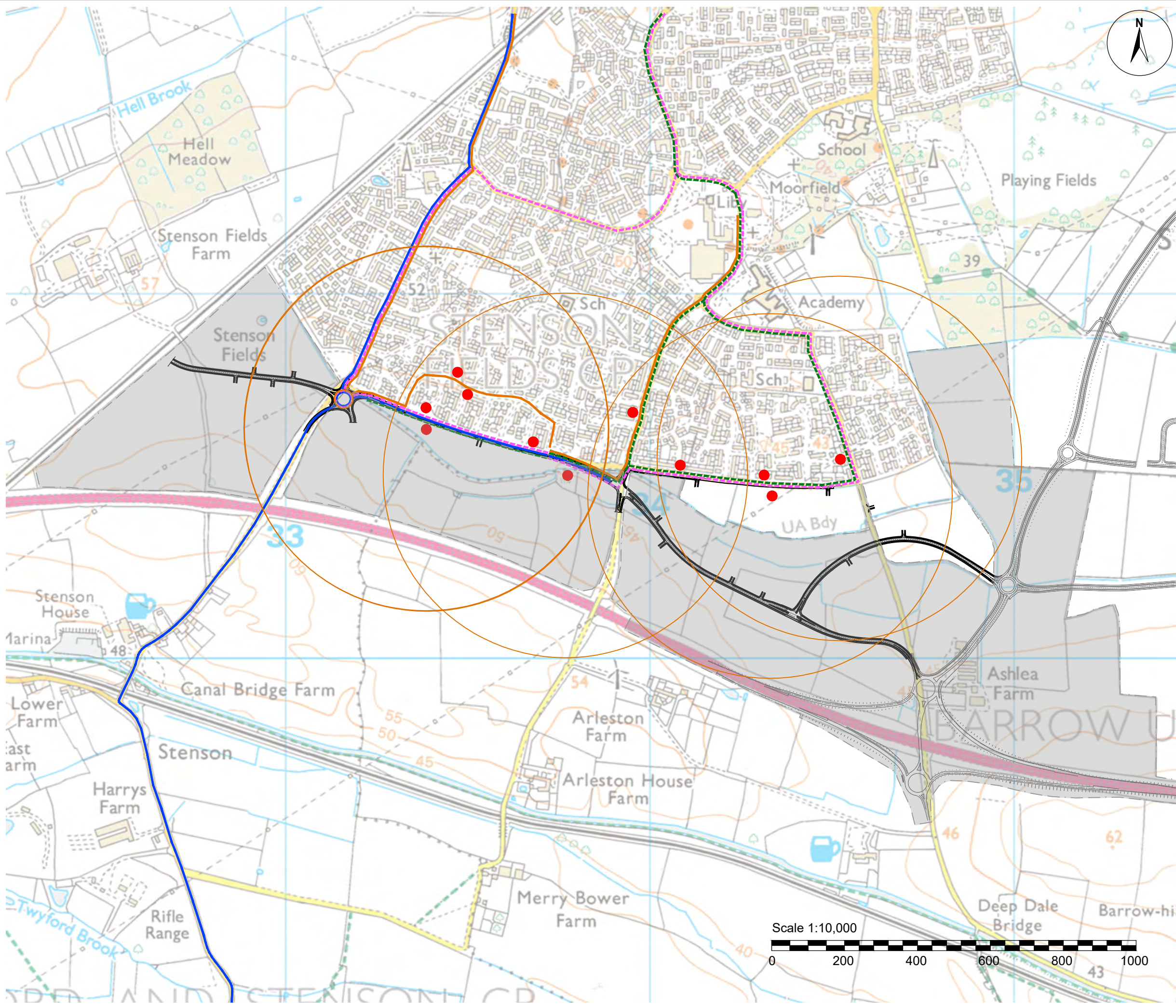
Project Wragley Way, Derby

Title Proposed Walking / Cycling Routes

Status	Drawn By	PM/Checked by
INFORMATION	AJ	MA
Project Number	Scale @ A3	Date Created
JNY9033	1:10,000	May 2019
RPS Drawing/Figure Number		Rev
JNY9033-23		

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Appendix L – Bus Catchment Plan



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 3. This drawing is to be read in conjunction with all relevant scheme drawings.

Key:

- Site
- Bus Route 38
- Bus Route 219
- Bus Route 238
- Bus Route 258
- 500m Catchment
- Existing bus stops

Rev	Description	By	CB	Date
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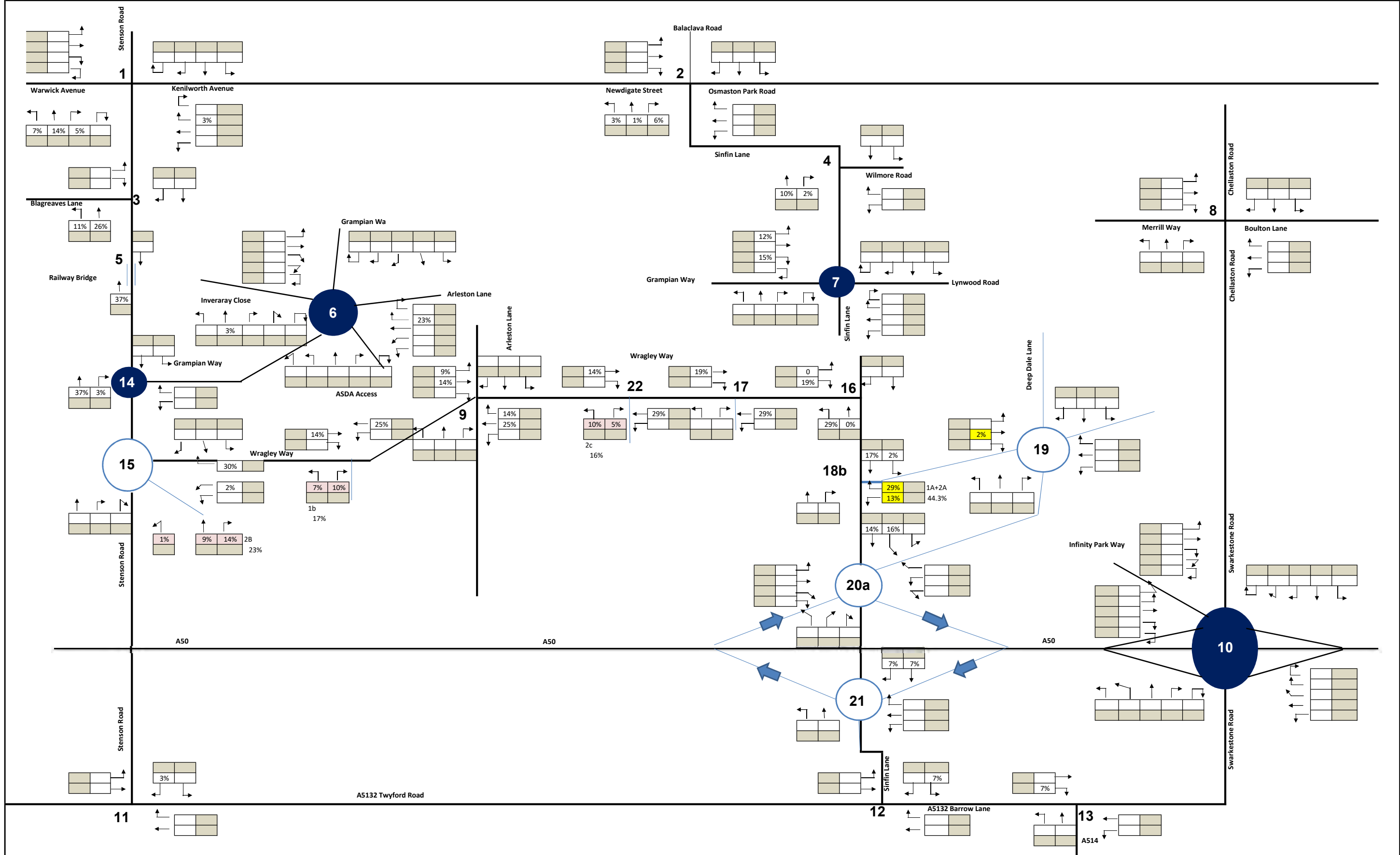
Project Wragley Way, Derby

Title Bus Routes

Status	Drawn By	PM/Checked by
INFORMATION	AJ	MA
Project Number	Scale @ A3	Date Created
JNY9033	1:10,000	May 2019
RPS Drawing/Figure Number		Rev
JNY9033-24		A

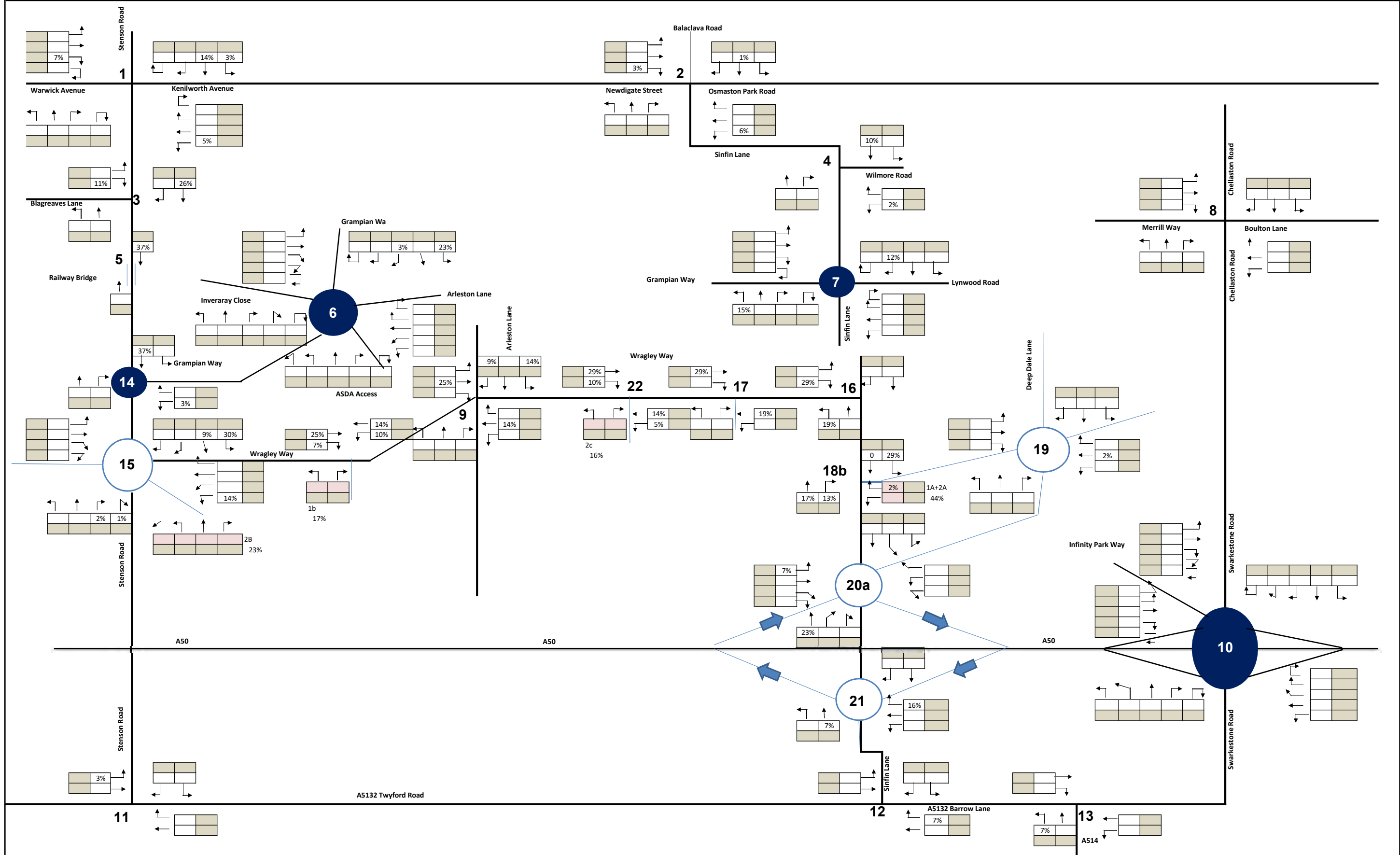
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Appendix M – Proposed Development Traffic Flows



Phase 1 & 2		
Phase 1A	150	20%
Phase 1B	124	17%
Phase 2A	182	24%
Phase 2B	176	23%
Phase 2C	117	16%
	749	

Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 Proposed Distribution (Residential Departures)

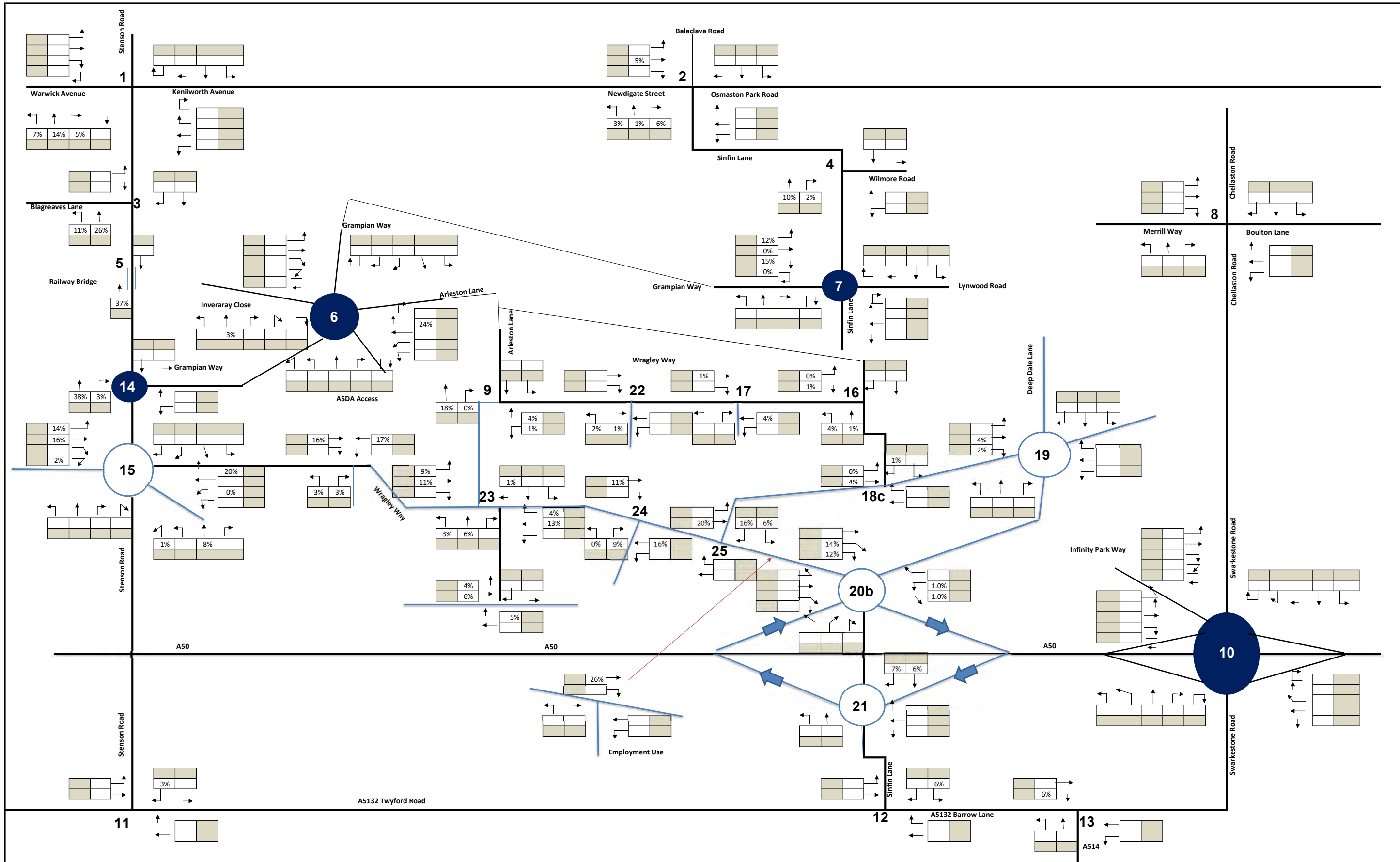


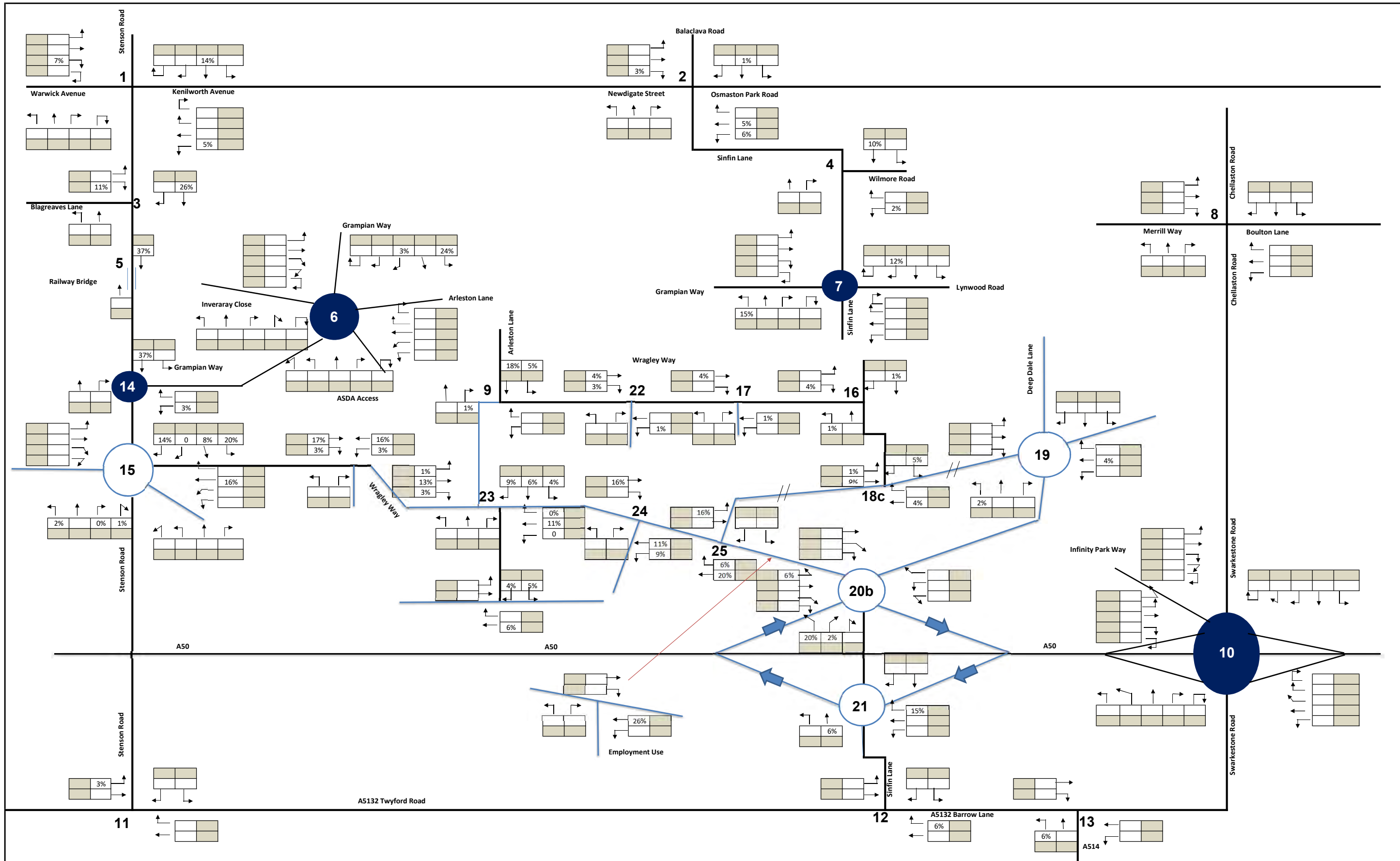
Phase 1 & 2

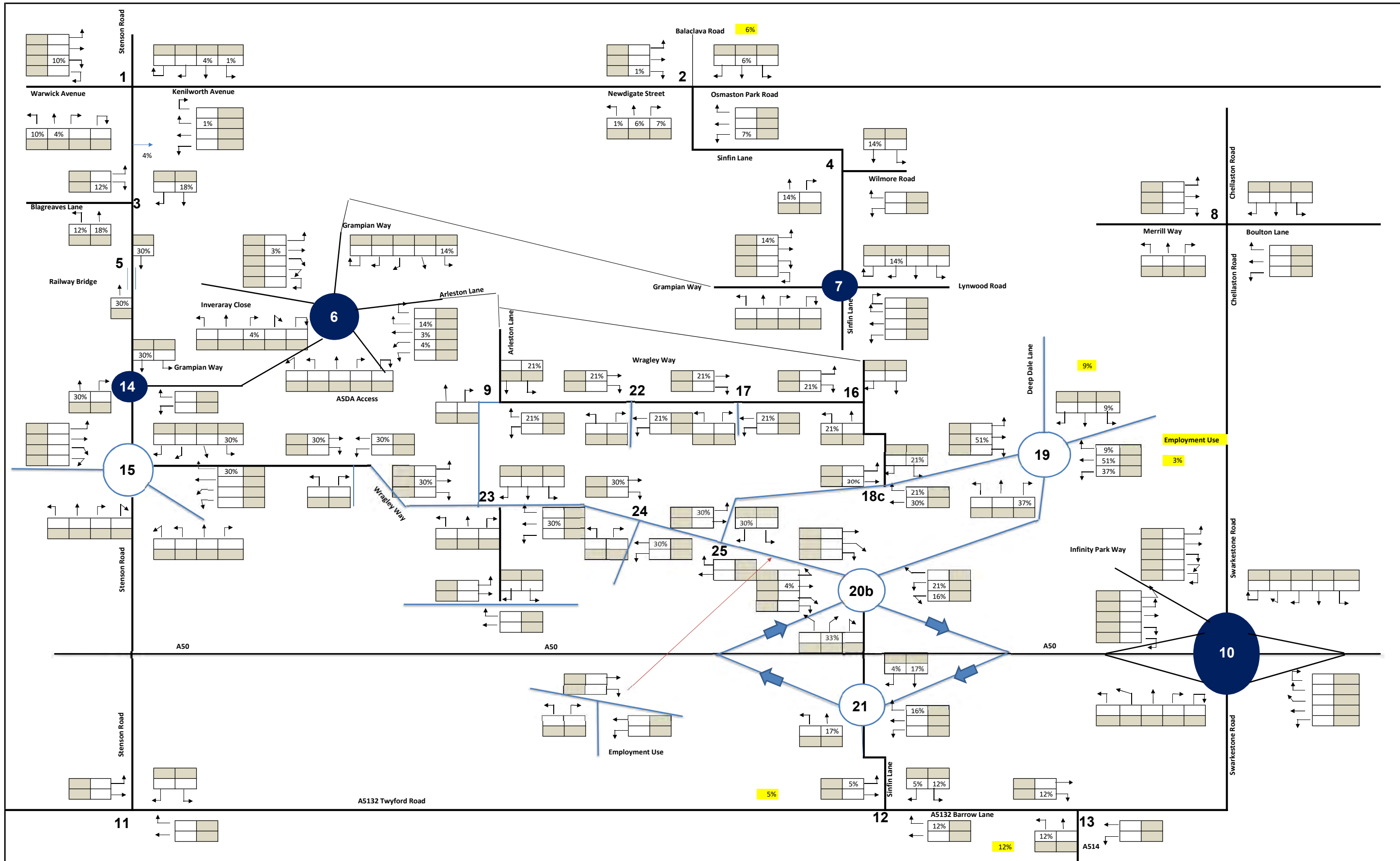
Phase 1A	150	20%
Phase 1B	124	17%
Phase 2A	182	24%
Phase 2B	176	23%
Phase 2C	117	16%
	749	

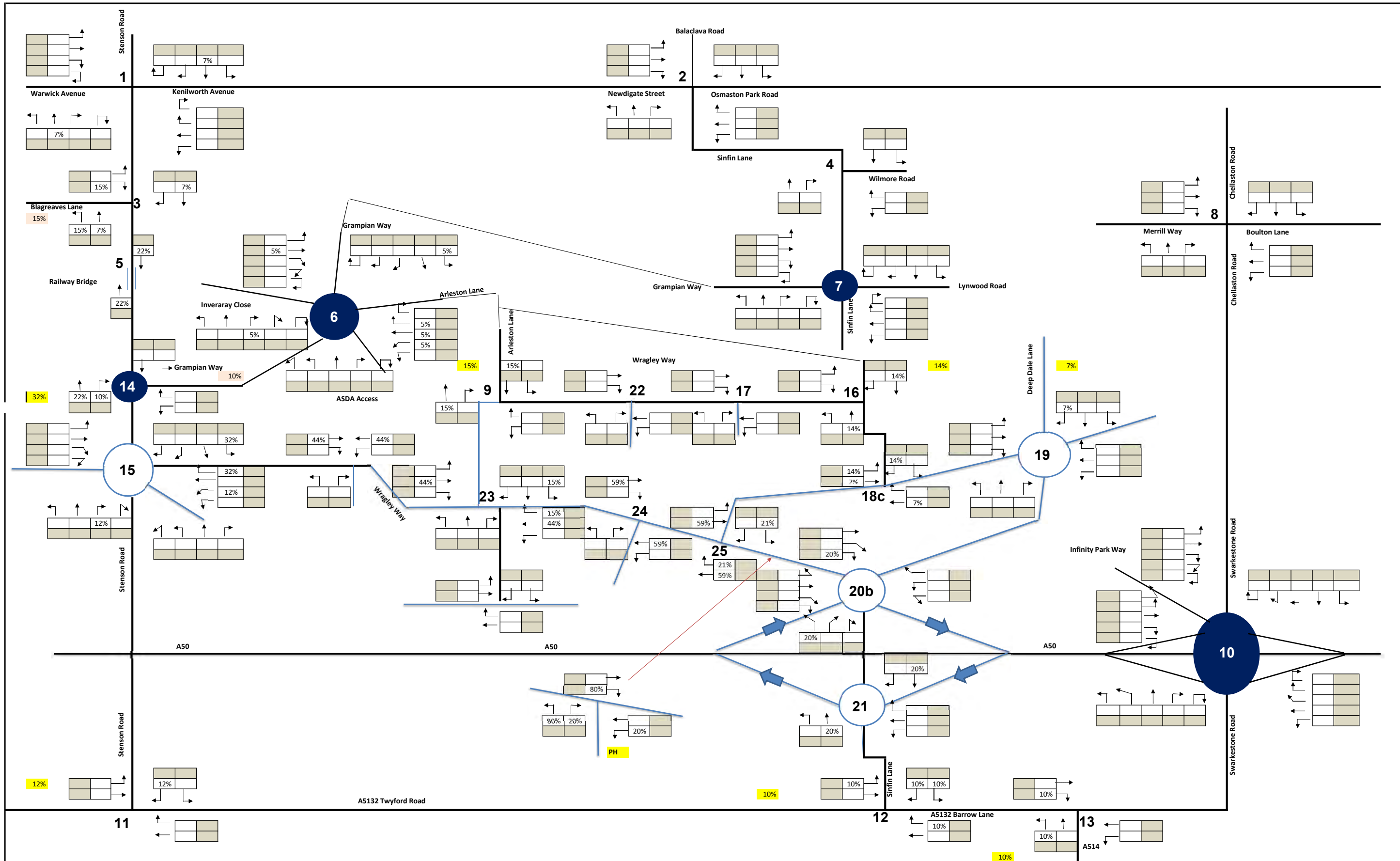
Figure:

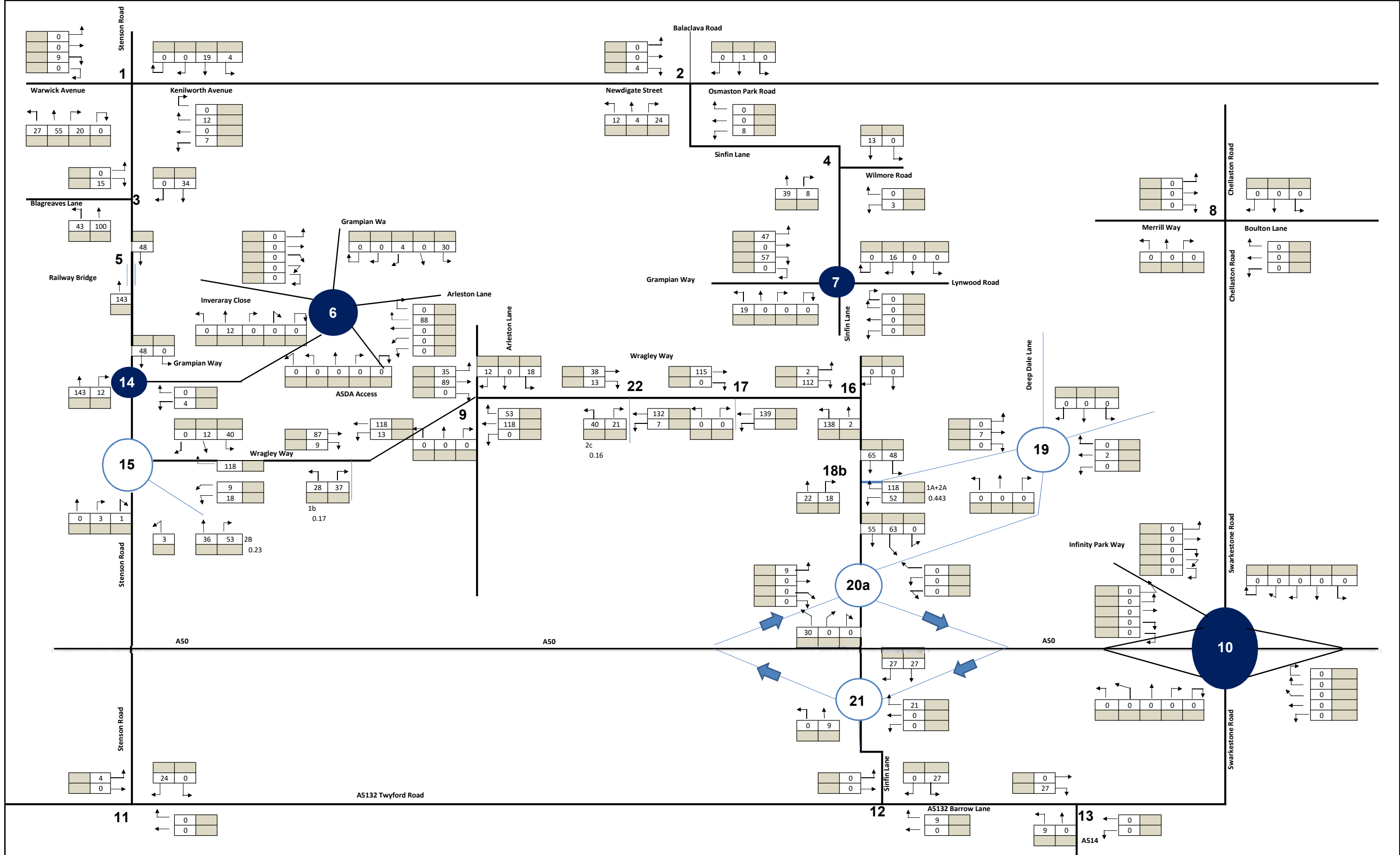
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 Proposed Distribution (Residential Arrivals)





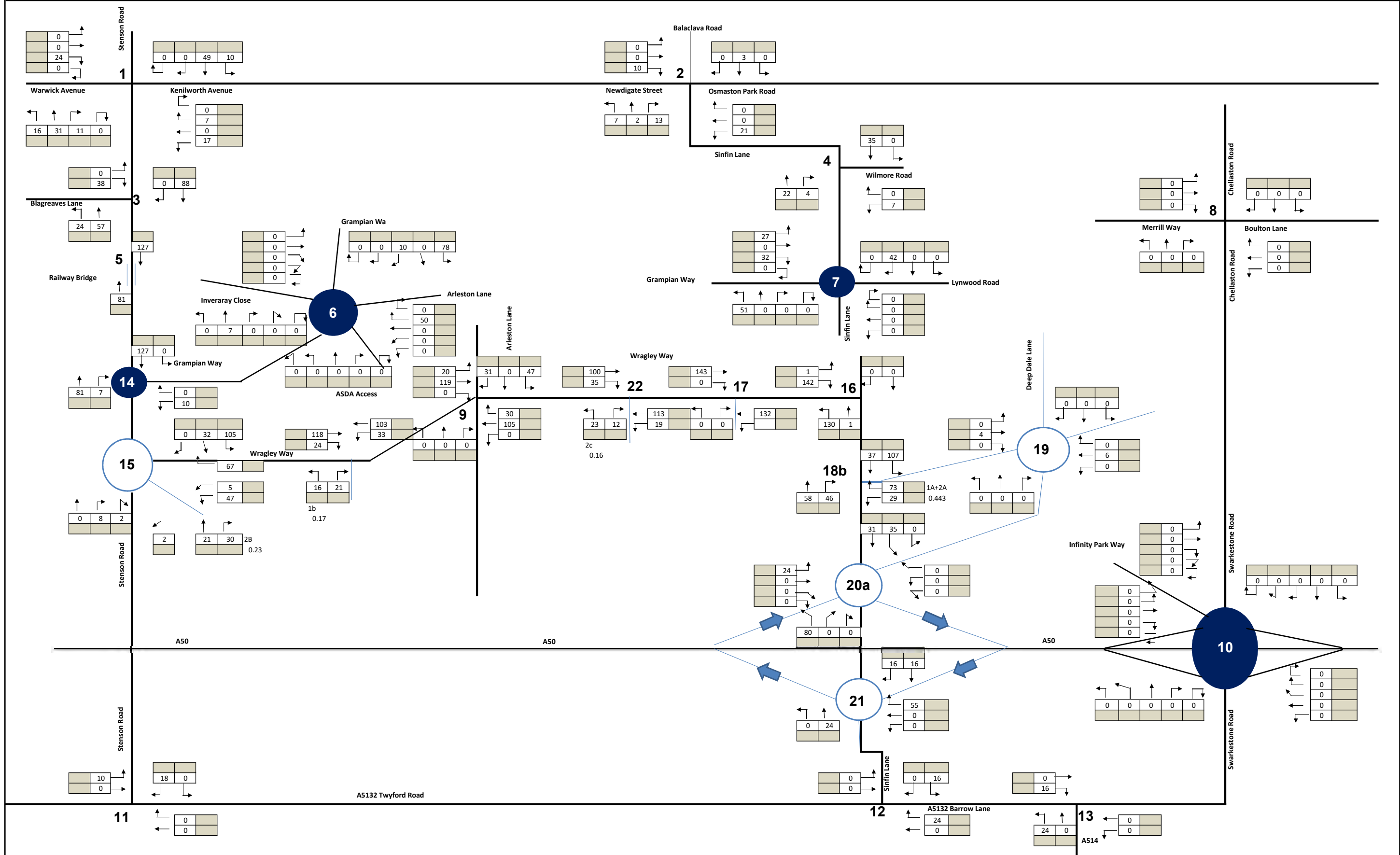


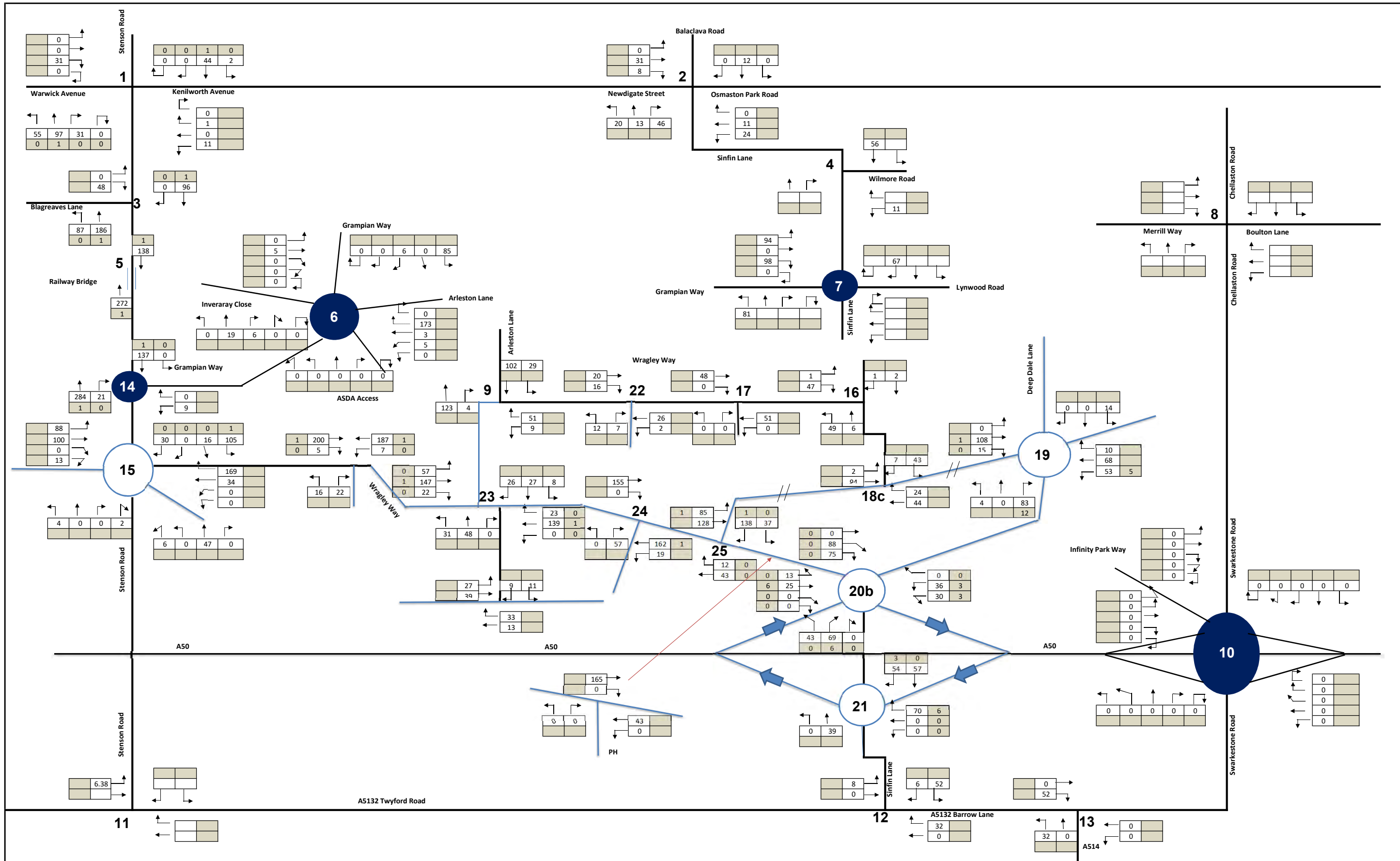


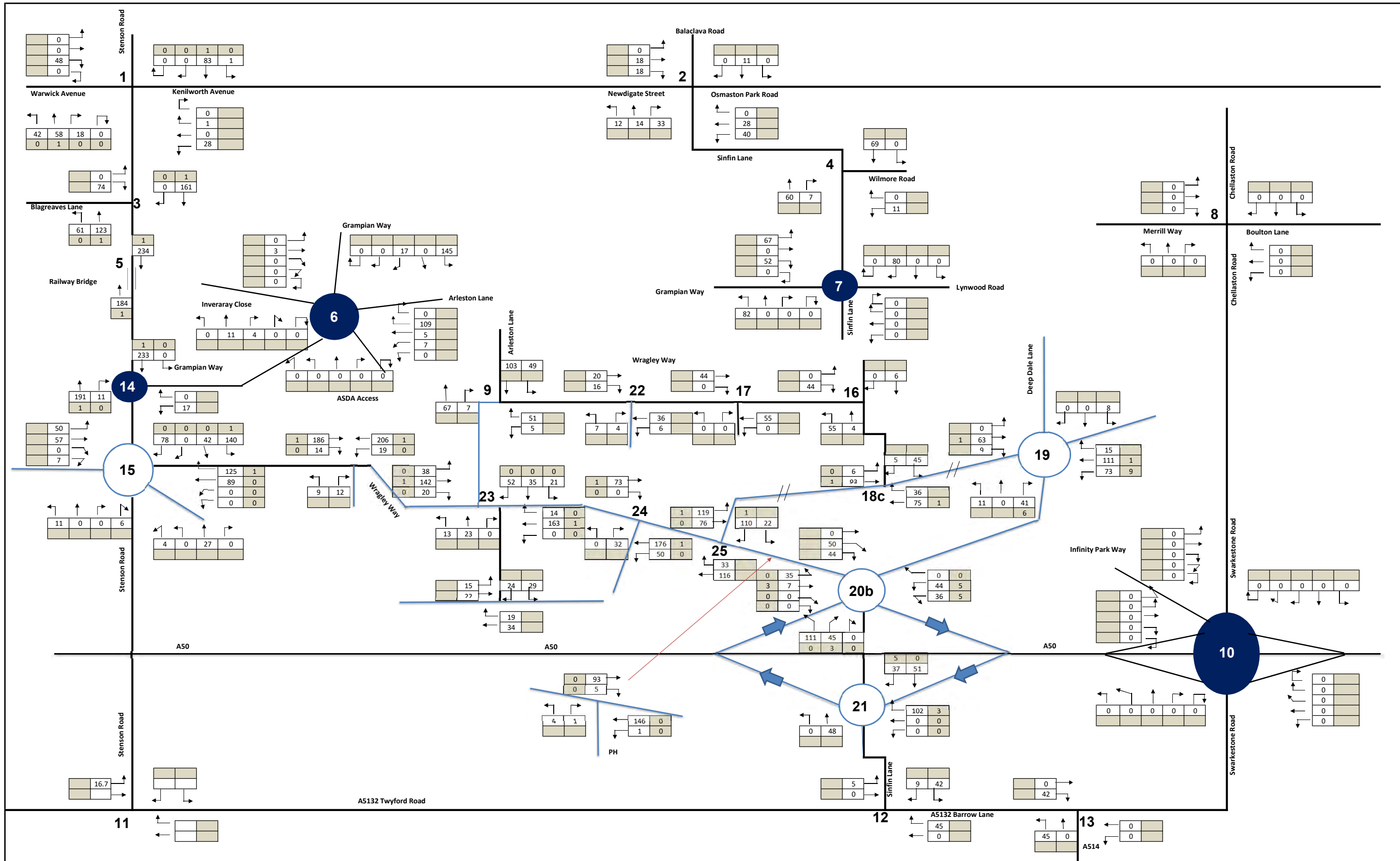


Phase 1 & 2		
Phase 1A	150	20%
Phase 1B	124	17%
Phase 2A	182	24%
Phase 2B	176	23%
Phase 2C	117	16%
	749	

Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 AM Peak - Initial Phases of Development - Phases 1 & 2
Total Proposed Development Flows







Appendix N – TRICS Output Data

Calculation Reference: AUDIT-515506-190425-0432

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
Category : A - PRIMARY
VEHICLES

Selected regions and areas:

05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
	LE LEICESTERSHIRE	1 days
	LN LINCOLNSHIRE	1 days
	NR NORTHAMPTONSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	WY WEST YORKSHIRE	1 days
08	NORTH WEST	
	GM GREATER MANCHESTER	1 days
	LC LANCASHIRE	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of pupils
Actual Range: 312 to 472 (units:)
Range Selected by User: 300 to 600 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 28/09/16

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	2 days
Wednesday	2 days
Thursday	4 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	3
Edge of Town	3
Neighbourhood Centre (PPS6 Local Centre)	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	7
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

D1 8 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
25,001 to 50,000	3 days
50,001 to 100,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	4 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No 8 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 8 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	DS-04-A-01 VICARAGE ROAD DERBY MICKLEOVER Edge of Town Residential Zone Total Number of pupils: Survey date: THURSDAY	PRIMARY SCHOOL 387 25/06/15	DERBYSHIRE Survey Type: MANUAL
2	GM-04-A-01 ROCH MILLS CRESCENT ROCHDALE Edge of Town Residential Zone Total Number of pupils: Survey date: TUESDAY	PRIMARY SCHOOL 457 20/10/15	GREATER MANCHESTER Survey Type: MANUAL
3	LC-04-A-05 NEWTON STREET BLACKBURN Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of pupils: Survey date: WEDNESDAY	PRIMARY SCHOOL 472 28/09/16	LANCASHIRE Survey Type: MANUAL
4	LC-04-A-06 SEVERN ROAD BLACKPOOL SOUTH SHORE Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Number of pupils: Survey date: TUESDAY	PRIMARY SCHOOL 449 27/09/16	LANCASHIRE Survey Type: MANUAL
5	LE-04-A-02 BEAUFORT WAY LEICESTER OADBY Edge of Town Residential Zone Total Number of pupils: Survey date: THURSDAY	PRIMARY SCHOOL 380 30/10/14	LEICESTERSHIRE Survey Type: MANUAL
6	LN-04-A-01 GONERBY HILL FOOT GRANTHAM Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Number of pupils: Survey date: WEDNESDAY	PRIMARY SCHOOL 312 12/06/13	LINCOLNSHIRE Survey Type: MANUAL
7	NR-04-A-03 BOOTH LANE NORTH NORTHAMPTON Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of pupils: Survey date: THURSDAY	PRIMARY SCHOOL 400 24/03/16	NORTHAMPTONSHIRE Survey Type: MANUAL
8	WY-04-A-01 SHAKESPEARE AVENUE LEEDS Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of pupils: Survey date: THURSDAY	PRIMARY SCHOOL 370 19/09/13	WEST YORKSHIRE Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
VEHICLES
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	312	0.000	1	312	0.000	1	312	0.000
06:00 - 07:00	1	312	0.013	1	312	0.003	1	312	0.016
07:00 - 08:00	8	403	0.051	8	403	0.020	8	403	0.071
08:00 - 09:00	8	403	0.270	8	403	0.182	8	403	0.452
09:00 - 10:00	8	403	0.027	8	403	0.042	8	403	0.069
10:00 - 11:00	8	403	0.010	8	403	0.010	8	403	0.020
11:00 - 12:00	8	403	0.017	8	403	0.009	8	403	0.026
12:00 - 13:00	8	403	0.022	8	403	0.023	8	403	0.045
13:00 - 14:00	8	403	0.012	8	403	0.024	8	403	0.036
14:00 - 15:00	8	403	0.055	8	403	0.023	8	403	0.078
15:00 - 16:00	8	403	0.150	8	403	0.230	8	403	0.380
16:00 - 17:00	8	403	0.036	8	403	0.076	8	403	0.112
17:00 - 18:00	8	403	0.016	8	403	0.019	8	403	0.035
18:00 - 19:00	8	403	0.013	8	403	0.009	8	403	0.022
19:00 - 20:00	1	312	0.000	1	312	0.000	1	312	0.000
20:00 - 21:00	1	312	0.000	1	312	0.032	1	312	0.032
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		0.692			0.702			1.394	

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	312 - 472 (units:)
Survey date date range:	01/01/11 - 28/09/16
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
TAXIS
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	312	0.000	1	312	0.000	1	312	0.000
06:00 - 07:00	1	312	0.000	1	312	0.000	1	312	0.000
07:00 - 08:00	8	403	0.000	8	403	0.000	8	403	0.000
08:00 - 09:00	8	403	0.001	8	403	0.002	8	403	0.003
09:00 - 10:00	8	403	0.000	8	403	0.000	8	403	0.000
10:00 - 11:00	8	403	0.000	8	403	0.000	8	403	0.000
11:00 - 12:00	8	403	0.000	8	403	0.000	8	403	0.000
12:00 - 13:00	8	403	0.000	8	403	0.000	8	403	0.000
13:00 - 14:00	8	403	0.000	8	403	0.000	8	403	0.000
14:00 - 15:00	8	403	0.000	8	403	0.000	8	403	0.000
15:00 - 16:00	8	403	0.001	8	403	0.001	8	403	0.002
16:00 - 17:00	8	403	0.000	8	403	0.000	8	403	0.000
17:00 - 18:00	8	403	0.000	8	403	0.000	8	403	0.000
18:00 - 19:00	8	403	0.000	8	403	0.000	8	403	0.000
19:00 - 20:00	1	312	0.000	1	312	0.000	1	312	0.000
20:00 - 21:00	1	312	0.000	1	312	0.000	1	312	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.002			0.003			0.005

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

OGVS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	312	0.000	1	312	0.000	1	312	0.000
06:00 - 07:00	1	312	0.003	1	312	0.003	1	312	0.006
07:00 - 08:00	8	403	0.001	8	403	0.001	8	403	0.002
08:00 - 09:00	8	403	0.000	8	403	0.000	8	403	0.000
09:00 - 10:00	8	403	0.001	8	403	0.001	8	403	0.002
10:00 - 11:00	8	403	0.001	8	403	0.001	8	403	0.002
11:00 - 12:00	8	403	0.000	8	403	0.000	8	403	0.000
12:00 - 13:00	8	403	0.000	8	403	0.000	8	403	0.000
13:00 - 14:00	8	403	0.000	8	403	0.000	8	403	0.000
14:00 - 15:00	8	403	0.000	8	403	0.000	8	403	0.000
15:00 - 16:00	8	403	0.000	8	403	0.001	8	403	0.001
16:00 - 17:00	8	403	0.000	8	403	0.000	8	403	0.000
17:00 - 18:00	8	403	0.000	8	403	0.000	8	403	0.000
18:00 - 19:00	8	403	0.000	8	403	0.000	8	403	0.000
19:00 - 20:00	1	312	0.000	1	312	0.000	1	312	0.000
20:00 - 21:00	1	312	0.000	1	312	0.000	1	312	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.006			0.007			0.013

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
 PSVS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	312	0.000	1	312	0.000	1	312	0.000
06:00 - 07:00	1	312	0.000	1	312	0.000	1	312	0.000
07:00 - 08:00	8	403	0.000	8	403	0.000	8	403	0.000
08:00 - 09:00	8	403	0.000	8	403	0.000	8	403	0.000
09:00 - 10:00	8	403	0.001	8	403	0.000	8	403	0.001
10:00 - 11:00	8	403	0.000	8	403	0.001	8	403	0.001
11:00 - 12:00	8	403	0.000	8	403	0.000	8	403	0.000
12:00 - 13:00	8	403	0.000	8	403	0.001	8	403	0.001
13:00 - 14:00	8	403	0.000	8	403	0.000	8	403	0.000
14:00 - 15:00	8	403	0.000	8	403	0.000	8	403	0.000
15:00 - 16:00	8	403	0.000	8	403	0.000	8	403	0.000
16:00 - 17:00	8	403	0.000	8	403	0.000	8	403	0.000
17:00 - 18:00	8	403	0.000	8	403	0.000	8	403	0.000
18:00 - 19:00	8	403	0.000	8	403	0.000	8	403	0.000
19:00 - 20:00	1	312	0.000	1	312	0.000	1	312	0.000
20:00 - 21:00	1	312	0.000	1	312	0.000	1	312	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.001			0.002			0.003

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
CYCLISTS
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	312	0.000	1	312	0.000	1	312	0.000
06:00 - 07:00	1	312	0.000	1	312	0.000	1	312	0.000
07:00 - 08:00	8	403	0.001	8	403	0.000	8	403	0.001
08:00 - 09:00	8	403	0.007	8	403	0.002	8	403	0.009
09:00 - 10:00	8	403	0.001	8	403	0.001	8	403	0.002
10:00 - 11:00	8	403	0.001	8	403	0.000	8	403	0.001
11:00 - 12:00	8	403	0.000	8	403	0.000	8	403	0.000
12:00 - 13:00	8	403	0.000	8	403	0.000	8	403	0.000
13:00 - 14:00	8	403	0.000	8	403	0.000	8	403	0.000
14:00 - 15:00	8	403	0.001	8	403	0.000	8	403	0.001
15:00 - 16:00	8	403	0.002	8	403	0.004	8	403	0.006
16:00 - 17:00	8	403	0.000	8	403	0.003	8	403	0.003
17:00 - 18:00	8	403	0.000	8	403	0.001	8	403	0.001
18:00 - 19:00	8	403	0.000	8	403	0.000	8	403	0.000
19:00 - 20:00	1	312	0.000	1	312	0.000	1	312	0.000
20:00 - 21:00	1	312	0.000	1	312	0.000	1	312	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		0.013			0.011			0.024	

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
CARS
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	312	0.000	1	312	0.000	1	312	0.000
06:00 - 07:00	1	312	0.006	1	312	0.000	1	312	0.006
07:00 - 08:00	8	403	0.045	8	403	0.019	8	403	0.064
08:00 - 09:00	8	403	0.240	8	403	0.167	8	403	0.407
09:00 - 10:00	8	403	0.018	8	403	0.023	8	403	0.041
10:00 - 11:00	8	403	0.007	8	403	0.006	8	403	0.013
11:00 - 12:00	8	403	0.014	8	403	0.007	8	403	0.021
12:00 - 13:00	8	403	0.017	8	403	0.019	8	403	0.036
13:00 - 14:00	8	403	0.007	8	403	0.020	8	403	0.027
14:00 - 15:00	8	403	0.039	8	403	0.012	8	403	0.051
15:00 - 16:00	8	403	0.130	8	403	0.200	8	403	0.330
16:00 - 17:00	8	403	0.034	8	403	0.068	8	403	0.102
17:00 - 18:00	8	403	0.016	8	403	0.017	8	403	0.033
18:00 - 19:00	8	403	0.012	8	403	0.008	8	403	0.020
19:00 - 20:00	1	312	0.000	1	312	0.000	1	312	0.000
20:00 - 21:00	1	312	0.000	1	312	0.032	1	312	0.032
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.585			0.598			1.183

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

LGVS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	312	0.000	1	312	0.000	1	312	0.000
06:00 - 07:00	1	312	0.003	1	312	0.000	1	312	0.003
07:00 - 08:00	8	403	0.001	8	403	0.000	8	403	0.001
08:00 - 09:00	8	403	0.002	8	403	0.001	8	403	0.003
09:00 - 10:00	8	403	0.002	8	403	0.002	8	403	0.004
10:00 - 11:00	8	403	0.002	8	403	0.002	8	403	0.004
11:00 - 12:00	8	403	0.002	8	403	0.002	8	403	0.004
12:00 - 13:00	8	403	0.003	8	403	0.003	8	403	0.006
13:00 - 14:00	8	403	0.003	8	403	0.002	8	403	0.005
14:00 - 15:00	8	403	0.001	8	403	0.003	8	403	0.004
15:00 - 16:00	8	403	0.001	8	403	0.001	8	403	0.002
16:00 - 17:00	8	403	0.000	8	403	0.001	8	403	0.001
17:00 - 18:00	8	403	0.000	8	403	0.000	8	403	0.000
18:00 - 19:00	8	403	0.001	8	403	0.001	8	403	0.002
19:00 - 20:00	1	312	0.000	1	312	0.000	1	312	0.000
20:00 - 21:00	1	312	0.000	1	312	0.000	1	312	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.018			0.039

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Appendix O – TEMPRO Output

2018-2020 Growth Factors

AM Peak

Level	Area	Urban Principal Local Growth Figure
County	Derbyshire	1.027208028
Authority	Derby	1.028818308
E02002824	Derby 029	1.030680195

PM Peak

Level	Area	Local Growth Figure
County	Derbyshire	1.026302245
Authority	Derby	1.027761562
E02002824	Derby 029	1.028264774

Average Day (AADT)

Urban Trunk (Used for A50)

Level	Area	Local Growth Figure
County	Derbyshire	1.030331712
Authority	Derby	1.031340654
E02002824	Derby 029	1.032299149

Average WeekDay (AAWT)

Urban Trunk (Used for A50)

Level	Area	Local Growth Figure
County	Derbyshire	1.030432606
Authority	Derby	1.031441549
E02002824	Derby 029	1.032601832

2018-2030 Growth Factors

AM Peak

Level	Area	Local Growth Figure
County	Derbyshire	1.139722987
Authority	Derby	1.147067637
E02002824	Derby 029	1.15389139

PM Peak

Level	Area	Local Growth Figure
County	Derbyshire	1.137535219
Authority	Derby	1.143577626
E02002824	Derby 029	1.144619421

Average Day (AADT)

Urban Trunk (Used for A50)

Level	Area	Local Growth Figure
County	Derbyshire	1.139545962

Authority	Derby	1.144055628
E02002824	Derby 029	1.147062072

Average WeekDay (AAWT)		Urban Trunk (Used for A50)
Level	Area	Local Growth Figure
County	Derbyshire	1.139338621
Authority	Derby	1.144107463
E02002824	Derby 029	1.1478396

2018-2025 Growth Factors

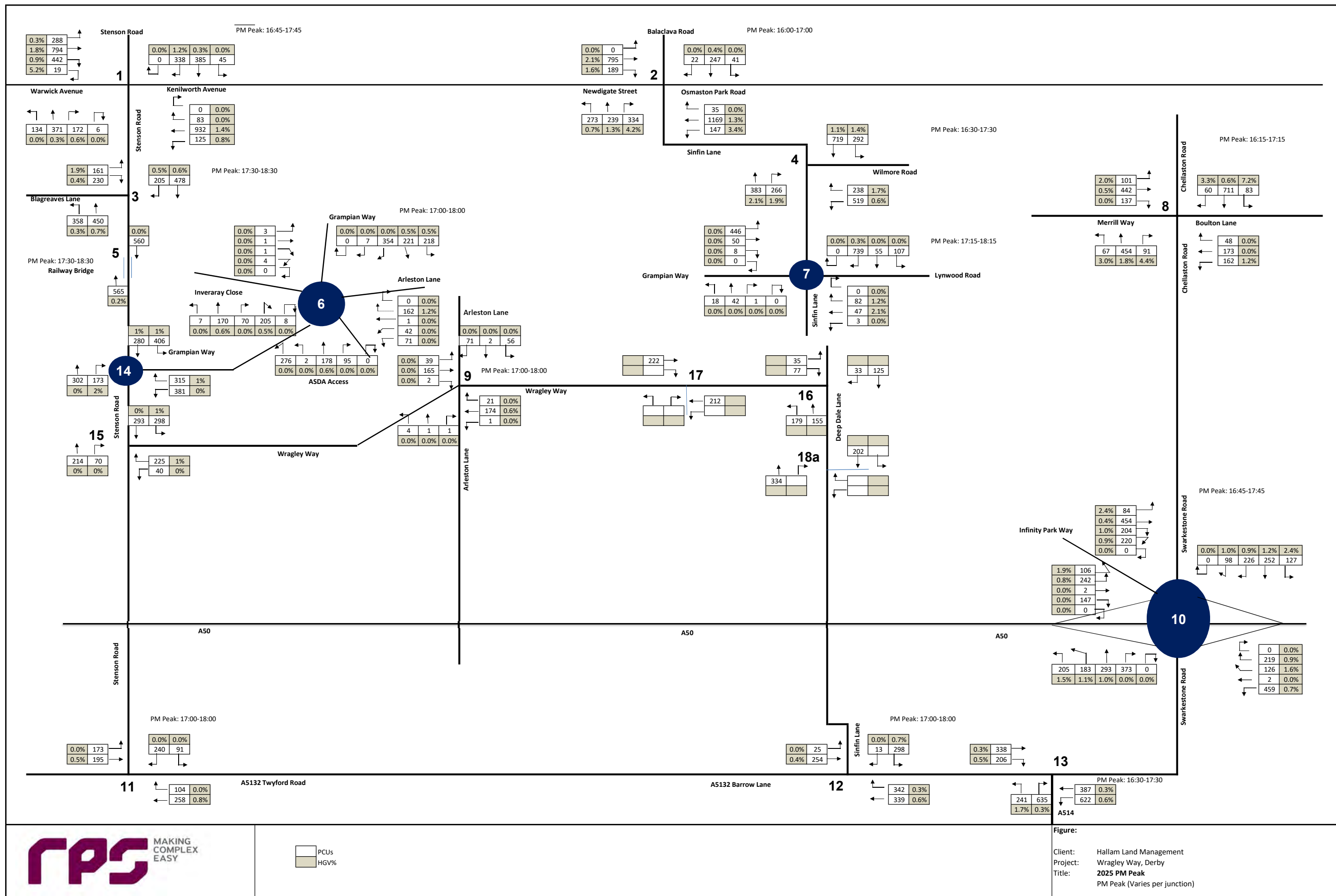
AM Peak

Level	Area	Local Growth Figure
County	Derbyshire	1.104109844
Authority	Derby	1.107808791
E02002824	Derby 029	1.113018577

PM Peak

Level	Area	Local Growth Figure
County	Derbyshire	1.102234321
Authority	Derby	1.105099703
E02002824	Derby 029	1.106506345

Appendix P – Future Base Traffic Flows



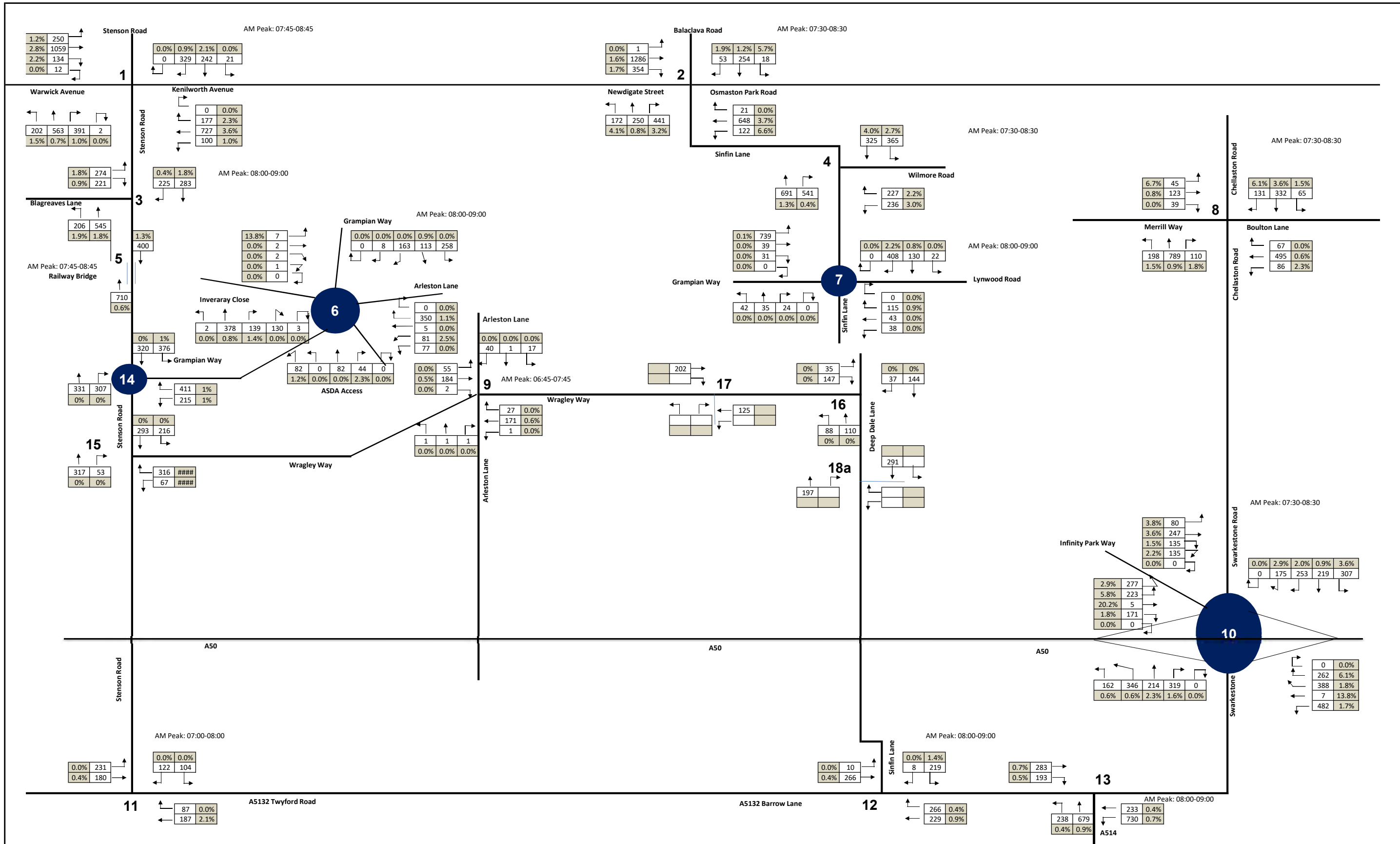
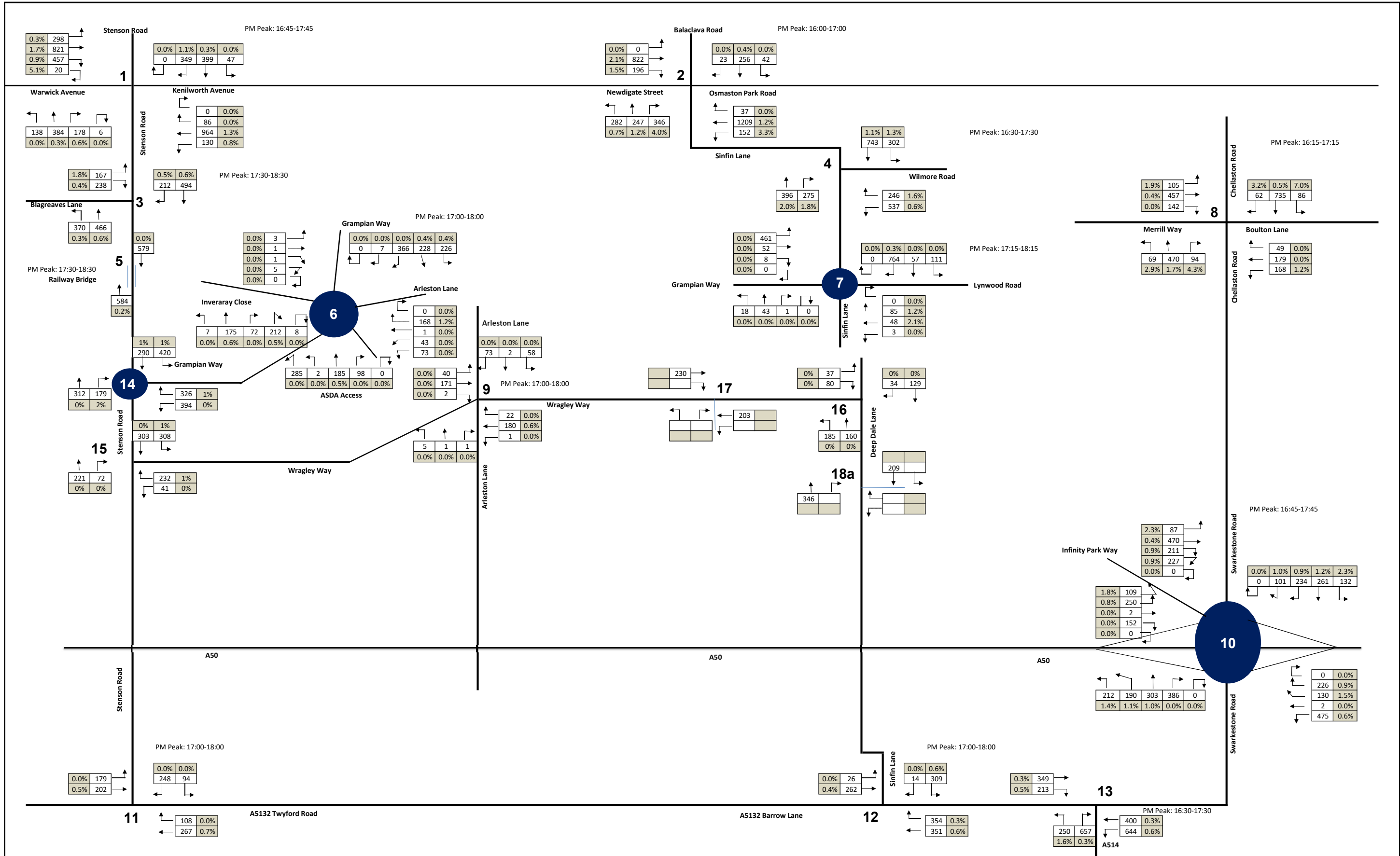
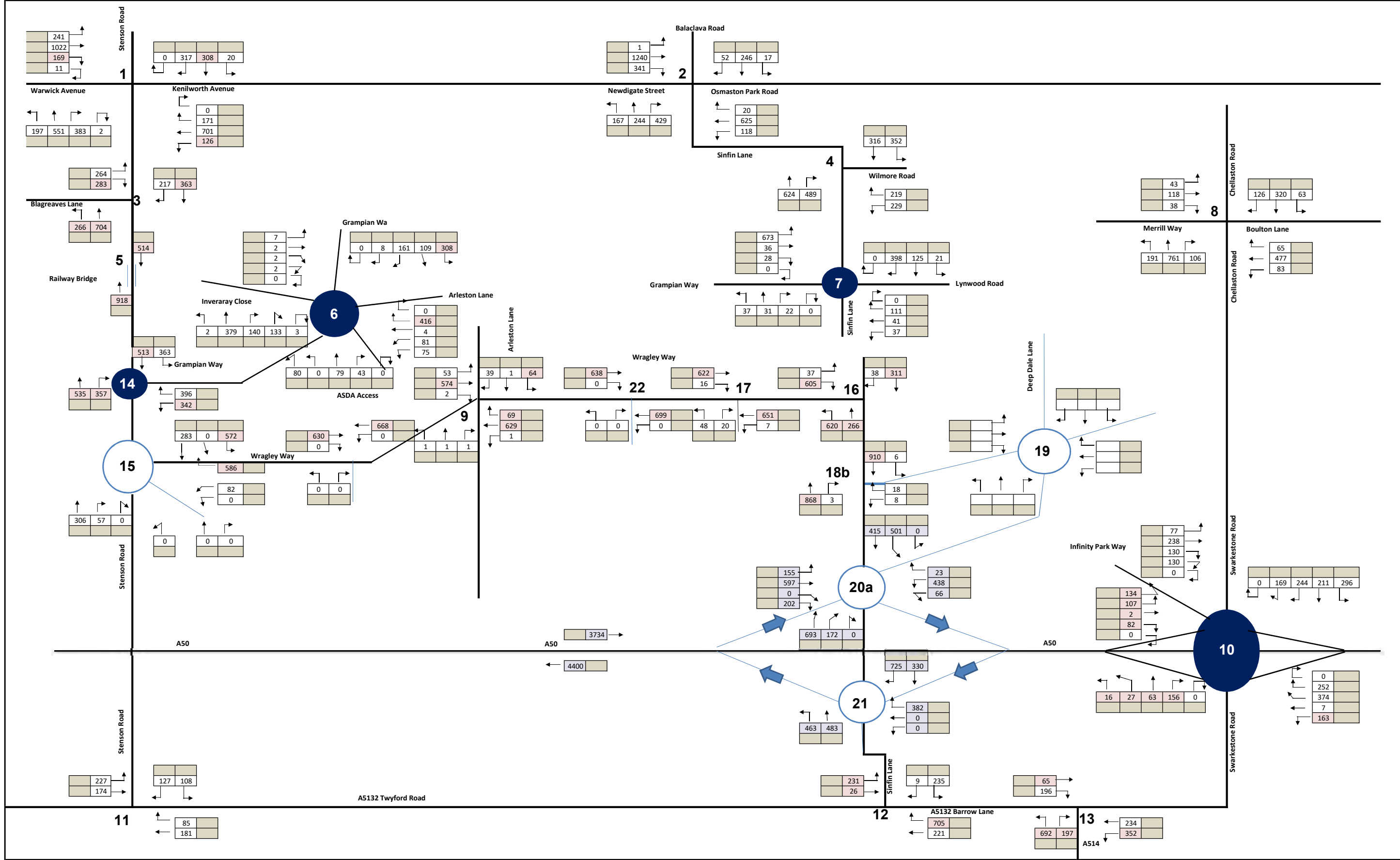


Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2030 AM Peak
AM Peak (Varies per junction)





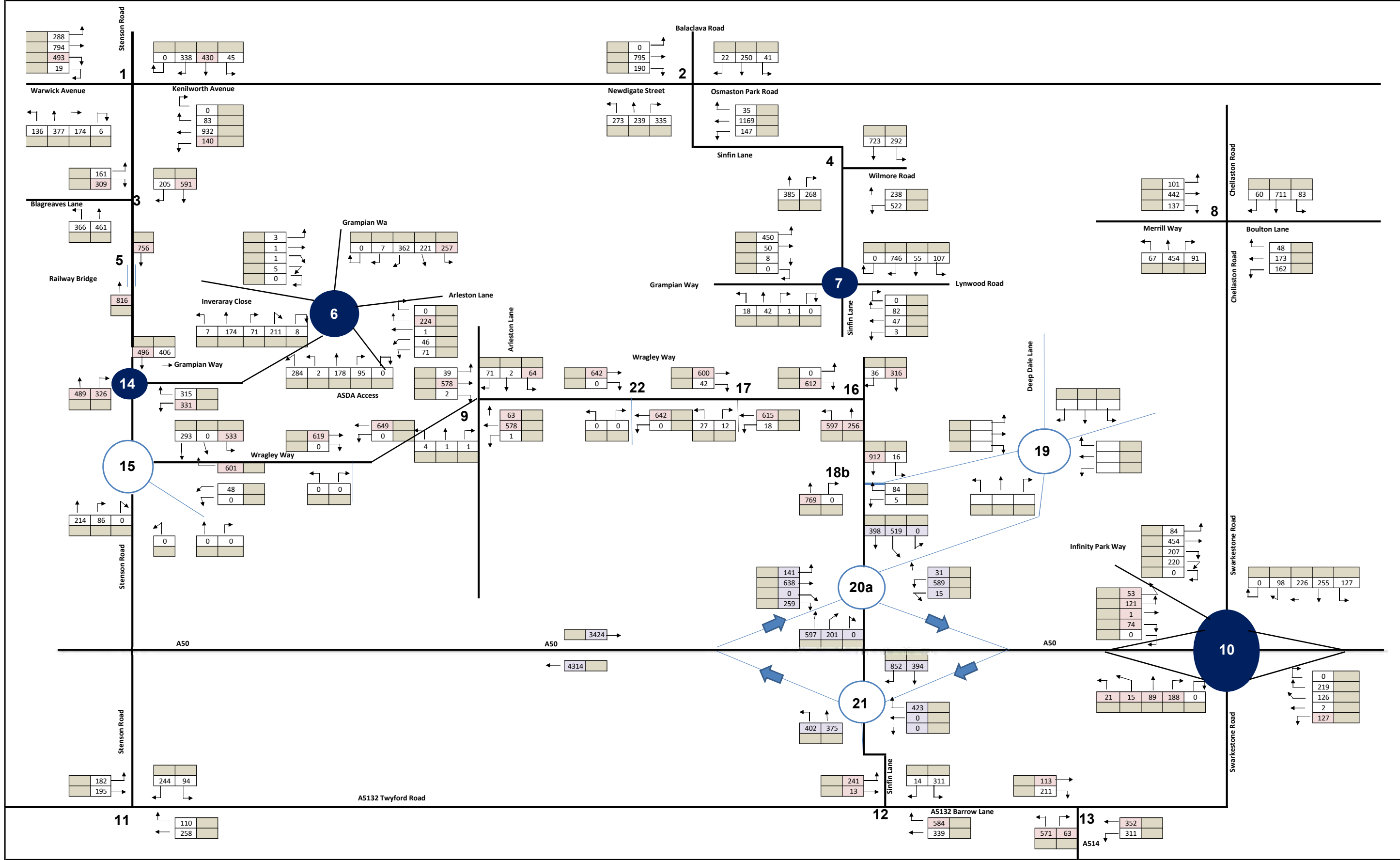
Based on SYSTRA 2020 Infrastructure Only Model

PCUs
HGV%

PCU's from BWB TA report for A50 junction (March 2019)
Re-calculated flows

Figure:

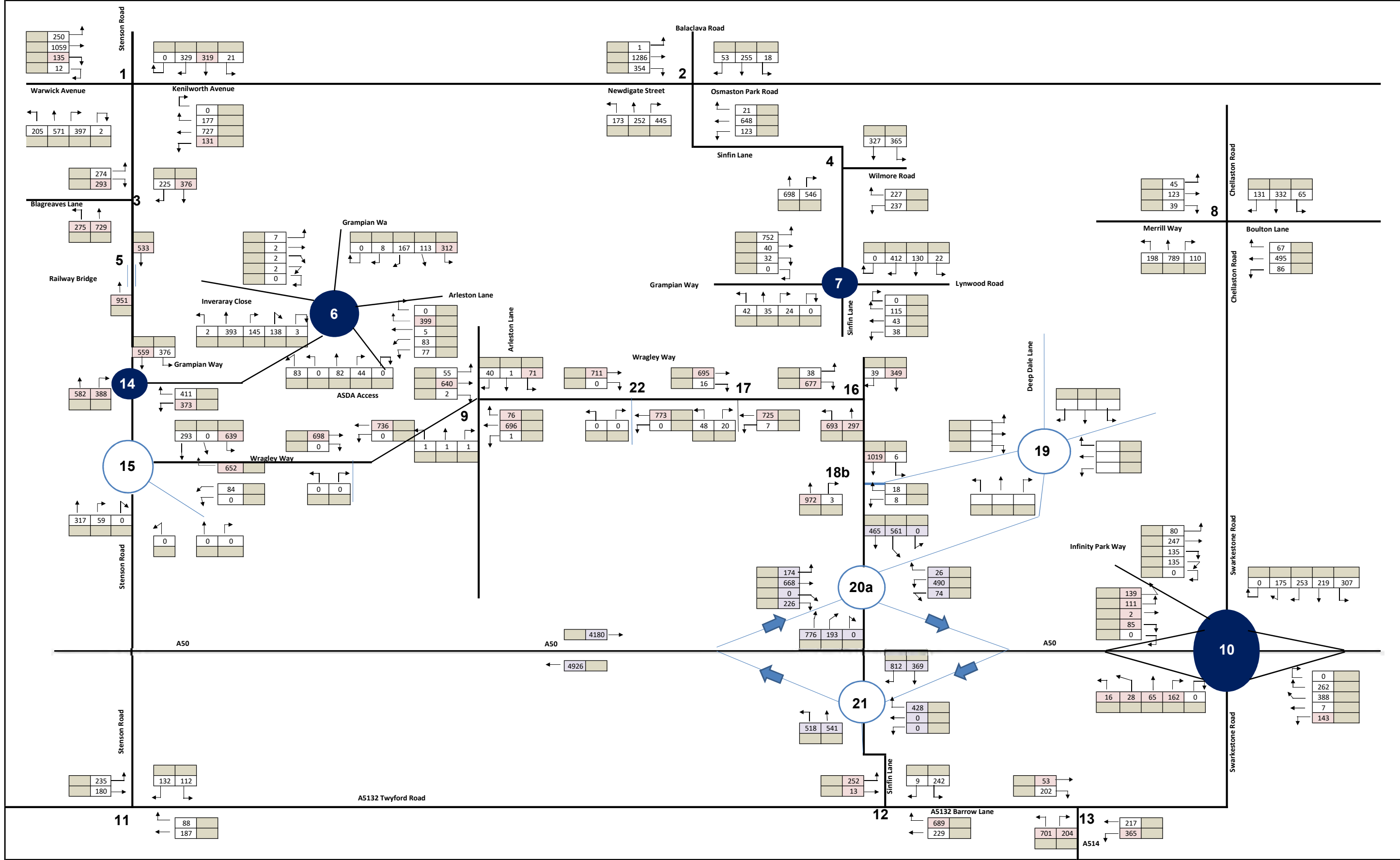
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 AM Peak- includes committed & proposed Infrastructure
No Development

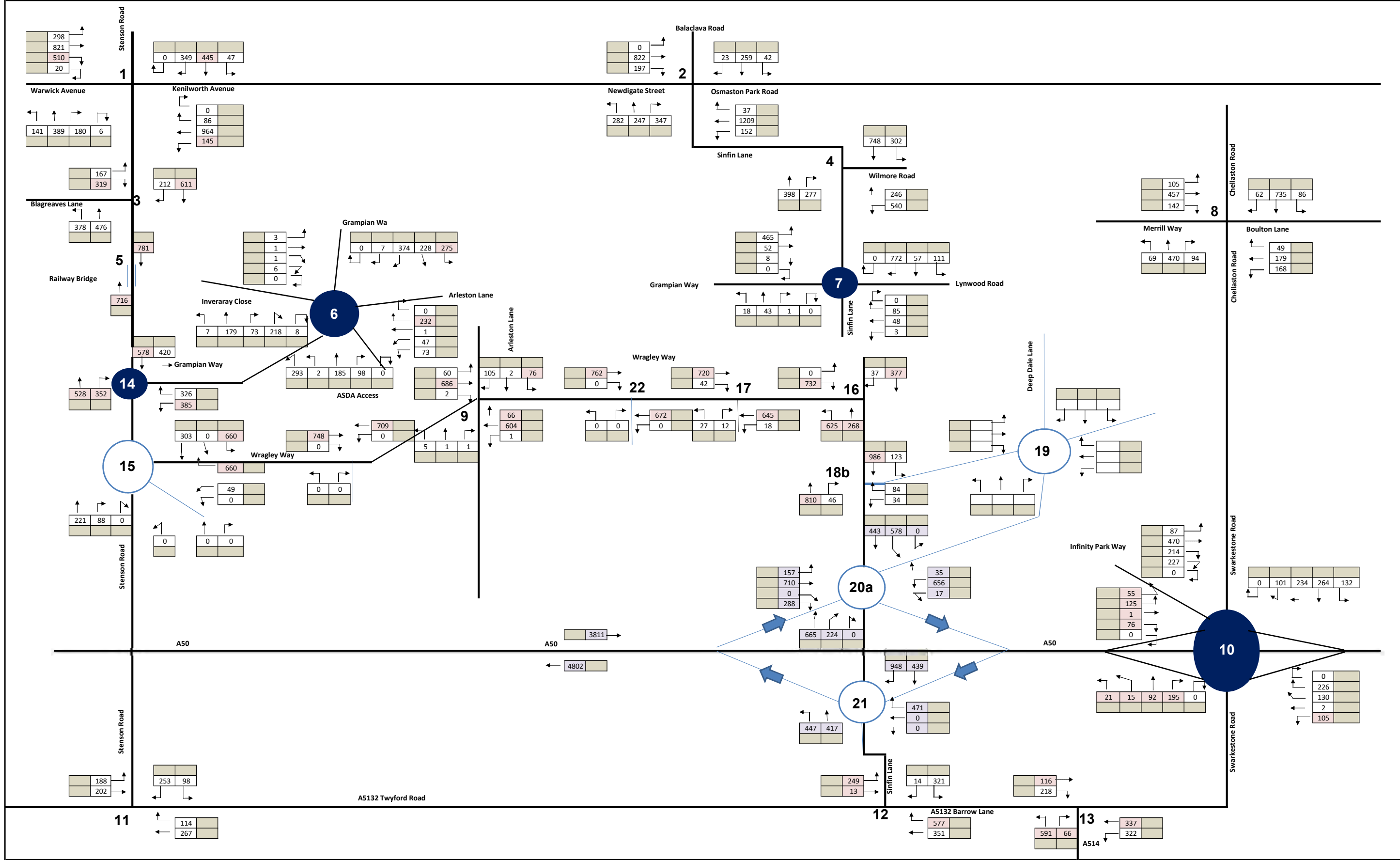


PCUs
HGV%

Based on SYSTRA 2020 Infrastructure Only Model
PCU's from BWB TA report for A50 junction (March 2019)
Re-calculated flows

Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 PM Peak- includes committed & proposed Infrastructure
No Development





PCUs
HGV%

Based on SYSTRA 2020 Infrastructure Only Model
PCUs from BWB TA report for A50 junction (March 2019)
Re-calculated flows
1.11 2020-2030 Growth

Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2030 PM Peak - (includes Committed) No Development A50 junction & infrastructure only

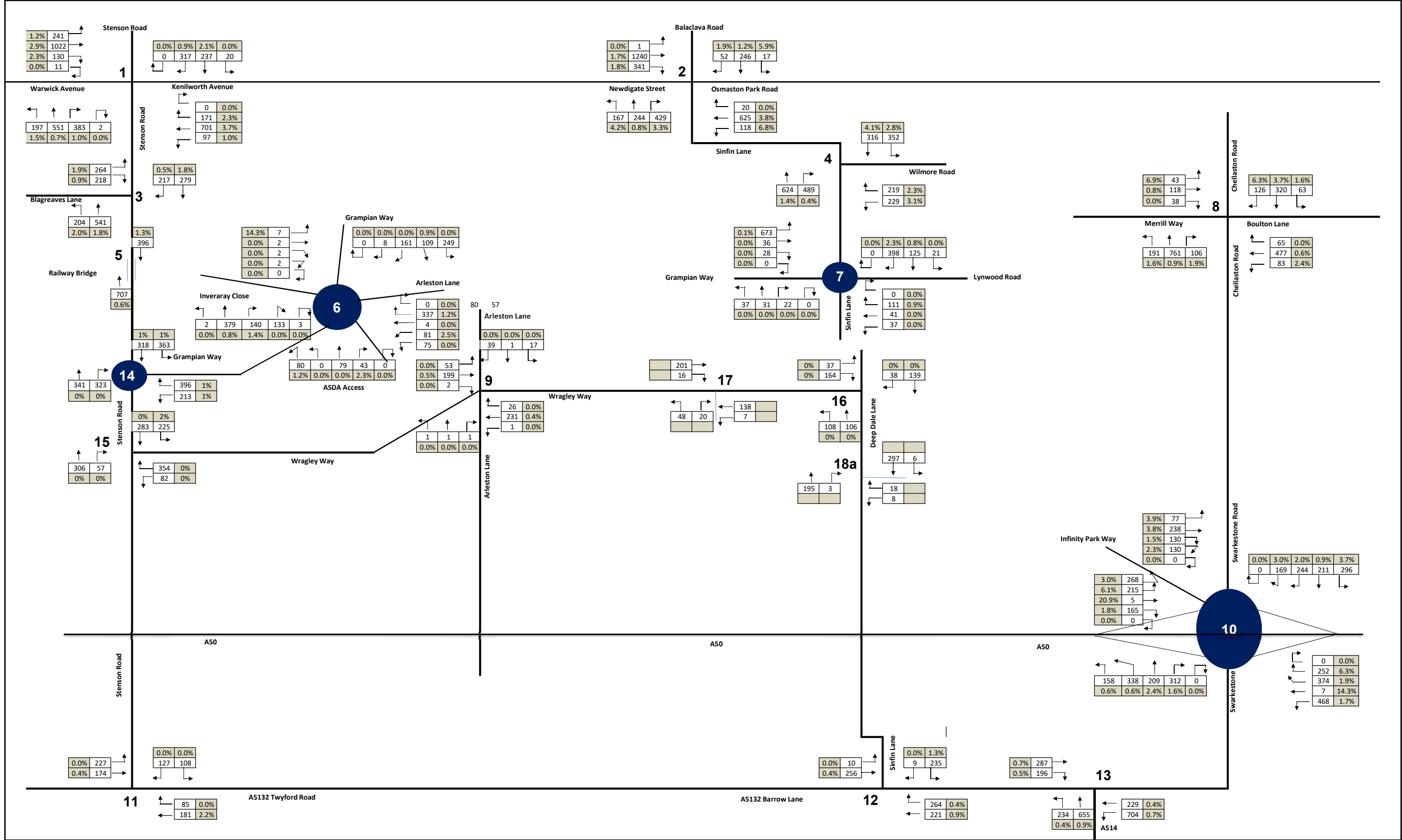
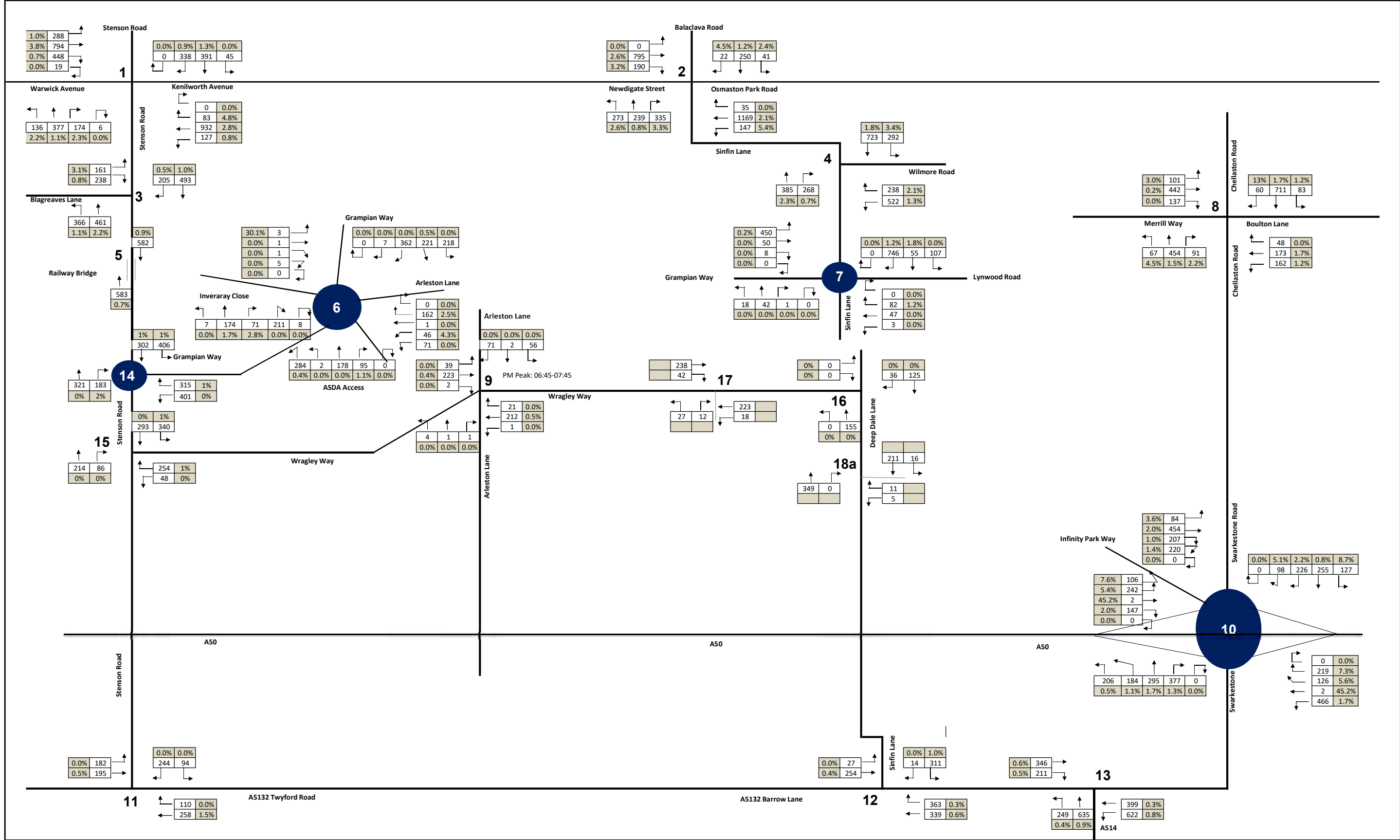
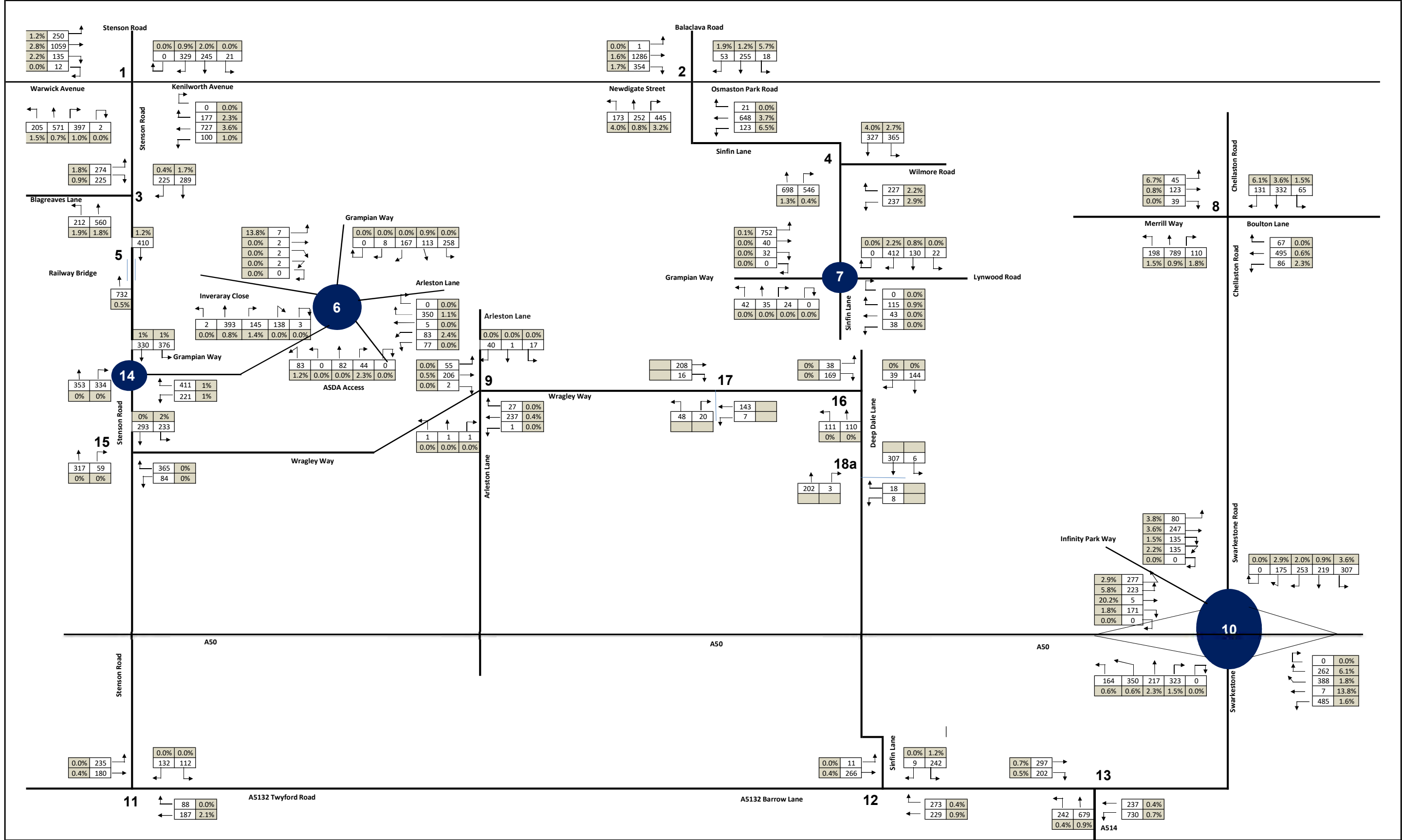
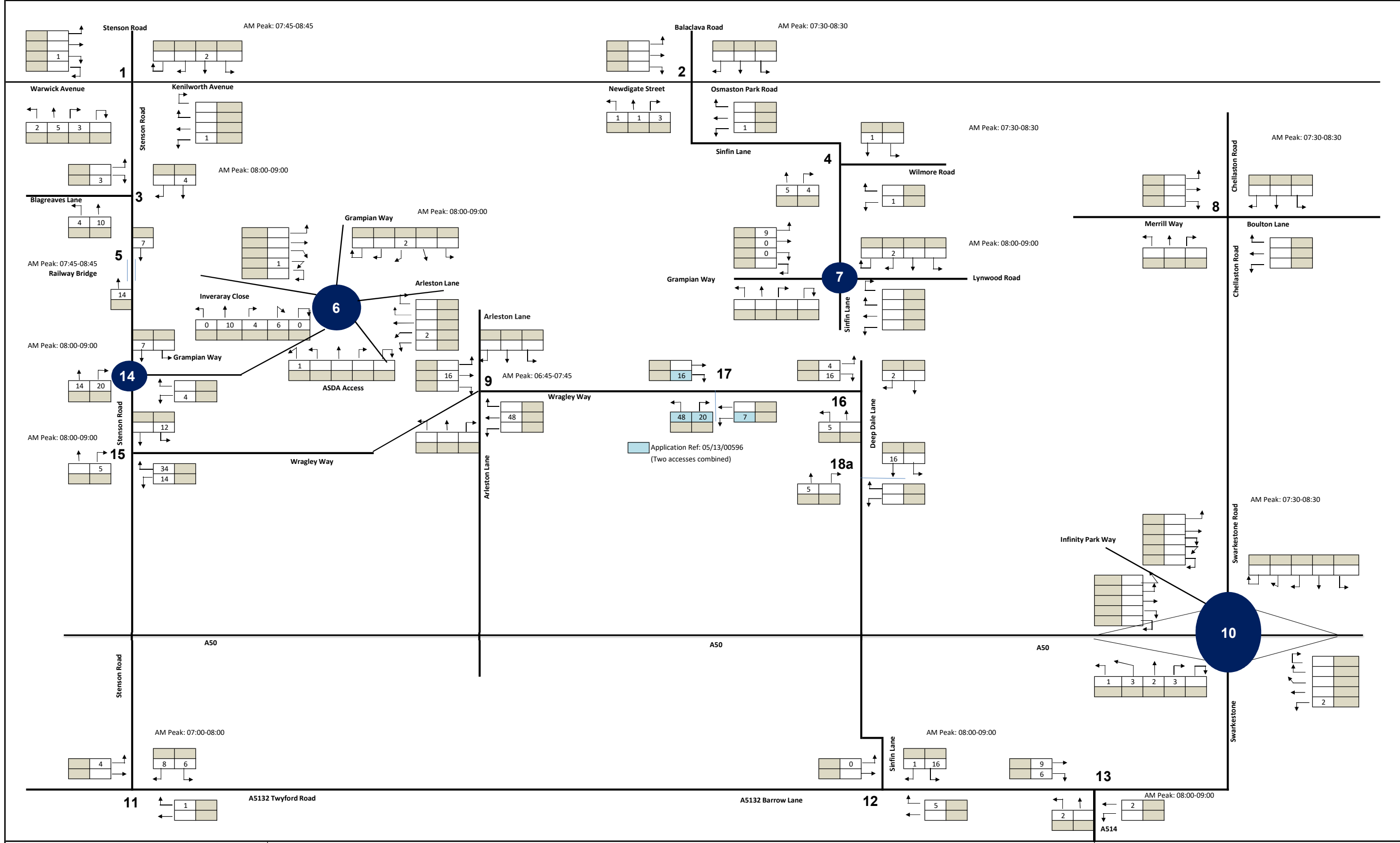
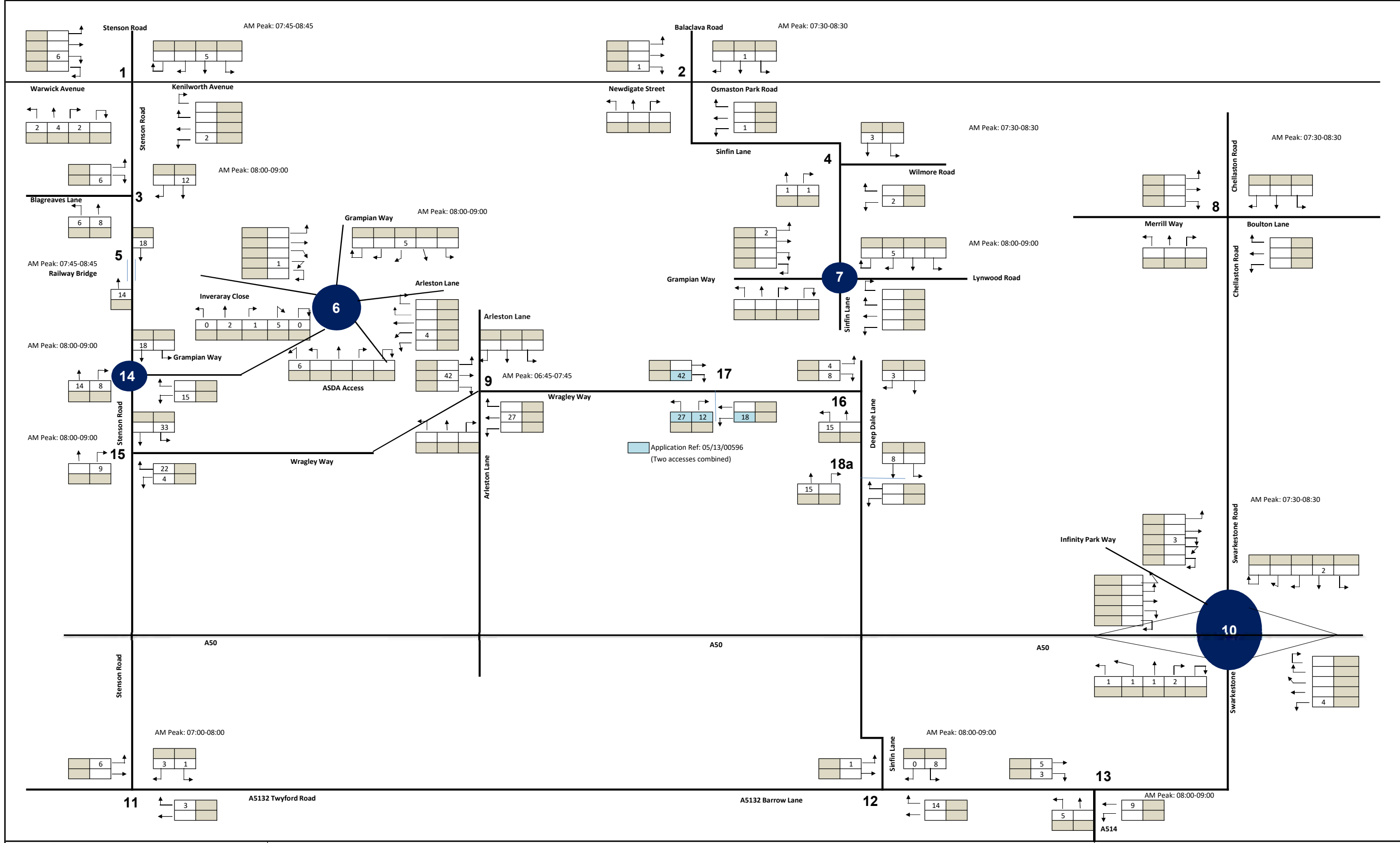


Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 AM Peak With Committed Dev









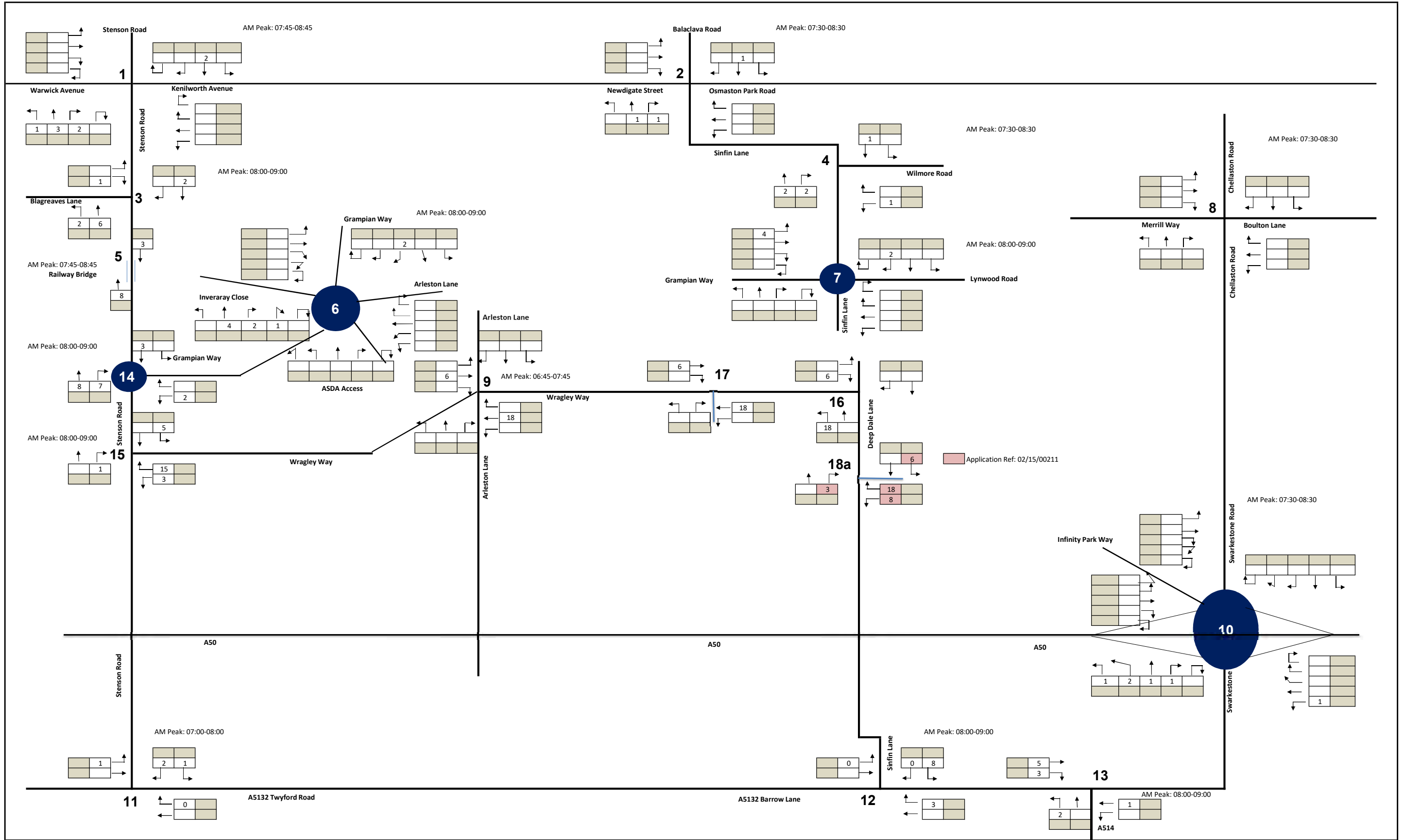
Application Ref: 05/13/00596
(Two accesses combined)

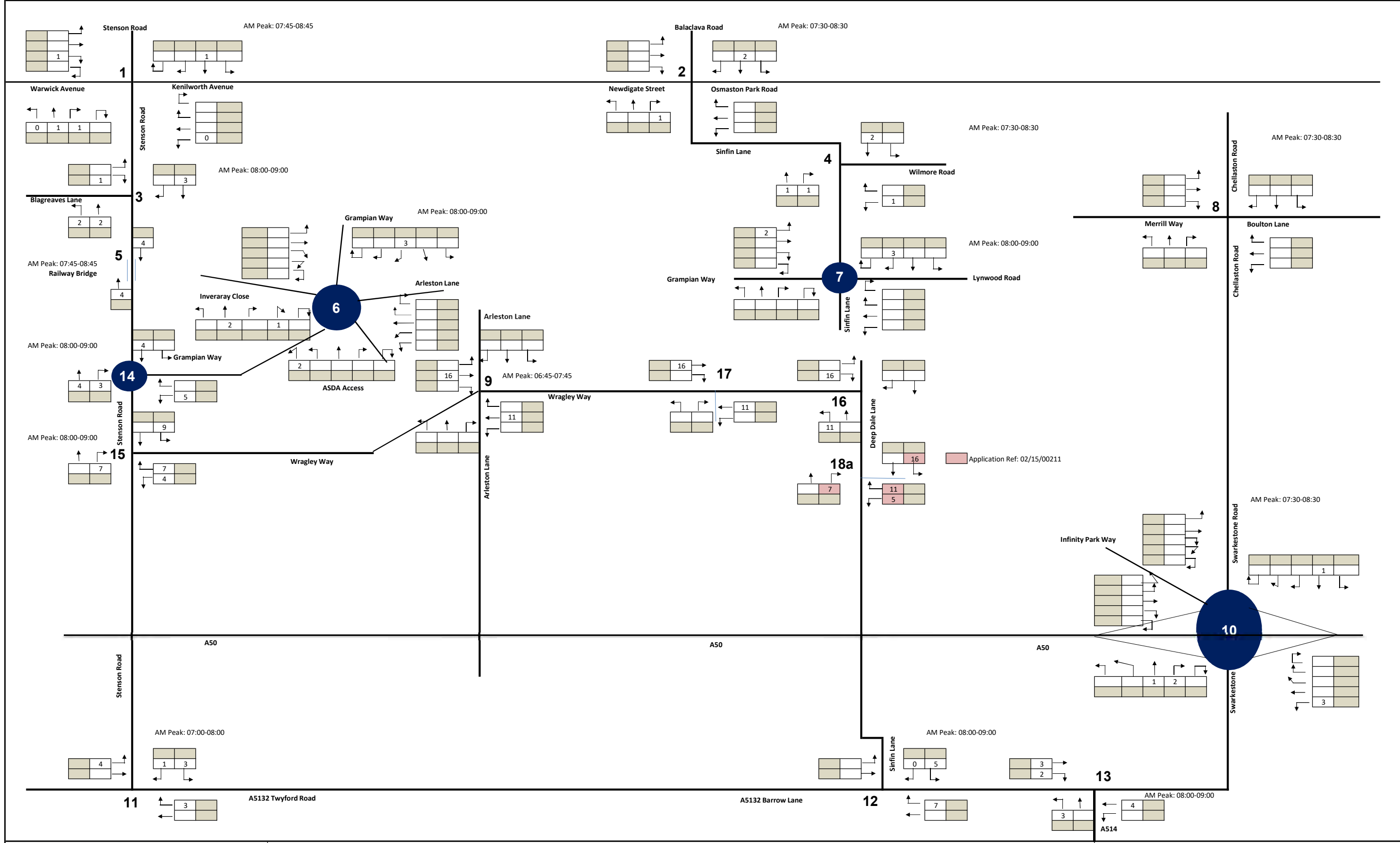


PCUs
HGV%

Traffic movements based on WSP Supplementary TA dated 13/11/2013

Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: Committed Dev Flows - PM Peak
Application Ref: 05/13/00596



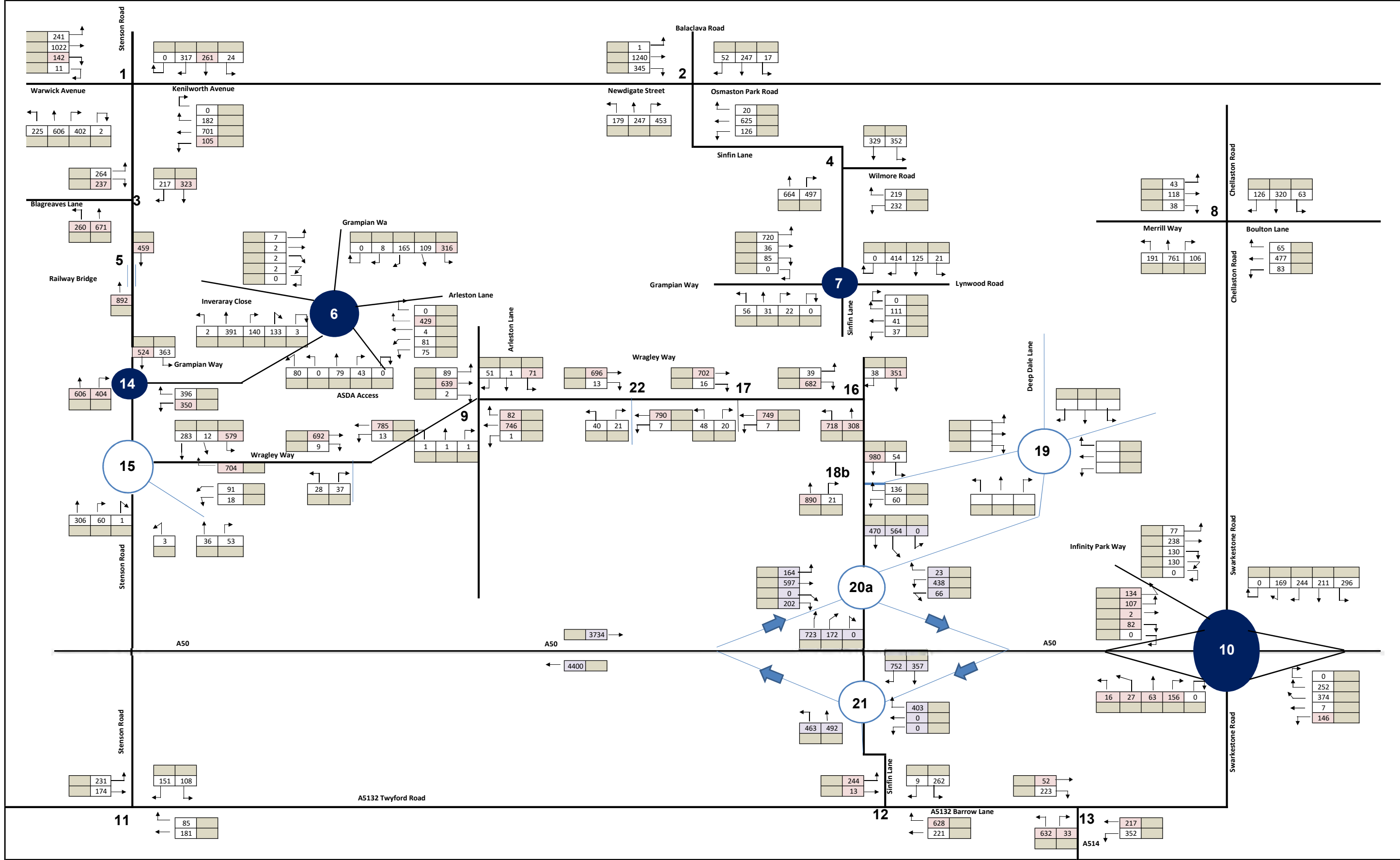


PCUs
HGV%

Traffic movements based on WSP TS dated 22/06/2015

Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: Committed Dev Flows - PM Peak
Application Ref: 02/15/00211

Appendix Q – Proposed Future Traffic Flows

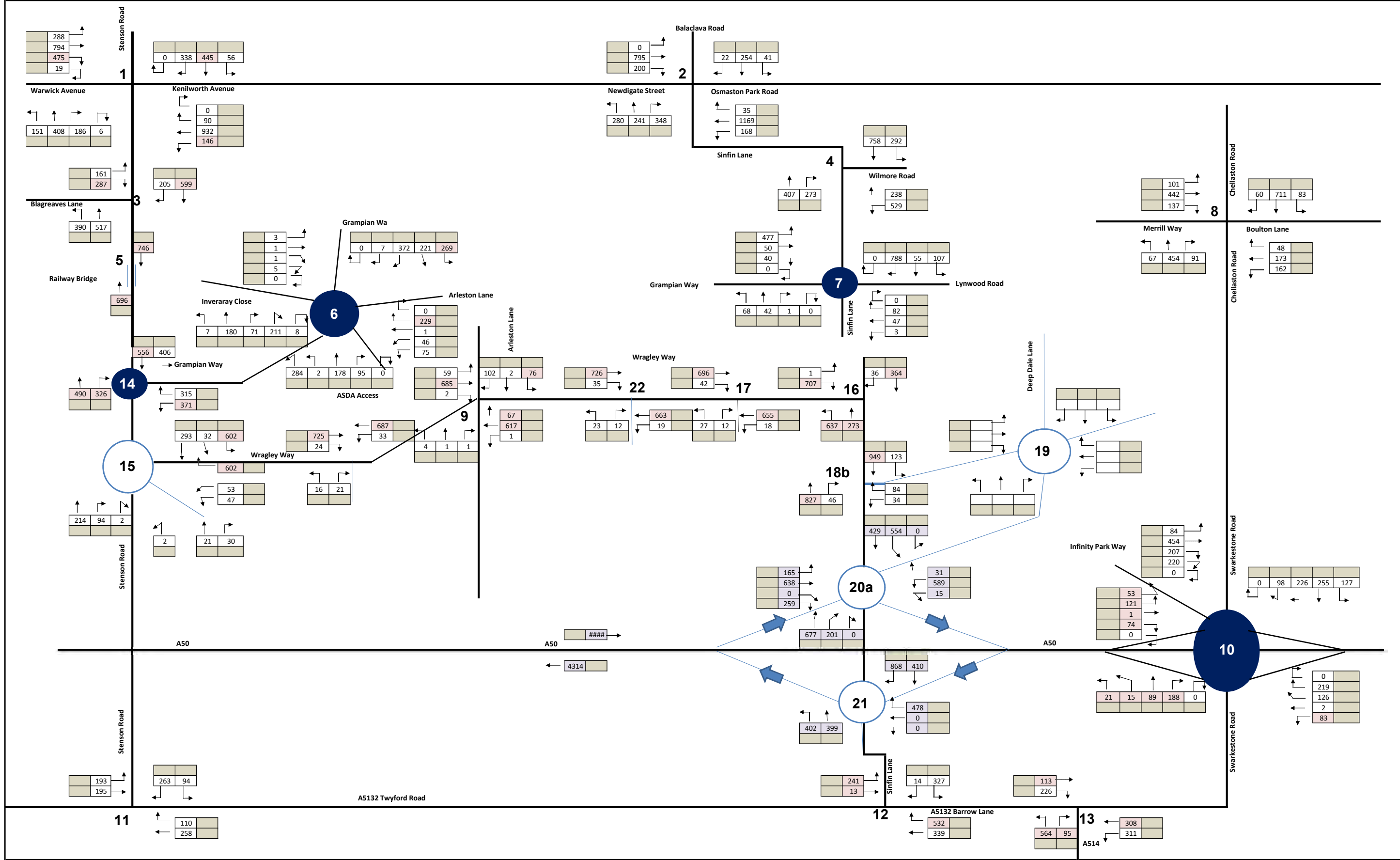


Based on SYSTRA 2020 Infrastructure Only Model

	PCUs
	HGV%
	PCU's from BWB TA report for A50 junction (March 2019)
	Re-calculated flows

Figure:

Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 AM Peak- includes committed & Phase 1& 2 Development
Includes A50 junction & Infrastructure



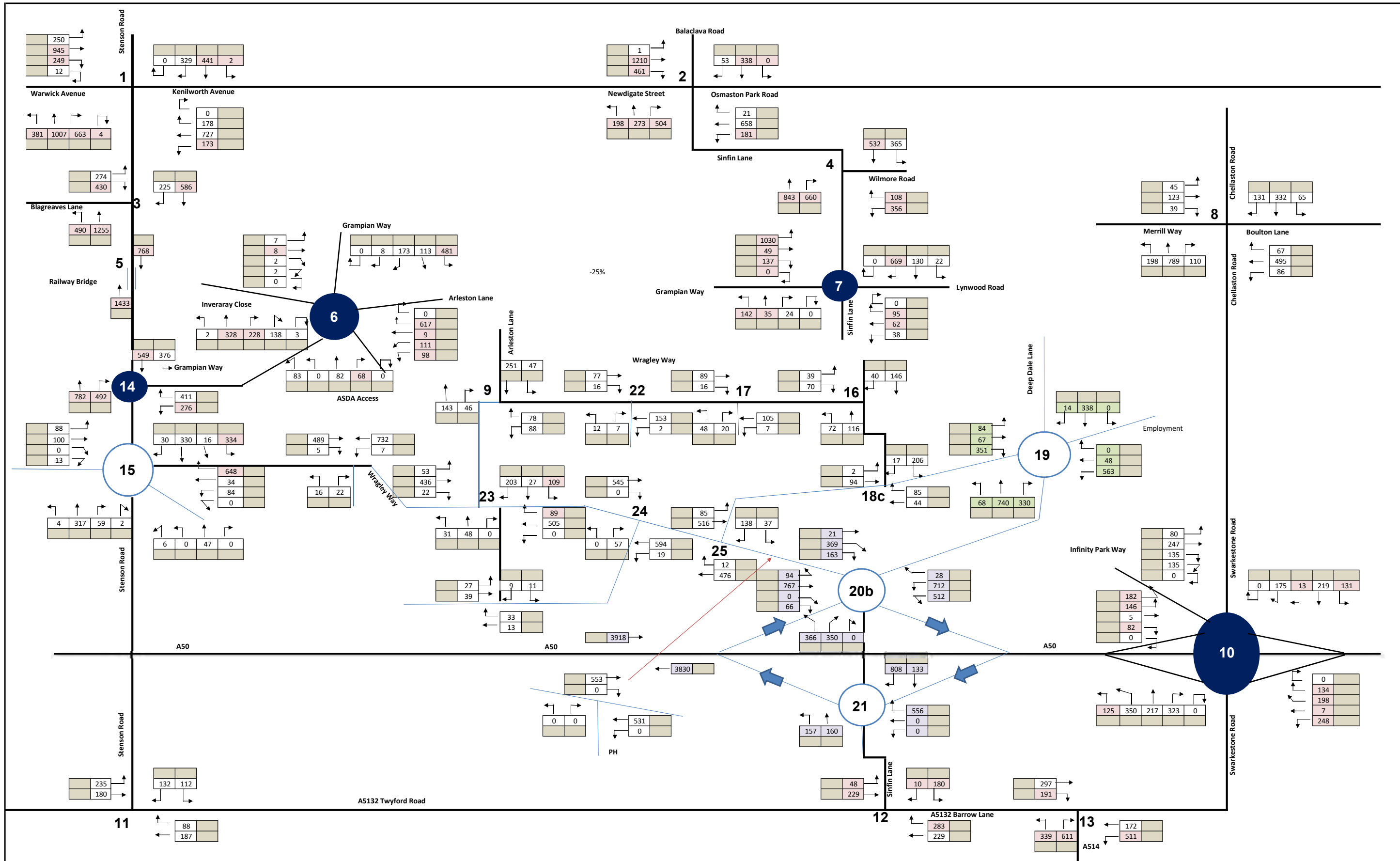
Based on SYSTRA 2020 Infrastructure Only Model

PCUs
HGV%

PCU's from BWB TA report for A50 junction (March 2019)
Re-calculated flows

Figure:

Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 PM Peak - includes committed & Phase 1& 2 Development
Includes A50 junction & Infrastructure



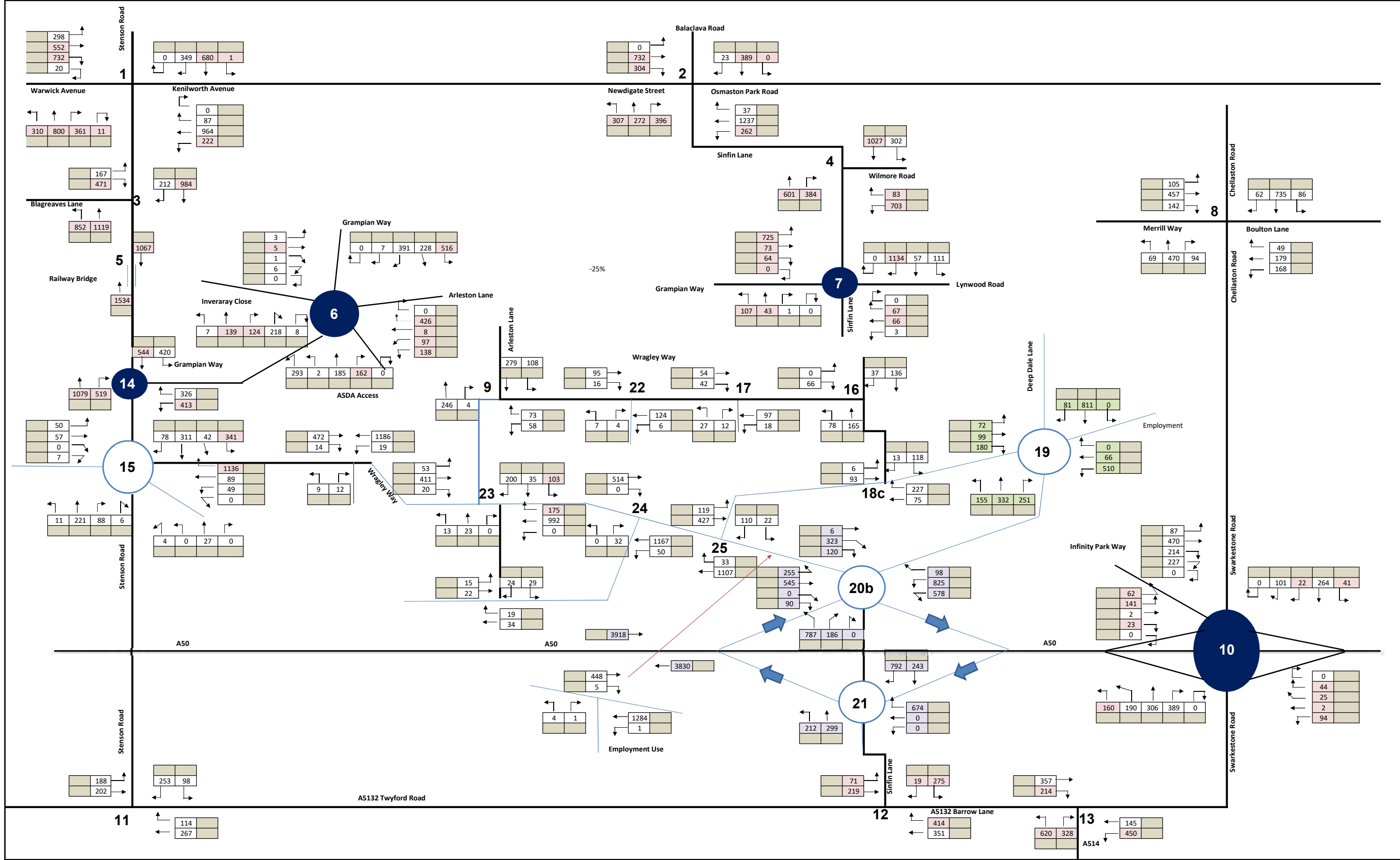
Full Development & Includes Committed inc all allocated sites

PCUs
HGV%

PCUs from BWB TA report for A50 junction (March 2019)
Re-calculated flows
Proportions based on BWB A50 TA. Exact flows not used as they are significantly different to the A50 junction flows.

Figure:

Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2030 AM Peak- includes committed, Full Development & All Allocations. Includes A50 Junction & Infrastructure



Full Development & Includes Committed inc all allocated sites

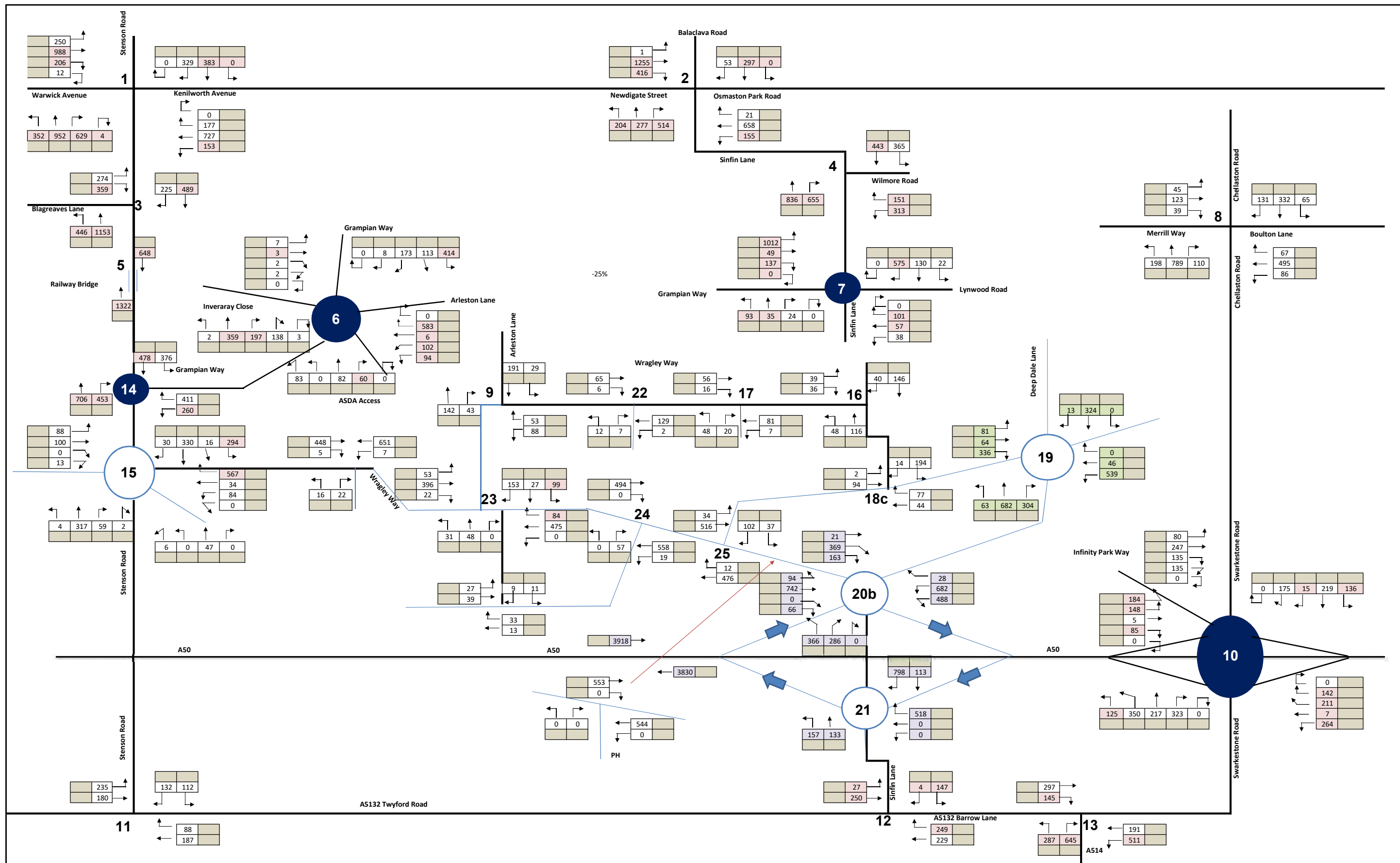
 PCUs	 PCU's from BWB TA report for A50 junction (March 2019)
 HGV%	 Re-calculated flows
	 Proportions based on BWB A50 TA. Extact flows not used as they are significantly different to the A50 junction flows.

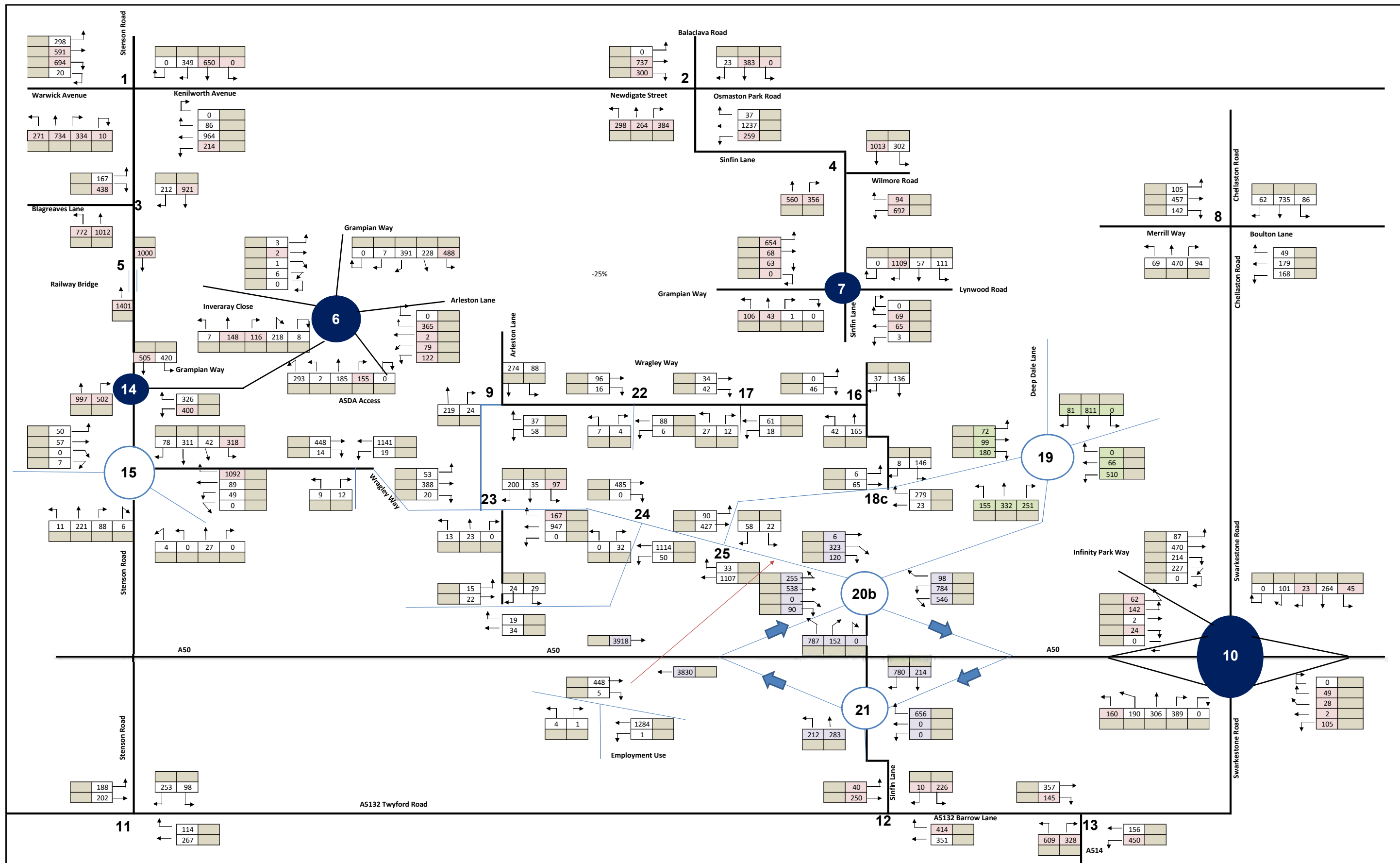
Figure:

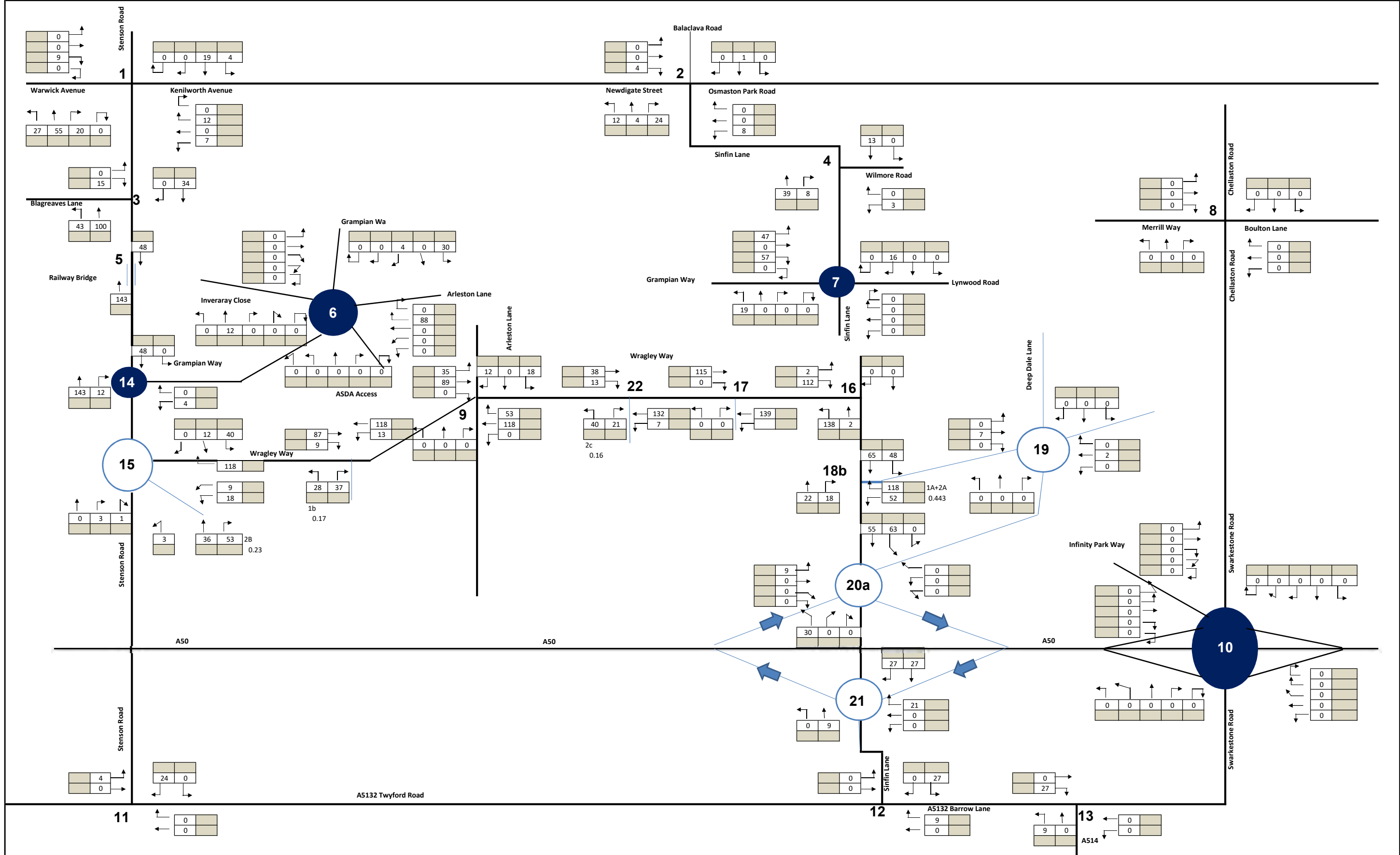
Client: Hallam Land Management

Project: Wragley Way, Derby

Title: 2030 PM Peak- includes committed, Full Development & All Allocations. Includes A50 Junction & Infrastructure





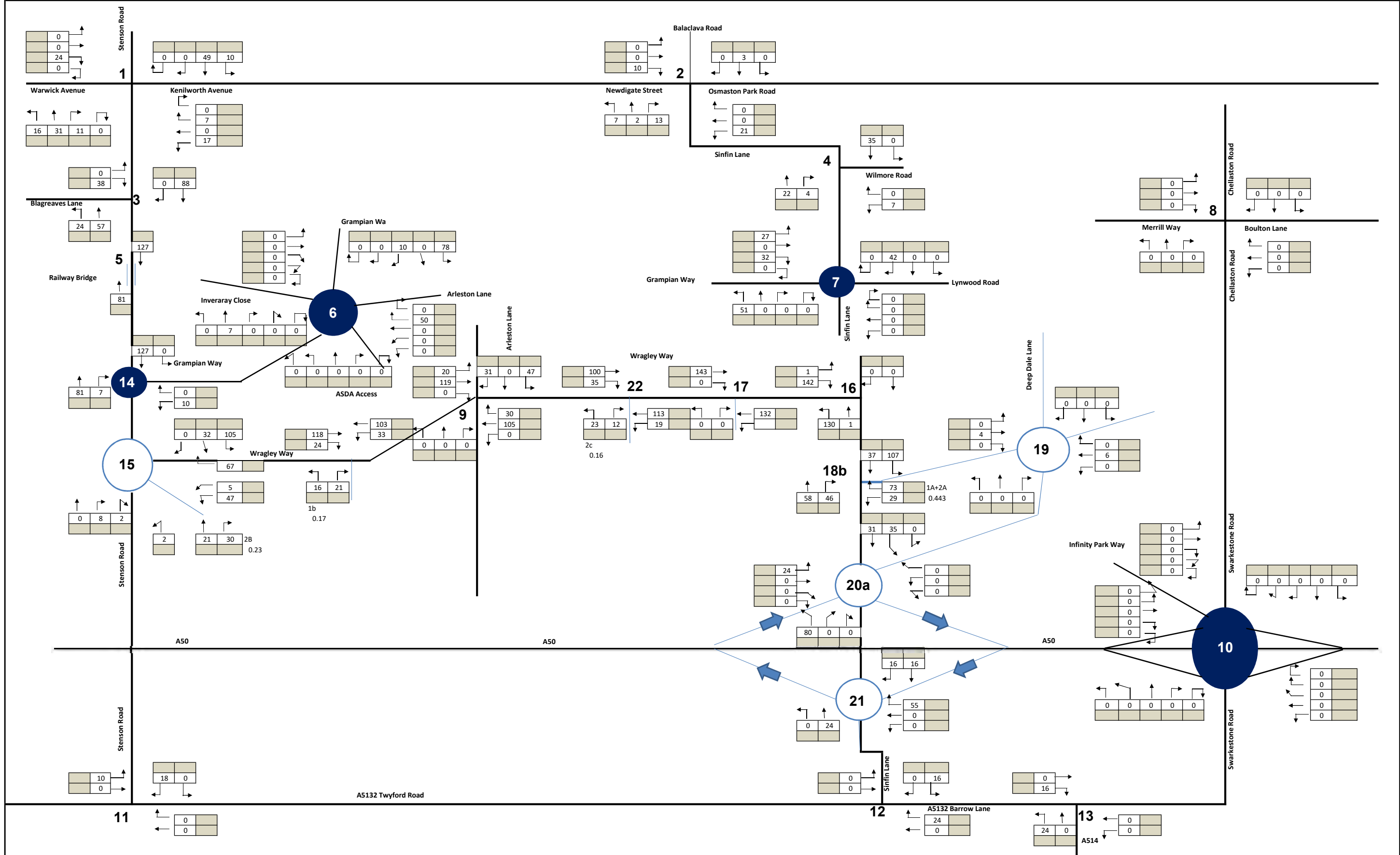


Phase 1 & 2		
Phase 1A	150	20%
Phase 1B	124	17%
Phase 2A	182	24%
Phase 2B	176	23%
Phase 2C	117	16%
	749	

PCUs

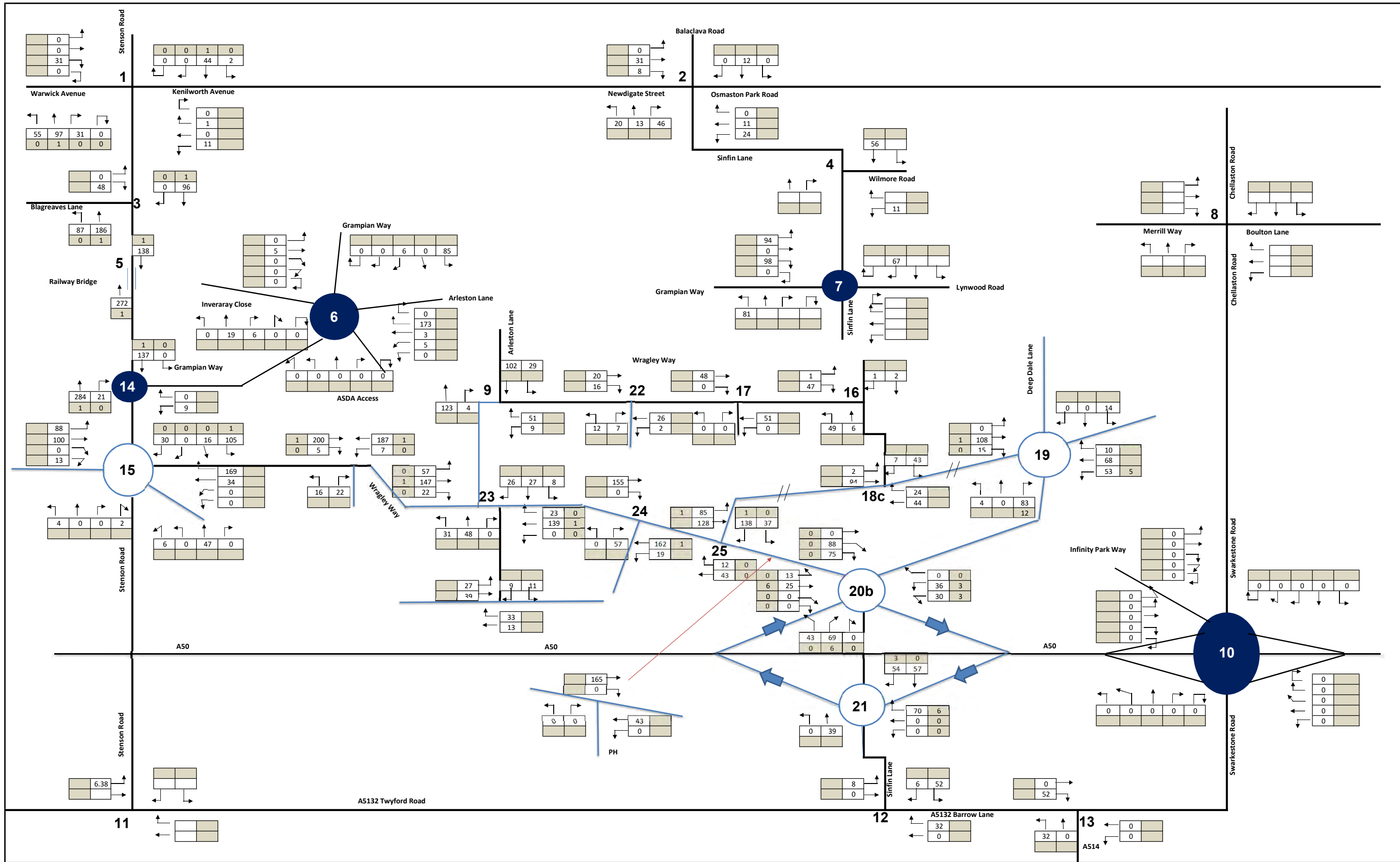
HGV%

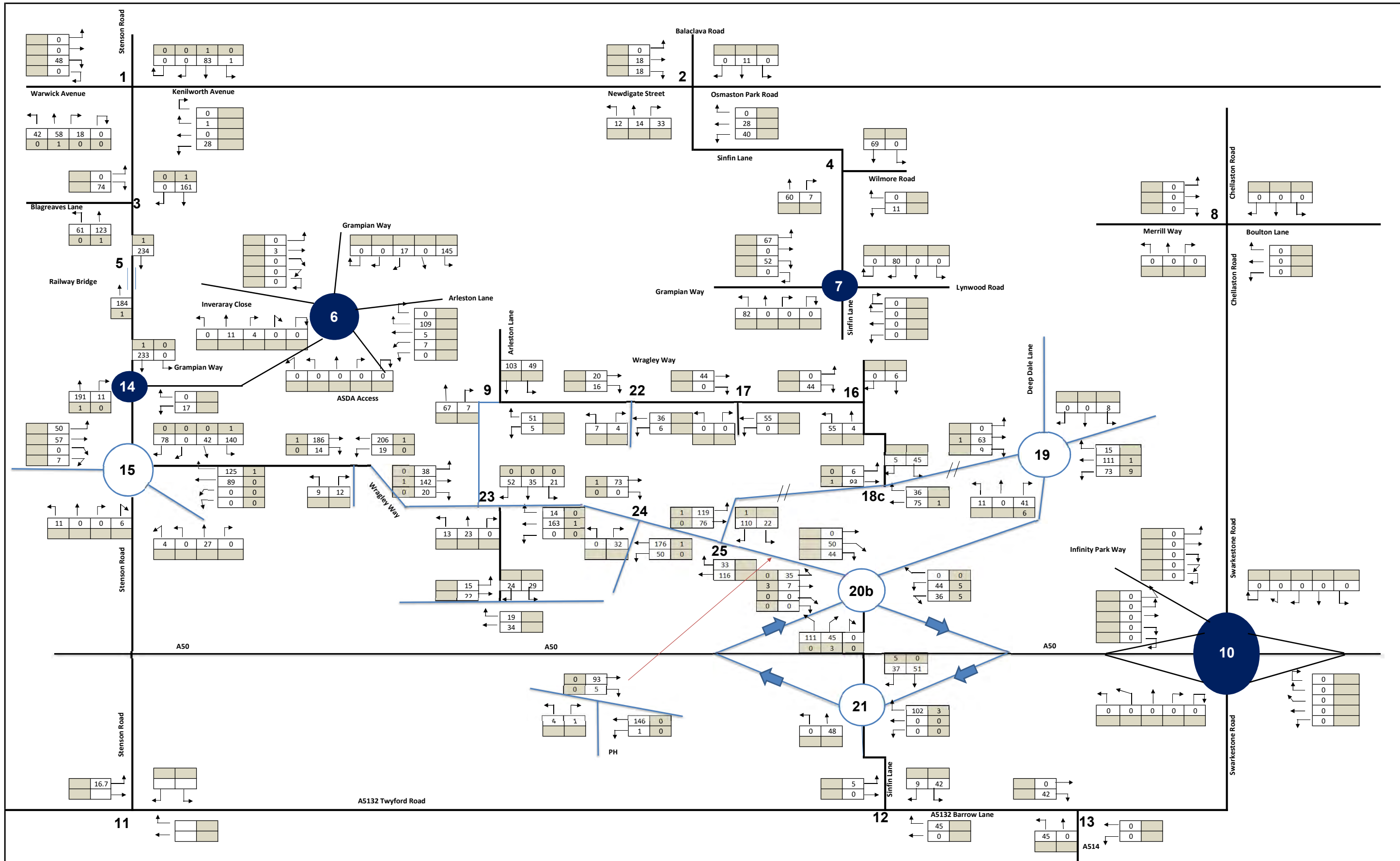
Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 AM Peak - Initial Phases of Development - Phases 1 & 2
Total Proposed Development Flows

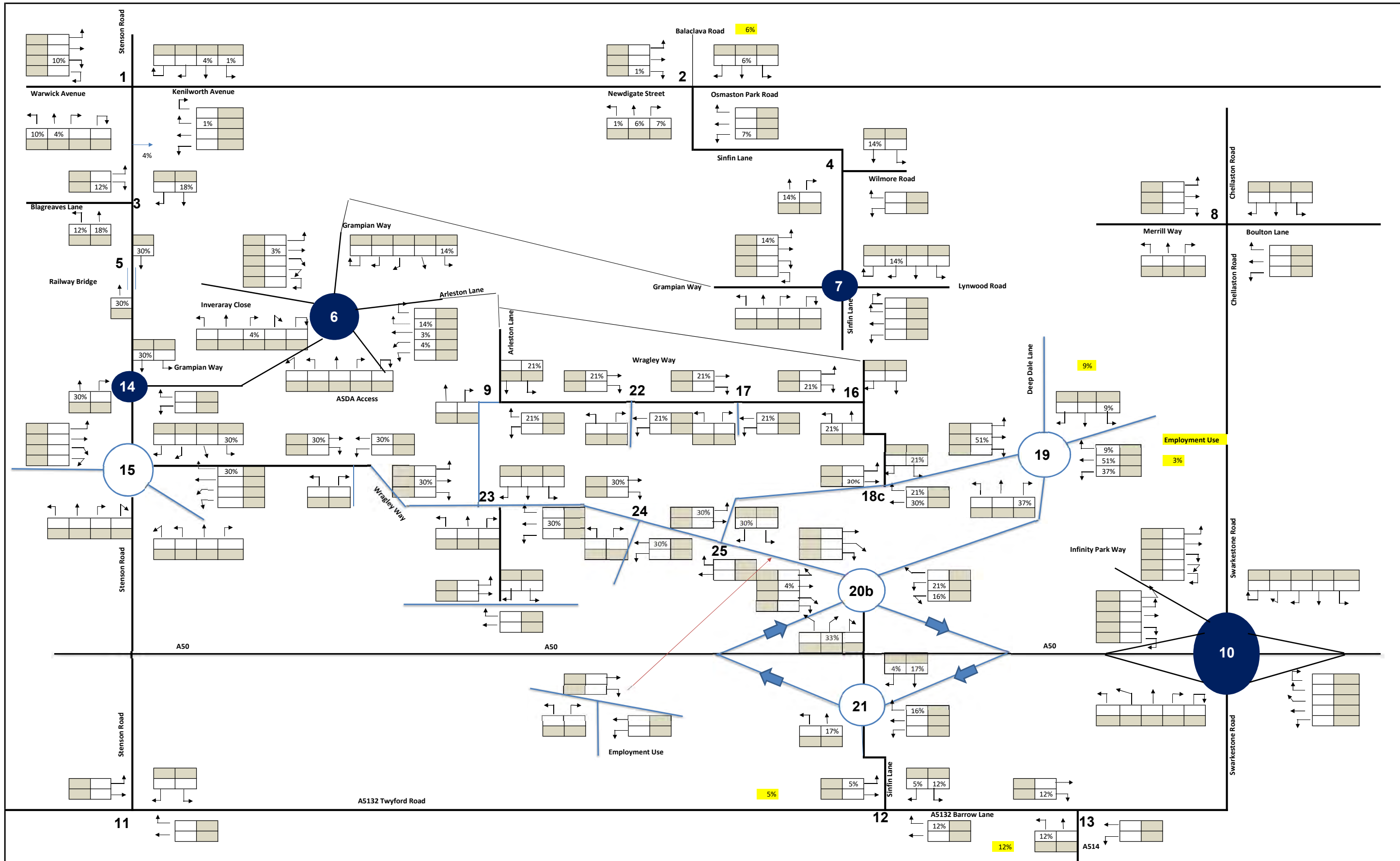


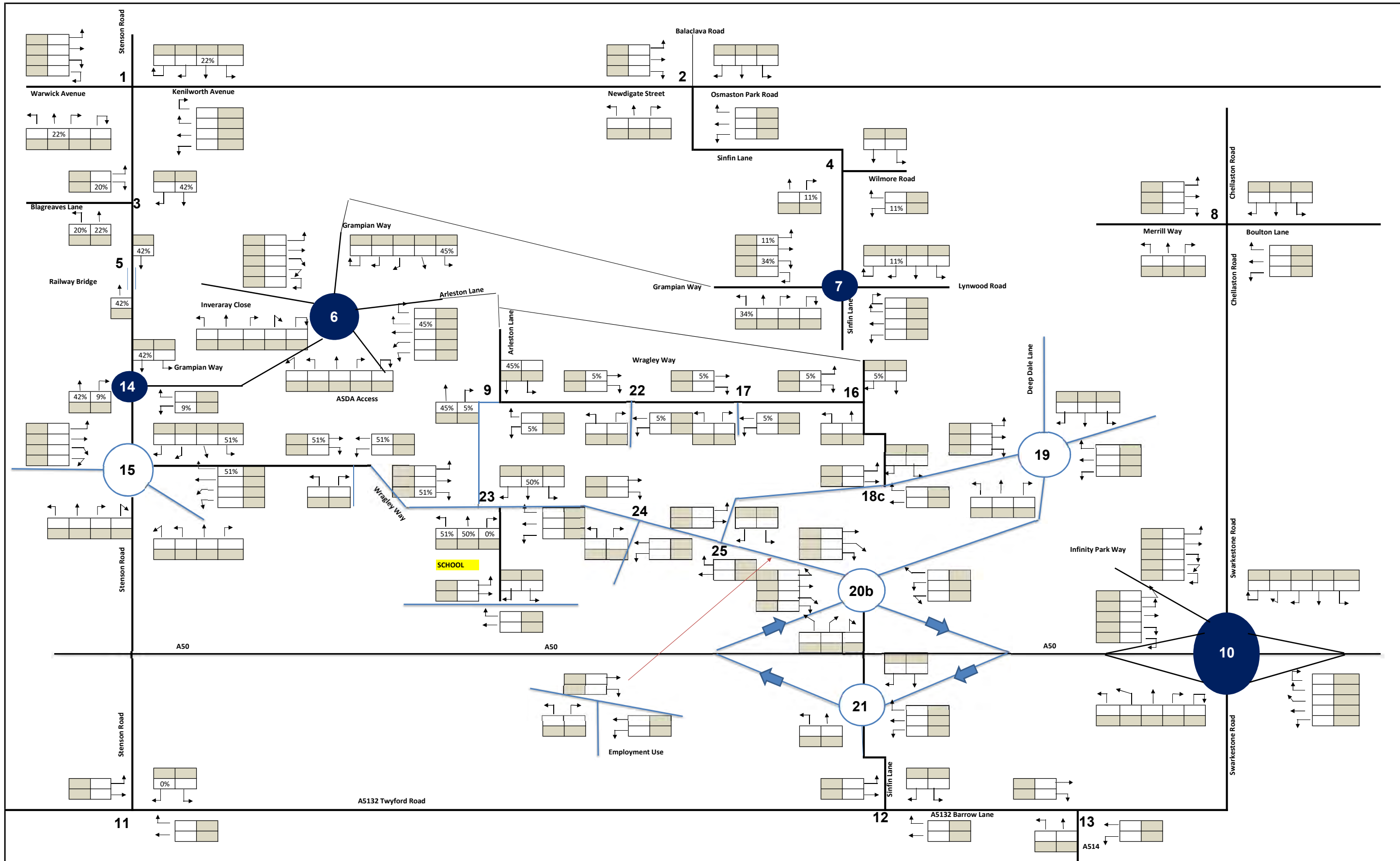
Phase 1 & 2		
Phase 1A	150	20%
Phase 1B	124	17%
Phase 2A	182	24%
Phase 2B	176	23%
Phase 2C	117	16%
	749	

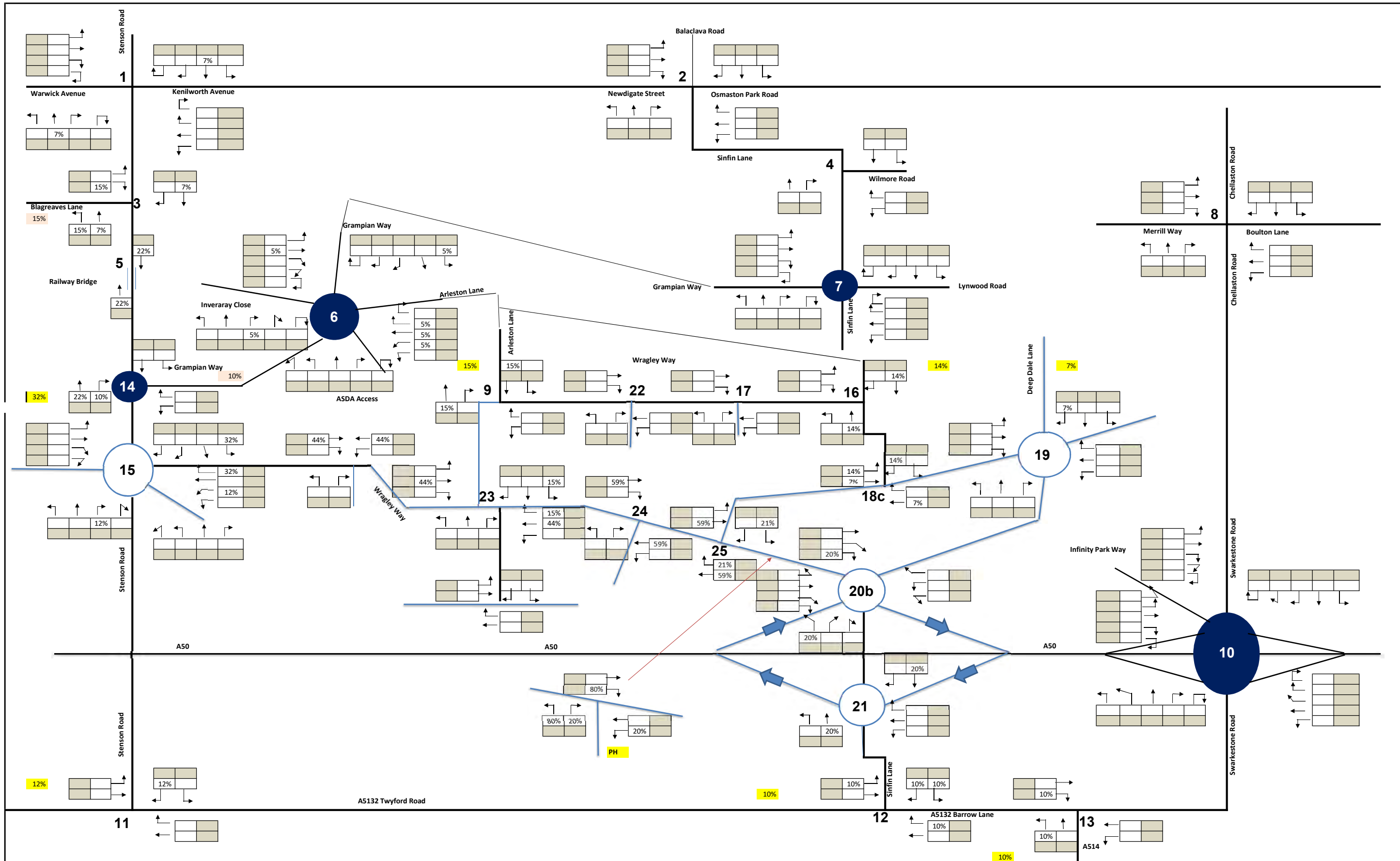
Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 PM Peak - Initial Phases of Development - Phases 1 & 2
Total Proposed Development Flows

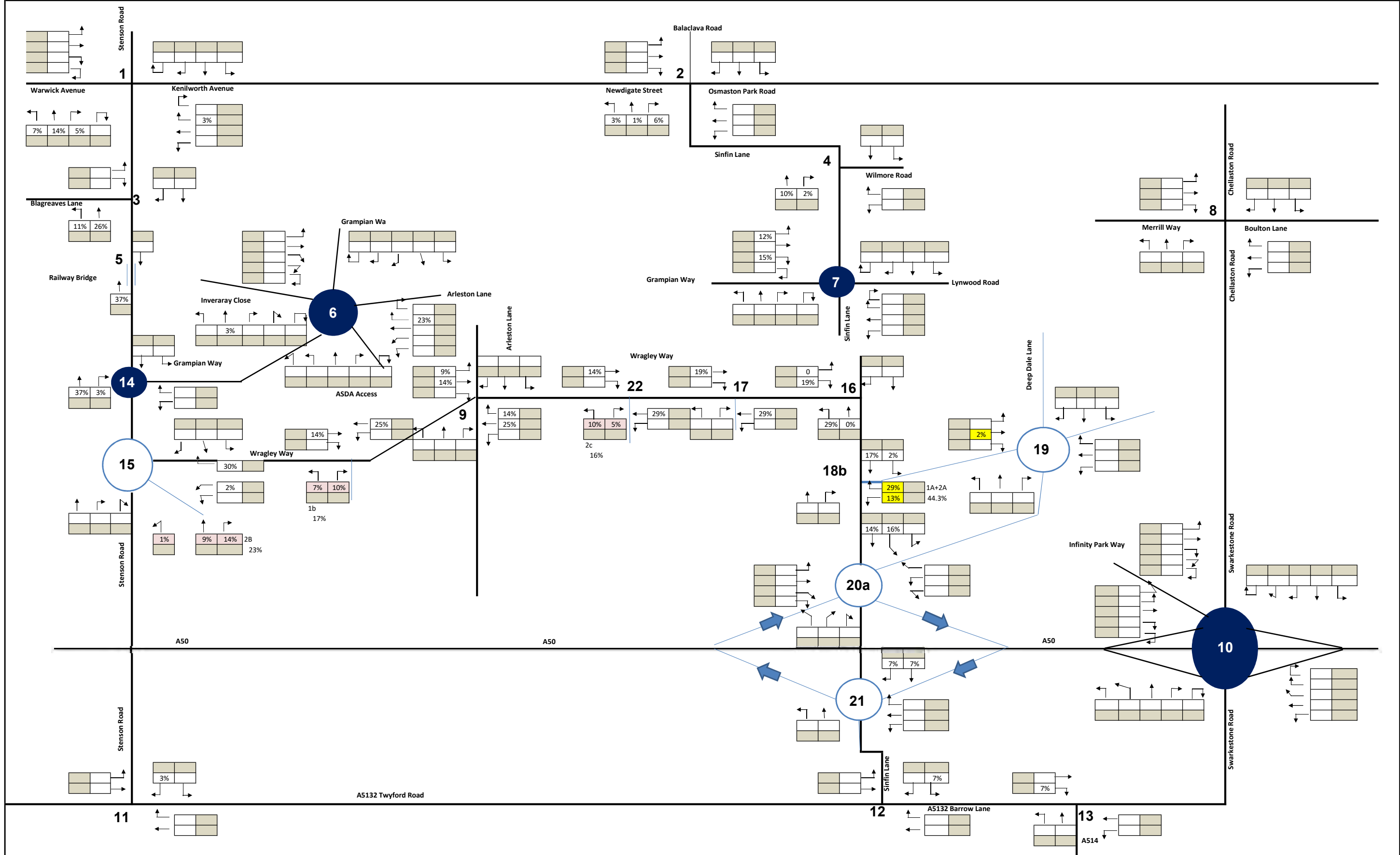






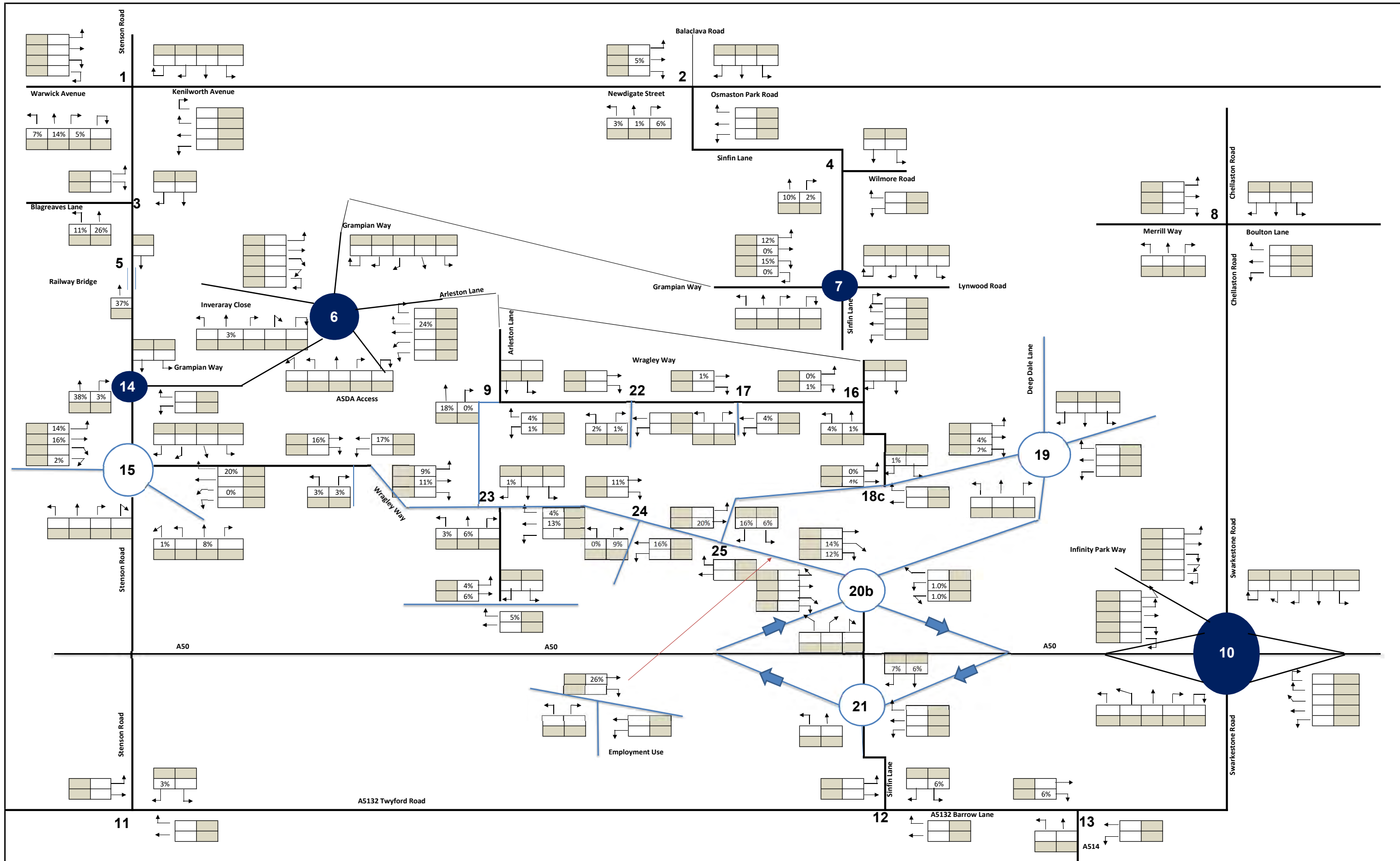


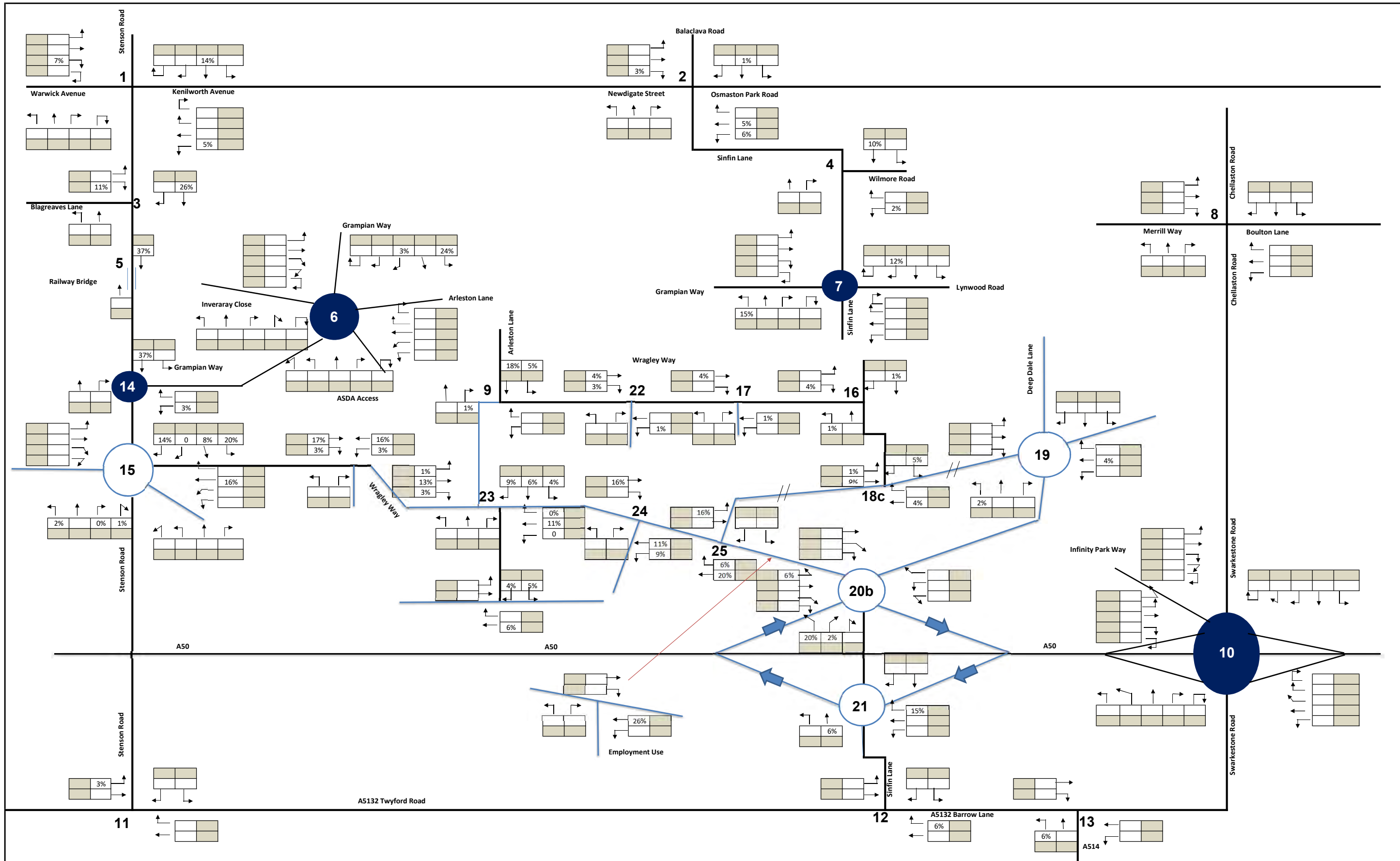




Phase 1 & 2		
Phase 1A	150	20%
Phase 1B	124	17%
Phase 2A	182	24%
Phase 2B	176	23%
Phase 2C	117	16%
	749	

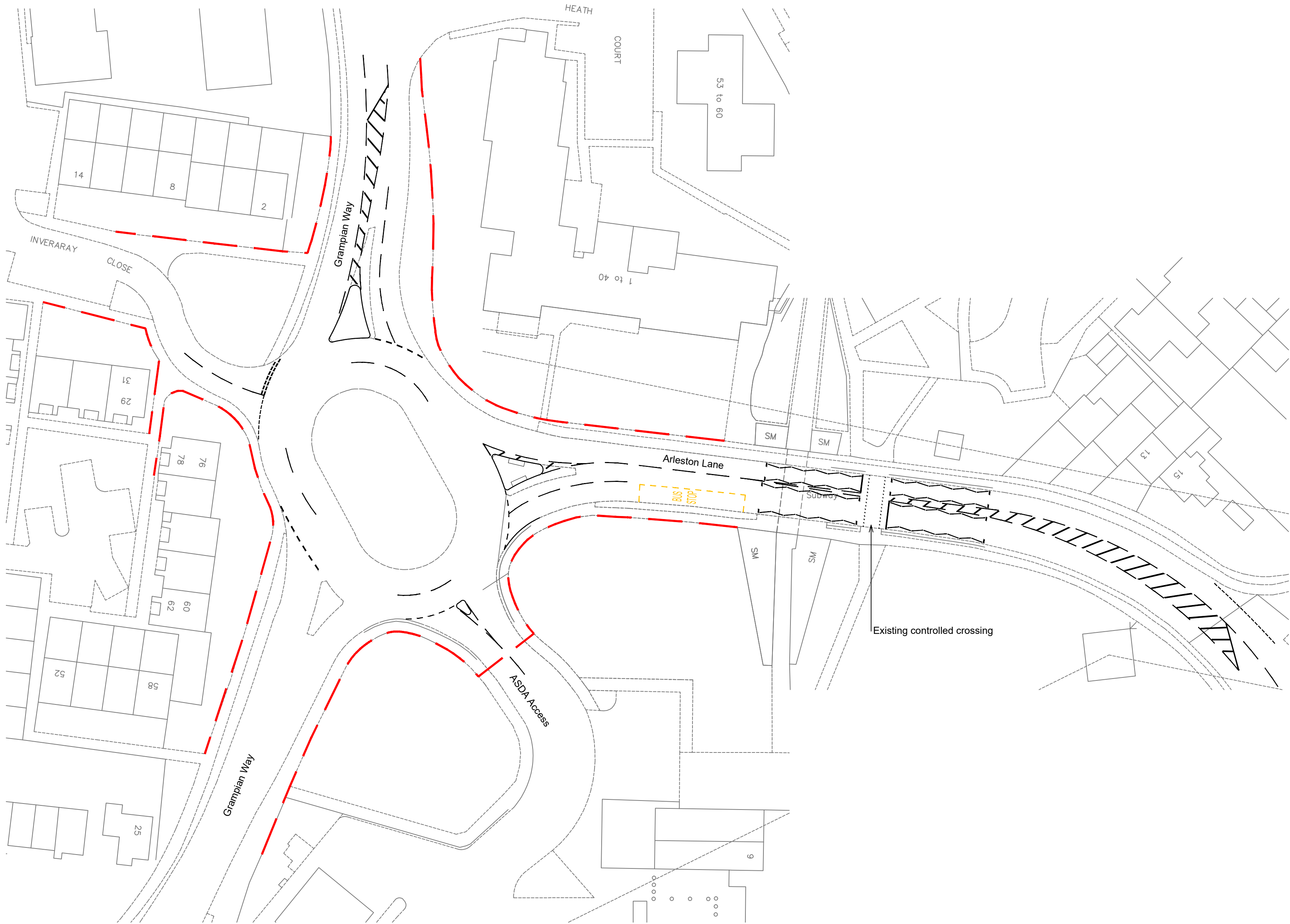
Figure:
Client: Hallam Land Management
Project: Wragley Way, Derby
Title: 2025 Proposed Distribution (Residential Departures)





Appendix R – Capacity Analysis Outputs

Appendix S – Proposed Off Site Mitigation



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KEY

Extent of Highway Boundary

Rev	Description	By	CB	Date
A	Further proposals along Arlestone Lane	AJ	MA	28.5.19



MAKING
COMPLEX
EASY

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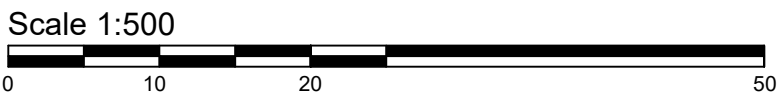
Client Hallam land Management

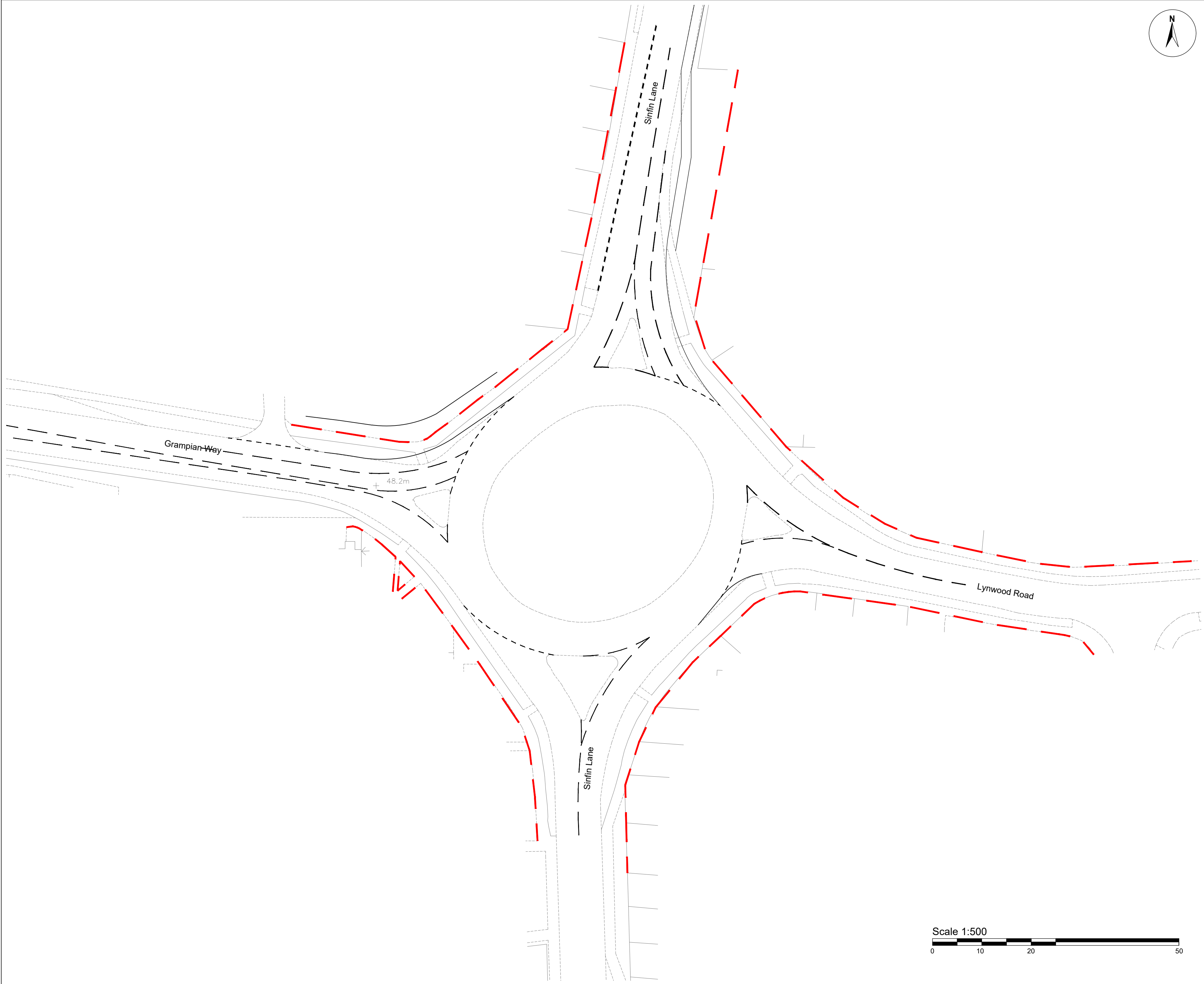
Project Wragley Way, Derby

Title Proposed Highway Improvements
Junction 6

Status PRELIMINARY	Drawn By HN	PM/Checked by MA
Project Number JNY9033	Scale @ A2 1:500	Date Created May 2019
RPS Drawing/Figure Number JNY9033-14	Rev A	

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KEY

--- --- Extent of Highway Boundary

Rev	Description	By	CB	Date
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Client Hallam land Management

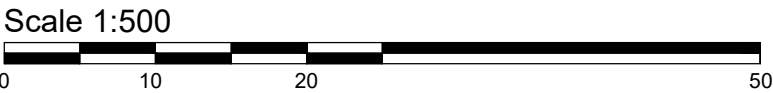
Project Wragley Way, Derby

Title Proposed Highway Improvements
Junction 7

Status	Drawn By	PM/Checked by
PRELIMINARY	HN	MA
Project Number	Scale @ A2	Date Created
JNY9033	1:500	May 2019

RPS Drawing/Figure Number	Rev
JNY9033-15	

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Rev	Description	By	CB	Date
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Client Hallam land Management

Project Wragley Way, Derby

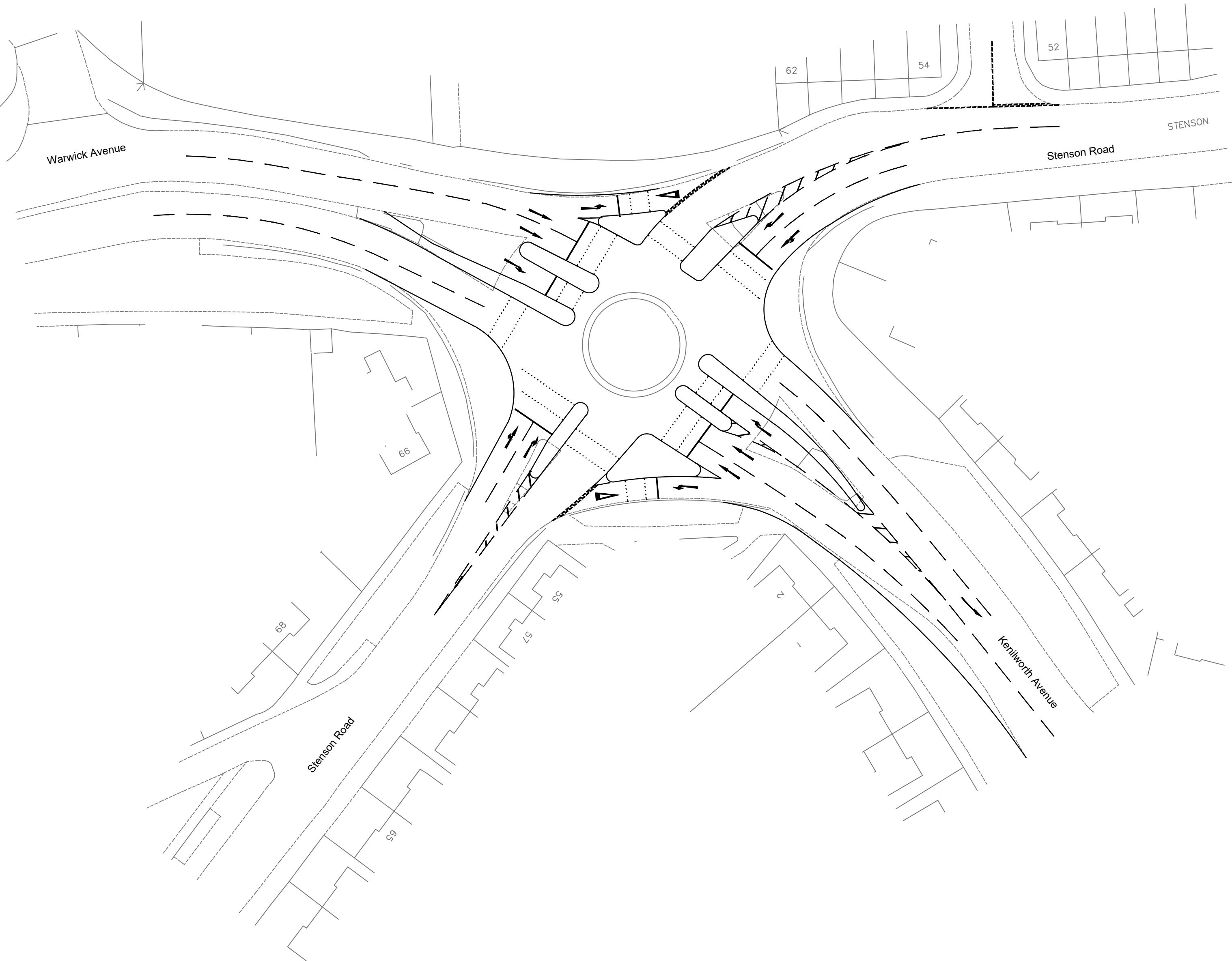
Title Proposed Highway Improvements
Junction 14

Status	Drawn By	PM/Checked by
PRELIMINARY	HN	MA
Project Number	Scale @ A2	Date Created
JNY9033	1:500	May 2019

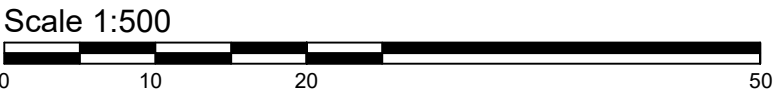
RPS Drawing/Figure Number	Rev
JNY9033-16	

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Rev	Description	By	CB	Date
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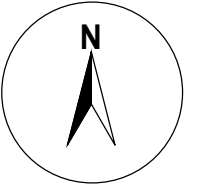
Client Hallam land Management

Project Wragley Way, Derby

Title Stenson Road/Warwick Avenue
Proposed Junction Improvements
(Junction Ref 1)

Status	Drawn By	PM/Checked by
PRELIMINARY	HN	MA
Project Number	Scale @ A2	Date Created
JNY9033	1:500	May 2019
RPS Drawing/Figure Number	Rev	
JNY9033-30		

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C	Internal road alignment amended	MA	MA	15/05/19
B	Stenson Road junction & internal junctions adjusted	AJ	MA	10/05/19
A	Latest Layout addset (RPS-BVIG-HGN-XC-A0-D-102, Cheltenham Road Layout 2D Model) proposals adjusted to match	AJ	MA	10/04/19
Rev	Description	By	CB	Date



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Client **Hallam Land Management**

Project **Wragley Way, Derby**

Title **Proposed Road Layout Overview**

Status **INFORMATION** Drawn By **AJ** PM/Checked by **APPROVED**

Project Number **JNY9033** Scale @ A0 **1:2500** Date Created **25.07.17**

RPS Drawing/Figure Number **ES FIG D1 (JNY9033-04)** Rev **C**

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Drawing Ref: P1JNY9033 - Wragley Way, DerbyHighways/Drawings/JNY9033-04C.dwg

