Representations to the South Kesteven Local Plan Review (Draft Plan – Regulation 18)

On behalf of Harworth Group Plc.

Marrons

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1. INTRODUCTION

1.1 Marrons is instructed by Harworth Group Plc. ("Harworth") to prepare and submit representations to the South Kesteven Local Plan Review ("LPR") Draft Plan Consultation. Harworth is promoting Land at Gonerby Lane, Gonerby Moor ("the Site") as an allocation for commercial development. Alongside other sites at Gonerby Moor, Land at Gonerby Lane is proposed for an employment allocation within the Draft Plan, under reference SKPR-202.

1.2 Representations were submitted to the previous LPR "Issues and Options" Consultation held in late 2020 in support of the Site. A Vision Document by Marrons dated May 2022 was also previously submitted to the local planning authority (see **Appendix 1**). The Vision Document demonstrated how the Site was technically and viably deliverable for commercial development and could be brought forward with no material adverse impacts arising. The Vision Document also set out the economic benefits of the Site's development associate with both its construction and operation stages.

1.3 In late 2023, a Transport Appraisal (**Appendix 2)** by ADC Infrastructure was prepared jointly with Caddick Group, the site promoter for the adjacent Land South of Gonerby Lane, West of A1 (reference SKPR-100) and submitted and to the local planning authority, the local highway authority and to National Highways. The Transport Appraisal set out the access strategy for the Site and its immediate neighbour, the options to support sustainable transport options and the capacity impacts on the local road network.

1.4 Our representations are supported by a letter from Savills dated 25th April 2024, which sets out the position as regards need for strategic employment floorspace in the Functional Economic Market Area (FEMA). This is appended to our represents at **Appendix 3.**

1.5 These representations have been produced by Marrons on behalf of Harworth to provide a comprehensive response to the LPR Draft Plan consultation published by South Kesteven District Council (the local planning authority) for comment, as well as key documents of the LPR's evidence base. Within these representation, we comment on the soundness and legal compliance of the LPR and the content thereof.

1.6 Overall, we consider that the LPR in respect of the level of employment growth it plans for, the strategy for distributing that growth and its proposed employment allocations is both sound and legally compliant.

2. VISION AND PLAN OBJECTIVES

2.1 We broadly support the Vision for the Local Plan Review (LPR) to 2041, which seeks to maximise the potential of the District through, amongst other things, supporting the delivery of jobs and growing the economy in order to provide a high quality of life to residents. That objective is also underpinned by South Kesteven District Council's emerging Corporate Plan, which has as one of its five key objectives the enablement of economic opportunity. The need for the LPR to support the District's and the wider sub-region's economic potential capitalising on its unique regional connections is also borne out through the LPR's economic evidence base, such as the South Kesteven's Economic Development Strategy and the Greater Lincolnshire Local Industrial Strategy, which is discussed in further detail below.

2.2 We support the need to create the right balance jobs and housing, in particular to ensure that these are focused in areas that are or can be made sustainable, but we would also encourage recognition of the fact that different sectors have different locational requirements.

2.3 We broadly support the identification within the Vision of Grantham as the Sub-Regional Centre and support the strengthening of the town's role in this regard, through the apportionment of employment growth. We would recommend that the Vision is adapted to refer to the significance of the A1 corridor in the vicinity of Grantham as a key driver of economic growth, as this would be consistent with the underlying ambitions of the LPR and its evidence base.

2.4 We broadly support the identification of Plan Objective 2 which seeks to develop a strong, successful and sustainable economy that provides a wide range of employment opportunities for local people. We would, however, recommend the deletion of the phase "a sufficient number" because clearly, if the LPR is to achieve the District's wider economic aspirations, it must deliver a number of jobs over the minimum required. Plan Objective 2 should also refer to developing the District's established key industries and capitalising on established regional specialisms, drawing on the Greater Lincolnshire Local Industrial Strategy.

2.5 We broadly support Plan Objective 3, which aims to broaden and diversify the employment base by ensuring an adequate and appropriate supply of land and premises and increasing inward investment. We would again, however, recommend that the phraseology is re-considered, as providing merely "adequate and appropriate" supply of land and premises is unlikely to achieve aspirational and transformational economic growth to underpin the improvement of the local economy.

2.6 We strongly support Plan Objective 6, which seeks to facilitate and enhance the role of Grantham as an important Sub-Regional Centre by ensuring the town is the main focus for new employment.

3. POLICY SP1 – SPATIAL STRATEGY

3.1 We comment below Policy SP1 and its supporting evidence base, in so far as it sets out the proposed quantity and distribution of employment growth over the plan period. We start by setting out the overall national policy context, followed by a brief review of the key parts of the economic evidence base and conclude with a discussion in respect of employment land needs and broad distributional strategy.

National Planning Policies and Guidance

3.2 The National Planning Policy Framework ("NPPF") (December 2023) sets out at paragraph 16 that Plans should be prepared positively, in a way that is aspirational but deliverable and that they should be prepared with the objectives of achieving sustainable development in mind.

3.3 Paragraph 17 of the NPPF sets out that the development plan must include strategic policies to address each local planning authority's priorities for development and use of land in its area.

3.4 Paragraph 22 of the NPPF sets out that strategic policies should look ahead over a minimum of 15 years from adoption to anticipate and respond to long-term requirements and opportunities.

3.5 Paragraph 85 of the NPPF sets out that planning policies and decisions should help create conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development.

3.6 Paragraph 86 of the NPPF sets out that planning policies should set out a clear economic vision and strategy which positively and proactively encourages sustainable economic growth, having regard to Local Industrial Strategies and other local policies for economic development and regeneration. To this end, planning policies should set criteria, or identify strategic sites, for local and inward investment to match the strategy and to meet needs over the plan period. Such policies should also address potential barriers to investment and be flexible enough to accommodate needs not anticipated in the Plan to enable a rapid responses to changes in economic circumstances.

3.7 Paragraph 87 of the NPPF sets out that planning policies and decisions should recognise and address the specific locational requirements of different sectors

which includes making provision for storage and distribution operations at a variety of scales and in suitably accessible locations.

3.8 Paragraph 109 of the NPPF sets out that the planning system should actively manage patterns of growth and significant development should be focused on locations which are or can be made sustainable through limiting the need to travel and offering a genuine choice of transport modes.

3.9 Paragraph 110 of the NPPF sets out that planning policies should support an appropriate mix of uses across the area to minimise the number and length of journeys needed for employment and other activities.

The LPR's Economic Evidence Base

The Employment Land Study (2024) ("ELS"):

3.10 Preparation of the LPR has been underpinned by an ELS dated February 2024 by AECOM. The ELS uses its modelled Labour Demand scenario based on forecasts sourced from Experian to estimate the change in employment in South Kesteven by industry, which has been translated into floorspace and land requirements. Using the Labour Demand scenario, the ELS estimates a need for 79.5ha of employment land over the plan period.

3.11 The ELS estimates the amount of vacant employment land in South Kesteven at 236ha with a potential 35ha of land for potential intensification. It recommends the release of 111ha from employment resulting in an overall recommended provision figure of 182ha, including newly designated sites favourably assessed through the Call for Sites process and within the ELS itself.

South Kesteven Economic Development Strategy ("EDS"):

3.12 It is understood a new EDS is currently being produced by the local planning authority.

3.13 The most recently available EDS covers the period 2016 to 2021. The EDS notes that South Kesteven lies in a strategic location, well-placed to attract employment provision. Whilst noting that the current Local Plan meets needs up to 2036 and there is overall sufficient employment land, the EDS also notes there is still a shortage of high quality serviced sites and premises.

3.14 The EDS identifies future economic goals including the provision of more and "better" jobs to address low job density and workplace productivity and to build upon particular business strengths such as engineering, agri-food and specialist

manufacturing and supporting the role of the four main towns, including Grantham, as major employment centres.

3.15 As regards Grantham in particular, there is a focus on delivering growth and investment in the area, transforming the town into a leading-sub regional centre.

3.16 The EDS identifies the need to create a skilled workforce to meet current and future needs of employers to transform the local economy from relatively low wage, low productivity and to address the fact that significant parts of the labour market face away from South Kesteven and Greater Lincolnshire.

The Greater Lincolnshire Local Industrial Strategy (LIS):

3.17 The ELS incorrectly identifies that the Greater Lincolnshire LIS is still under development, when it was in fact published in January 2021.

3.18 The LIS identifies that Greater Lincolnshire has seen a 0.1% decline in productivity from 2007 and 2017, widening the productivity gap between the area and the UK as a whole from 18.1% in 2007 to 22.8% in 2017. If greater Lincolnshire was performing at the national average, the Lis observes this would result in a 45% increase in the size of the local economy and would add almost £9 billion to GVA (Gross Value Added) each year.

3.19 The LIS adopts a series of priorities to deliver greater productivity and earnings power, increasing the competitiveness of the region with a focus on increasing sectoral innovation and improving human capital. These objectives include increasing innovation in sector clusters, particularly in agri-food and across a series of strategic sectors; improving human capital to address workforce challenges around skills and retention; supporting the visitor economy; and supporting businesses and residents by, amongst other things, enhancing the role of market towns and developing local place-based response to opportunities focused around Spatial Corridors (including the southern part of the Greater Lincolnshire area) to “level up” across the dispersed economy. Local plan-making clearly has a role to play in delivering those priorities.

3.20 The LIS identifies Grantham as a key location within the wider area given its high population density (second highest after Lincoln), as well as its strong military and engineering heritage. It also sets out that Grantham’s location grants it excellent connections into major national routes including the A1.

Greater Lincolnshire’s Economic Plan for Growth:

3.21 The Economic Plan for Growth was published in March 2021 by the Greater Lincolnshire Local Enterprise Partnership as a response to the challenges of the Covid-19 pandemic. It builds on the LIS and establishes a series of strategic objectives to grow the economy, which include bringing vacancy rates down to below 10%; capitalising on key growth sectors such as advanced manufacturing, defence, logistics and agri-food; and reversing the 12% decline in manufacturing productivity catching up with the UK average.

Local Housing Needs Assessment (LHNA):

3.22 The September 2023 LHNA by AECOM notes that South Kesteven, particularly the southern area of the District, is influenced by Peterborough and long-distance commuting to London. The LHNA also observes the lack of major towns or employment centres in the corridor between Lincoln and Peterborough as the primary reason why Peterborough exerts such a strong influence upon South Kesteven, resulting in high levels of out-commuting. Correspondingly, Table 1 of the Draft Plan notes high levels of car dependency and outward commuting by South Kesteven residents as a key sustainability issue to be addressed. Achieving a stepped-change an employment provision in suitable locations across the District and supporting the sub-regional role of Grantham as an employment centre will assist in addressing this matter.

The LPR's Employment Provision

3.23 Policy SP1 relates to the spatial strategy and sets out levels of housing need and an overall strategy to achieve sustainable growth and job creation. This includes the creation of a range of new job opportunities and the focus of the majority of growth at and around Grantham as a sub-regional centre. It is worthy of note that almost half of all housing provision envisaged by the LPR to 2041 will occur at Grantham and therefore, directing employment growth to this broad area, will ensure an appropriate spatial alignment of homes and jobs.

3.24 Policies E1 to E9 of the LPR relate to employment development, with policies E1 and E2 allocating specific sites for employment development. Paragraph 9.35 clarifies that the LPR allocates circa 338ha of new employment land across the District. This, it is noted, is considerably higher than the requirement identified in the ELS of 79.5ha. That is recognised by the LPR, which sets out that the overall levels of employment provision are to ensure suitable choice to the market and to attract substantial inward investment and providing a wide range of jobs in various sectors. That approach is clearly justified by the NPPF, which sets out that planning policies should, amongst other things, help create conditions in which businesses can invest, expand and adapt.

3.25 It is welcome that the ELS at paragraph 9.10 sets that it is just one of a number of evidence base documents the local planning authority will feed into the preparation of the LPR. Whilst recognising that is the case, and that calculating economic growth needs is not an exact science, the ELS has not considered "aspirational" economic growth scenarios aligned to the economic evidence base or the LPR's overall approach. The Experian forecast Labour Demand is based on a "business as usual" scenario which does not take account of economic shocks, policies or public interventions. It is also notably the lowest growth scenario considered in the ELS, with the Labour Supply and Past Take-Up scenarios reporting a marginally greater need; 88.3ha and 89.1ha, respectively compared to the 79.5ha generated by the Labour Demand scenario.

3.26 It is therefore clear that use of the Labour Demand scenario or any of the scenarios tested in the ELS to inform the LPR's overall level of employment provision would merely embed the current economic and social challenges identified within the Draft Plan and throughout the evidence base, such as the reliance on out-commuting, rates of economic growth below national trends and the lack of high-quality serviced premises. It would similarly not capitalise on the aspirations to underpin Grantham's role as a Sub-Regional Centre which is reflected in the significant levels of housing growth directed to this area. Failure to do so would likely exacerbate out-commuting and undermine sustainable patterns of growth across the District.

3.27 In addition, it is clear on the basis of the discussion in Chapter 7 of the ELS, that it only considers localised employment land needs and does not discuss wider local need that exists for large-scale B8 premises. The demand for logistics floorspace within the UK is significant, driven by growth in online retail and other global factors, all of which place an increased focus on the need for onshore logistics. There is also a long standing under supply of logistics floorpsace across UK markets, evidenced by significant increases in rental growth. The ELS broadly corroborates this picture, by observing for instance that storage and distribution properties within South Kesteven have exhibited consistently low floorpsace vacancy rate. Whilst the observation is also made within the ELS that the market value of industrial floorspace is typically lower in South Kesteven than within the wider region, this ignores the strategic role that certain parts of the District such as the A1 corridor could play in meeting larger than local need and demand. The role of the A1 corridor is a consistent feature discussed within the economic evidence base as being a factor which drives South Kesteven's economic competiveness. In this context in particular, it is disappointing that the ELS does not seek to differentiate needs for strategic and more local industrial / warehouse requirements.

3.28 The ELS focuses principally on quantifying economic land growth needs through forecasts and reviewing the existing supply of employment land and the sites promoted to the local planning authority for employment development. In doing so, it does not fully engage with the wider economic evidence base for South Kesteven and the region nor does it appear to have qualitatively reviewed market conditions and perceptions through, for example, discussions with key stakeholders, such as local commercial property agents. Therefore, its scope is plainly limited in quantifying the absolute minimum employment floorspace required based on a "business as usual" scenario from Experian's forecasting model. Clearly, if the LPR is to address the area's growth aspirations and challenges, it cannot rely on the minimum growth scenario to inform its employment land provision.

3.29 Our representations are supported by a letter from Savills which uses Savills' own modelling to estimate the level of unmet demand across the FEMA. Savills' methodology is compliant with the PPG and builds upon historic take-up (demand), adjusting past take up trends to account for historic supply shortages and the resultant loss of occupier take up.

3.30 The rationale for this approach is that where supply is constrained by either the amount or quality of employment floorspace, demand does not materialise so Savills' work takes account of those years where demand was supressed and projects this forward to account for the total levels of demand.

3.31 In following this methodology, Savills establishes that there is a significant level of unmet need across South Kesteven and the wider FEMA, far in excess of the net sum of employment land to be allocated in the LPR, as at December 2022. Savills will shortly be undertaking work to formulate an updated estimate of FEMA demand and this will be appended to our future representations in respect of the LPR.

3.32 On the supply-side whilst the ELS identifies 236ha of extant employment supply with further opportunities for intensification, it also proposes to release up to 111ha of land from employment designation and the allocation of new employment land at locations in which there is a strong market interest. Given the sizable extent of employment land proposed for release, it is clear that a significant proportion of the effective employment land supply is unlikely to come forward to meet growth needs. The approach of reviewing these landholdings and identifying new, market-led allocations is fundamentally sound and a prudent approach to achieving a deliverable supply of employment land in good locations which are likely to yield jobs and GVA on the ground rather than sitting vacant.

3.33 The January 2020 Inspector's Report into the soundness of the South Kesteven Local Plan to 2036 provides an additional source of confidence in the soundness of the LPR's response approach to employment provision. In this instance, the Local Plan's employment land provision was 155ha well above (almost double) the need figure suggested by the 2015 ELS. At a strategic-level, the Inspector did not find this approach to be problematic. Amongst his reasons for this finding, was the *"cogent evidence of market demand in the District, including the realistic prospect of sizable premises for the logistics sector."* In addition, the Inspector opined:

> *"South Kesteven, and Grantham in particular, is well-placed on the A1 and East Coast Main Line (ECML) corridors to accommodate demand, including that potentially displaced from proximate locations where land supply is becoming saturated…it would seem prudent to err on the side of flexibility to support latest strategies and ambitions for economic growth rather than cut the cloth of employment land supply too tightly."*

3.34 The Inspector also pointed to the fact that the 2015 ELS set out a number of factors that could create a step-change in demand compared to historic delivery rates of employment land. These factors included local economic growth ambitions; increased demand for logistics use and implementation of the Grantham Southern Relief Road. Accordingly, it was considered that "*the plan's spatial strategy to focus a significant scale of employment land provision at Grantham and to maintain a healthy employment land supply at other locations within the settlement hierarchy strikes the required balance between aspiration and realism."* In so concluding, the Inspector recommended that the LPR revisit the 2015 ELS and consider, amongst other things, the latest strategies and programmes of the LEP and others.

3.35 Unfortunately, as set out above, the 2024 ELS does not appear to respond to this recommendation as it does not grapple with the area's economic growth aspirations. In fact, the 2024 ELS adopts a growth scenario that is so pessimistic it produces an employment land needs figure to 2041 that it is *lower* than the alternative Past Take-Up Scenario considered over the last 10 years, which would have been affected by the fallout from the 2008 financial crisis, Brexit and the impacts of Covid-19. These events, according to the evidence produced by the LEP, had a profound effect on the economic buoyancy of the sub-region and therefore is likely to have depressed the Past Take-Up Scenario.

3.36 For the above reasons, if the LPR was to rely purely on the net employment land figure calculated by the ELS alone, it would not be positively-prepared in that it would not respond to the challenges and opportunities identified across the District, as indicated Plan itself, its evidence base and wider economic literature.

The local planning authority is therefore justified in planning for a level of employment growth through the LPR in excess of the minimum need suggested by the ELS. That approach also accords national policy, which emphasises creating conditions where business can invest and expand, addressing barriers to investment and placing great weight on supporting economic growth and productivity.

Strategic Distribution

3.37 The LPR identifies at Policy SP1 that the focus for the majority of employment growth is in and around the Sub-Regional centre of Grantham. It is plain that such an approach follows the settlement hierarchy and Policy SP2 which identifies Grantham as the most sustainable town in the District, as it contains the largest concentration of services, facilities and infrastructure. Underpinning the growth of Grantham as a Sub-Regional Hub will also help to reduce outward commuting and ensure a more sustainable pattern of development, in line with the recommendations of the NPPF.

3.38 We would note that strategic employment sites within close proximity to the Strategic Road Network (i.e. the A1) are currently limited in South Kesteven. It is well-established that large scale logistics operators and other commercial end-users require immediate access to the Strategic Road Network, access to power and labour force without nearby sensitive uses that could constrain operations. It is recognised that on the basis of the findings of the ELS many existing employment allocations are just not attractive to operators so reviewing these allocations and identifying suitable, market-driven sites which can still be delivered sustainably, is clearly a sound approach that would assist in delivering the District's economic growth aspirations.

3.39 In these terms, spatially speaking, it is welcome that a significant proportion of employment growth has been proposed at Gonerby Moor which lies just to the north of Grantham and along the strategic A1 corridor. This area's proximity Grantham ensures that sustainable travel links to that area can be maximised whilst not being located close to existing proposed residential uses that would have the potential to create land use conflicts or undesirable impacts upon local road networks caused by HGV traffic. It is clearly an appropriate broad location for strategic employment growth, which complements the LPR's spatial strategy

3.40 As such, in general terms, the broad area around Gonerby Moor is well-suited to employment land uses and the LPR's decision to apportion significant employment growth at this location is sound and justified by the evidence.

Recommended Modifications

3.41 For the reasons set out above, we consider the LPR's approach to the overall provision of employment land to be fundamentally sound. We would nonetheless recommend that Policy SP1 be modified to include reference to the overall level of employment provision to be delivered within the plan period, as well as setting out a broad distributional strategy for meeting that need. In addition, we would recommend that the local planning authority produces an Employment Land Topic Paper or an addendum to the 2024 ELS to clearly explain and justify the LPR's aspirational approach to economic growth.

4. POLICY E2 – OTHER EMPLOYMENT SITES

4.1 We support Policy E2's identification of SKPR-202 for employment development. The allocation complements the LPR's spatial strategy and is deliverable for employment growth, with no materially adverse impacts arising. The draft allocation is also justified against the LPR's site selection evidence base, which we offer further comment on below.

4.2 From our review of the LPR's evidence base, there are three main sources of site assessment evidence that has informed the LPR's proposed allocations. These are the Draft Local Plan – Site Assessments Report dated February 2024; the ELS dated February 2024; and the Sustainability Appraisal (SA) for the South Kesteven Local Pan Review dated February 2024.

Draft Site Assessment Report

Settlement Hierarchy:

4.3 The Draft Site Assessment Report identifies SPKR-202 as a preferred site, which is welcome. Under "Settlement Hierarchy" the Report identifies the Site as being within the open countryside, which in planning policy terms is accurate. However, development needs will not be met without releasing greenfield land outside of settlements so it is unclear why this is assessed as "Red." We would also point out that spatially-speaking, Gonerby Moor is best related to Grantham which sits atop the settlement hierarchy as the most sustainable settlement in the District. We would therefore request that this aspect of the assessment is revisited given that the proposed allocation of the Site accords with the Plan's settlement hierarchy and broader spatial strategy. It should therefore be rated as "Green." This would render this aspect of the assessment consistent with neighbouring sites, such as SKPR-100.

Deliverability:

4.4 In terms of deliverability, the Site is available in the short term for development (0 – 5 years) and is in the control of Harworth Group, one of the leading land and property regeneration companies within the UK with a significant track record of delivery. The Report therefore appropriately recognises that the Site is available in the short-term.

Highways & Access:

4.5 In respect of highways, the Report identifies a "Major" impact on the Strategic Road Network (SRN) and a "Moderate" impact on the local road network. It also sets out that the Site only has suitable access "in part."

4.6 As set out earlier, Harworth and Caddick have jointly commissioned transport evidence to support the promotion of the Site (SKPR-202) controlled by Harworth, and the neighbouring draft allocation (SPKR-100) controlled by Caddick. The Transport Appraisal by ADC forms **Appendix 2** to these representations. The Transport Appraisal has also been subject to discussion with both Lincolnshire County Council as the Local Highway Authority and National Highways in respect of potential impacts upon the SRN.

4.7 Sites SKPR-202 and SPKR-100 share a frontage onto Gonerby Lane. The two promoters will work together to formulate a combined access strategy, via a new four arm roundabout, which would straddle Gonerby Lane and use land from each site. This access strategy is shown in the associated drawing appended to the Transport Appraisal.

4.8 The access strategy described above has been discussed with the Local Highway Authority, which has confirmed that it is the most appropriate solution. As such, the Site does not have suitable access only "in part." Full and appropriate access is in fact achievable and the assessment in this regard should be reclassified as "Green."

4.9 In respect of the Site's impacts on the Strategic Road Network, we note that the "Major" rating has been assigned given the likely extent of trip generation arising from the development of the Site and given that fact that it abuts the Strategic Road Network. The Transport Appraisal has considered the impacts of both SKPR-202 and SKPR-100 on local junctions likely to affect the SRN, namely the Gonerby Moor Interchange.

4.10 Traffic counts were undertaken in November 2023 and subsequent modelling by ADC as reported in the Transport Appraisal clearly indicates that the Gonerby Moor Interchange has relatively light background traffic and the junctions operate with ample spare capacity. The evidence collect to date therefore clearly indicates that that the development of SKPR-202 and SKPR-100 would not adversely affect the operation of the SRN, either individually or cumulatively.

4.11 The LHA has not commented substantially upon SPKR-202, but has done so in relation to SPKR-100 to the south. These comments pick up upon the Site's "remote" location from Grantham Town Centre and its reliance on the A1 for access, as well as the car dependency arising as a result of its location. It is stated that active travel and sustainable modes would be unlikely to mitigate the impact of traffic, which is likely to be "severe" on the adjoining road network.

4.12 The LHA's comments plainly do not stand up to scrutiny. Firstly, it is unrealistic to expect strategic employment sites to come forward in locations near to town centres as the market attractiveness and therefore the delivery of such sites rely on not being constrained by nearby sensitive land uses such as established residential areas and upon convenient access to the strategic road network. The ELS has established that a significant proportion of the committed employment supply is unsuitable for that use, often due to the fact that these sites lack attractiveness to the market. Conversely, sites SPKR-202 and SPKR-100 both score highly in respect of market attractiveness and therefore deliverability as per the assessment in the ELS and one of the critical reasons for this is their location.

4.13 Secondly, there is no substantive evidence to suggest that a cumulatively severe impact would occur to the highway network. As set out above, the work undertaken to date indicates that the most likely to be affected junction at Gonerby Moor Interchange will operate with ample spare capacity.

4.14 Thirdly, in relation to sustainable travel opportunities, it is correct that the two sites at present benefit from limited sustainable transport infrastructure. It is unclear from the LHA comments what interventions it has assumed are possible, but the Transport Appraisal has considered this question in detail.

4.15 Drawings for a segregated cycleway and footway has been produced and shows this provision extending from both accesses tying into existing infrastructure. The local road network also experiences light traffic and is suitable for cycling. Combined with good cycle provision and showering facilities as part of the developments themselves, these measures will encourage a modal shift.

4.16 In addition, a bus stop exists at the Downtown Shopping Centre car park within 1.6km walking distance from the centre of the site which is served by two existing bus services, which could be extended to call at the sites. In addition, the Downtown Shopping Centre has planning permission for a significant redevelopment, which is anticipated to commence in the near future. A condition attached to this planning permission requires the provision of a new bus service linking the Shopping Centre to Grantham Town Centre. This new service could ultimately be extended to call at the sites in question.

4.17 As set out above, these measures have been subject to discussion with the LHA, which supports the proposed pedestrian and cycle improvements shown in the Transport Appraisal.

4.18 Accordingly, whilst the sites only benefit from limited sustainable transport impacts at present, there is scope to improve provision through the development

process. In addition, we would note the advice of paragraph 87 of the NPPF which states that "planning policies and decisions should recognises and address the specific locational requirements of different sectors." In this case, the locational requirements of particular end users, amongst other things, are driven by a stand-off distance from established settlements and sensitive uses, as well as direct access to the SRN.

Ecology:

4.19 The Site has been provided a "Red" rating based on its proximity to the nearest designated nature site, namely the Allington Meadows Site of Special Scientific Interest (SSSI), which is situated 1.4km to the south-west. Natural England has assessed the potential for various development types to impact nearby statutory nature conservation sites through the SSSI Impact Risk Zones. The proposed development type is not such that Natural England judges to be a risk to the SSSI and there is no potential impact on this designation. We would therefore request that the "Red" rating is revisited.

Other Constraints

4.20 We note that the Site has been appropriately scored as being within reasonable distances to key services and facilities. As set out above, its accessibly can be improved through the package of sustainable travel measures described above. "Proximity to shops" has been rated "Red" as these are said to be over 2km away, which is hard to understand given the Downtown Store Grantham being located approximately 1.6km away, as well as the Gonerby Moor Motorway Service Area, which is located a similar distance. We would request that this aspect of the assessment is reviewed.

Employment Land Study

4.21 The February 2024 ELS by AECOM provides an assessment of employment land availability and appraises a total of 96 sites drawing on the results of the "Call for Sites" exercise and other information sources. The sites have been appraised according to a range of indicative criteria, which involve characterising the function, quality and development potential of each site. A RAG rating has been applied each indicative criteria under public realm, suitability, accessibility building condition and redevelopment potential.

4.22 It is noted that' SKPR-202 performs well having been provided "Green" ratings against all criteria, with the exception of public realm, environment and surroundings, where in common with other undeveloped sites, it has been

scored "Red." This aspect of the score can be addressed through the development process.

4.23 Elsewhere, the ELS correctly observes that the Site benefits from virtually direct access to the SRN and is suitable for a range of uses, such as industrial and storage and distribution facilities.

4.24 We consider that the ELS, as regards its assessment of potential sites for employment, has been carried out on a robust and consistent basis and appropriately arrives at the conclusion that SKPR-202 is suitable for its proposed employment function and that employment development is likely to be successful here.

Sustainability Appraisal

4.25 The Sustainability Appraisal (SA) Interim Report comprises two principal parts. Firstly, it contains detailed assessments of the potential development sites submitted as part of the "Call for Sites" process and secondly, it has carried out a "Points of the Compass Appraisal," which assesses broad locations for growth around the District's 20 main settlements. It is noted that detailed spatial strategy options and growth scenarios will be considered at Regulation 19 stage.

4.26 The "Points of Compass Appraisal," in brief, demonstrates that the Site and the broad area around it is unconstrained and identifies no clear impact pathways arising from development of the Site to any constraints identified within the vicinity. This assessment is welcome and clearly supports the Site's identification as a draft allocation.

4.27 The detailed site assessment for SKPR-202 within the SA has been carried out on a "distance to constraint" basis and no likely significant adverse effects identified. In relation to proximity to key services and facilities, the measurement in respect of proximity to shops is inaccurate. Whilst the nearest bus stop is identified as being 700m away, there is ample scope as set out above to extend the existing services which stop at Downtown Shopping Centre, noting that the redevelopment of this premises will also bring forward improved bus connectivity to the centre of Grantham.

Conclusion on Site Assessment Evidence

4.28 The site assessment evidence supports the proposed allocation of SKPR-202 for employment development and illustrates that the selection of this site is soundly based and justified. We would note, however, that there are several inaccuracies in the assessment which we would encourage the local planning authority and its consultants to revisit as part of the next stage of consultation.

5. CONCLUSIONS

5.1 These representations have been prepared by Marrons on behalf of Harworth Group in respect of the South Kesteven Local Plan Review Regulation 18 (Draft Plan) Consultation.

5.2 We support the thrust of the LPR in respect of its approach to the allocation of employment land and it is welcome that the LPR is allocating over the need suggested by the ELS, which in our view considerably underestimates the level of need for employment land in the District.

5.3 The ELS does not take account of the LPA's aspirational approach to economic growth as underpinned by various aspects of the economic evidence base, does not account for "larger than local" strategic demand across the FEMA nor historic suppressed demand, which is considerable. These are material shortcomings and to underpin the LPR's approach, we recommend that economic land needs are revisited.

5.4 In terms of the LPR's strategy for distributing economic growth we consider that the overall approach of choosing sites for employment development that are attractive to the market and perform well against key metrics, such as access to the SRN, is fundamentally sound.

5.5 As set out above, we have a number of concerns in respect of how the Site has been assessed within the evidence base and we would request that, where noted, these elements are updated forthwith.

5.6 We are grateful to the LPA for having for the opportunity to comment on the emerging LPR and trust that the above comments will be helpful in preparing the Plan.

PROPOSED COMMERCIAL DEVELOPMENT ON

LAND AT GONERBY LANE

GONERBY MOOR

VISION DOCUMENT

Harworth

PREPARED BY MARRONS PLANNING
ON BEHALF OF HARWORTH GROUP

MAY 2022

CONTENTS

Prepared by

Marrons Planning

on behalf of

Harworth

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Marrons Planning
[redacted]

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Checked by:	/

1 INTRODUCTION

EXECUTIVE SUMMARY

Marrons Planning have been instructed by Harworth Group to prepare this Vision Document to demonstrate the deliverability of land at Gonerby Moor, Grantham for employment land.

The land is a logical and deliverable site for employment use in Gonerby Moor, an area already identified for this purpose. The site is well connected to the existing urban area and has direct links to the strategic road network.

The Site comprises arable farmland adjoining the A1. The site is unconstrained, benefiting from direct access to the public highway (via Gonerby Lane) and permanent and defensible boundaries. The site is well related to the existing employment uses to the east and south-east.

Given it's size, location and relationship with the area, the site's development would represent a logical addition to the existing employment land in Gonerby Moor.

This document demonstrates how the site is deliverable, having taken account of known constraints and considerations. A high-level approach has been taken to site analysis at this early stage. More detail will follow within a thorough analysis of the site and its context - together with appropriate technical guidance - to support a future planning application.

Analysis of the site's locality and context have informed the preparation of an illustrative masterplan prepared by RPS and included within the document. This in turn demonstrates the Site's ability to provide large-scale employment land provision.

The Site is available now, offers a suitable location for sustainable development, is achievable and viable. Accordingly, the site should be allocated in the new South Kesteven Local Plan.

FIG. 1 **GONERBY MOOR AND THE SITE** | Getmapping

2 CONTEXT

THE SITE

The Site is situated in Gonerby Moor, an area mainly comprising of employment and retail uses, located 1.9 miles north-west of the village of Great Gonerby and 3.7 miles north-west of Grantham.

The Site comprises circa 29ha (71.4 acres) of arable farmland, accessed via a private farm track off Gonerby Lane to the south of the Site.

The site is broadly flat, with high points of 35m AOD at the north west corner and 38m AOD along the southern boundary.

The Site includes a small cluster of farm buildings in the northern parcel of the site which have been deemed redundant and to be demolished as part of the Site's proposed development.

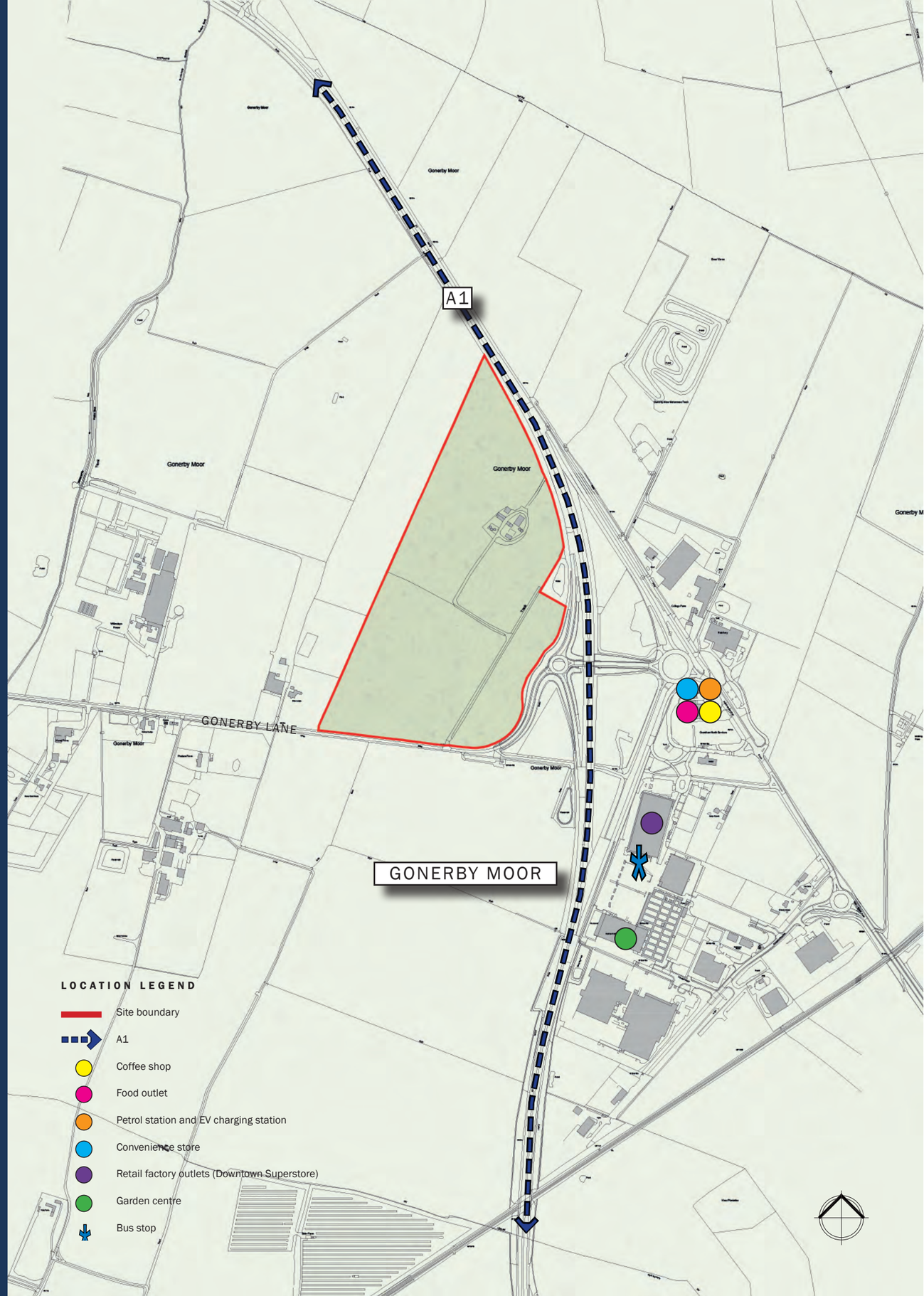
The Site is well connected to the surrounding road network and existing highway infrastructure, with the A1 running along the site's eastern boundary. The site is serviced by a dumbbell junction to the A1 which connects directly to Gonerby Lane and provides the site with a strategic connection to the A1.

Further east of the site and accessed off the same A1 junction is Grantham North Service Station which provides food outlets, a coffee shop, a convenience store, a petrol station and an EV charging station. South of the service station is a retail and distribution park including a garden centre and factory outlet shops.

There is a bus stop located adjacent to the Downtown Superstore, 0.5 miles from the site and providing bus services to Grantham, Newark and Long Bennington (services 14 and 24).

Grantham train station is a ten minute drive from the site, providing national train services to urban centres including Nottingham, London, Peterborough, Liverpool and Leeds.

FIG. 2 **SITE LOCATION** | not to scale



PLANNING MATTERS

THE ADOPTED PLAN

The South Kesteven Local Plan sets out the vision, objectives, spatial strategy and policies for the future development of the district. It also identifies land and allocates sites for different types of development, such as housing and employment, to deliver the planned growth for South Kesteven 2036. The proposal site is not included as an allocation in the Adopted Local Plan. However, the Plan does include a range of employment land allocations and policies including an allocation for 118ha (Policy E1 Grantham Southern Gateway Strategy Employment Opportunity). Reflecting the desirability of the district as base for large-scale employment land provision.

The current Local Plan for South Kesteven was adopted in January 2020. The Inspector's final report on the current Local Plan (2011 - 2036) commits the Council to undertake an early review of the Local Plan from April 2020 with submission by the end of December 2023. The review will enable the Council to update its evidence and to consider whether its local development needs have changed and whether local policies and allocations need updating to take account of changes to national planning guidance, changes in local housing and economic needs as well as changes to economic conditions.

The Plan states that South Kesteven District Council has an ambitious vision for the sustainable growth of the District; a vision which will not be achieved by the Council alone, but which will rely on it working alongside other public sector bodies and the private sector. It further notes that South Kesteven is home to some world-leading businesses but has significant untapped potential - offering an exciting opportunity for investment, bringing economic growth and prosperity, both to the District and the wider area beyond.

Employment land needs identified in the Councils' Employment Land Study (dated 2015) concluded that there are 93 hectares of vacant land within the existing employment clusters (including the planning permission at the KiNG 31 site) as well as a large supply of greenfield sites which are allocated or have potential for employment. Therefore the supply of employment land was considered sufficient, at that point, to meet the projected demand over the Local Plan period.

THE EMERGING PLAN

The emerging Local Plan is anticipated to be examined in December 2023 and adopted in December 2024, until the review has been undertaken and a new Local Plan is found sound and adopted by the Council, the current Local Plan (2011 - 2036) will continue to be the development plan for the District and used in determining planning applications.

The Local Plan Review will set out the planning framework for the District over the next 20 years up to 2041 and will cover issues such as; housing provision, the economy, retail and town centres, infrastructure provision and the environment. It will also set out policies by which planning applications in the future will be determined, in addition to allocating land for housing, employment and retail uses.

The Council's detailed timetable for the preparation of its emerging Local Plan is set out in the Local Development Scheme as follows:

Key Milestones	Regulation	Timescale
Commencement of document preparation		April 2020
Consultation on the scope of the Plan	Regulation 18	September 2020
Consultation on Draft Local Plan	Regulation 18	September/ October 2022
Consultation on the Pre-Submission Local Plan	Regulation 19	April/ May 2023
Submission	Regulation 22	December 2023
Examination	Regulation 24	January - December 2024
Inspector's Report	Regulation 25	December 2024
Adoption	Regulation 26	January 2025

TABLE 1 **KEY MILESTONES AND TIMESCALES**
excerpt from the Local Development Scheme, South Kesteven District Council

FUTURE EMPLOYMENT LAND NEEDS

Demand for employment land provision is likely to have increased significantly since the Council last reviewed local employment land needs, particularly in the logistics sector due to a combination of Brexit and the continued growth of e-commerce, which has expanded quicker than predicted as a result of changing shopping habits during the COVID pandemic.

Moving forward, it is unlikely that existing allocations will provide sufficient sites to meet future needs. Moreover, some existing employment sites will be coming towards the end of their productive life (usually considered to be 30 years for commercial properties) and may need replacing or renewing to reflect most up to date industry requirements. Further sites will need to be allocated in the emerging Plan.

SUITABILITY OF THE SITE FOR COMMERCIAL DEVELOPMENT

It is noted that the Gonerby Moor site is identified in the Council's 2015 Employment Land Study as a potential employment site reflecting its suitability in land use terms for employment use.

Having regard to the most recent requirements and needs of commercial operators, the site will meet the needs of modern end users and will provide an attractive site given its location on the Strategic Road Network adjoining the A1, its proximity to existing or proposed clusters of similar commercial development close to Grantham and given the scale and nature of the site.

LOGISTICS

Demand for UK logistics floorspace is significant. This is fuelled by growth in online retail, exit from the EU, the onset of the COVID pandemic and other global factors, focusing the need for onshore logistics infrastructure.

The Office of National Statistics confirms that the East Midlands accounted for one-fifth of spending on warehouses in 2021, with UK spending on warehouse floorspace greater than at any time since 1985, and the share of transport and storage businesses has increased sharply across the Midlands and East of England.

Furthermore, research by JLL confirms that the take up of new large logistics units greater than 100,000 sq.ft in the first quarter of 2022 was 30% greater than the previous year.

Large scale logistics require modern commercial units, with immediate access to the strategic road network – the site's location on the A1 provides an optimum location in this respect.

3 ECONOMICS

The proposed commercial development would make provision for 13 employment units, comprising a mix of warehouse and office space in a range of sizes with associated car parking provision. The proposed units combine to provide a total internal floorspace of approximately 123,000 sq m across the site.

The proposed development will generate economic benefits to the local economy throughout its construction, and during its future ongoing operation. Those benefits relate to both direct and indirect employment generation throughout the supply chain, as well as increased revenues to the local authority through business rates payments.

CONSTRUCTION PHASE

In summary, the construction jobs and GVA figures benefiting the local economy include:

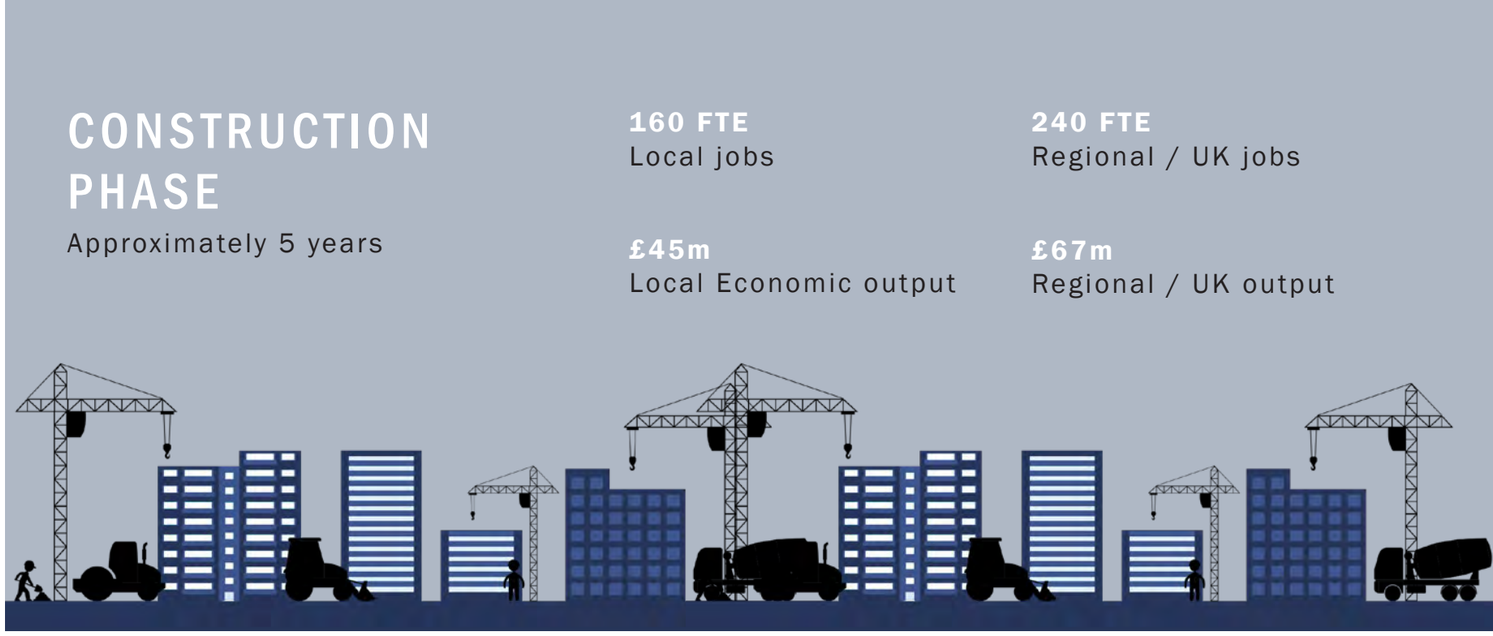
- Total net (direct and indirect) FTE jobs generated during each of the 5 years of construction = 240 FTE jobs (of which 160 FTE jobs within South Kesteven)
- Total temporary economic output during the construction of the proposed development = £67m, of which £45m within South Kesteven.

OPERATIONAL PHASE

The operational economic benefits of the proposed development include:

- The commercial floorspace is likely to provide for 1,300 on site FTE jobs.
- This in turn is likely to create total employment for 2,200 people after accounting for indirect job creation locally and beyond. Of this figure, local employment is likely to increase by 1,500 jobs.
- The employment generating uses are likely to create an annual economic output of £105m, of which £72m is likely to benefit the local economy.
- The employment generating uses will also be liable for business rates assumed to amount to some £2m per annum.

ECONOMICS INFOGRAPHIC | prepared by Marrons Planning



4 OPPORTUNITIES AND CONSIDERATIONS

There is little in the way of technical or development constraints for the proposed development. This section provides an overview of the key considerations for the site's development, including accessibility, landscape, ecology, heritage, drainage and utilities.

The site is principally flat arable farmland with some trees, hedgerows and ditches to the field boundaries. Redundant farm buildings and a farmhouse are located in the northern parcel of the site, accessed via the existing track off Gonerby Lane.

There are no listed buildings on or near the site and the site is not located within a conservation area. The site is also not covered by any designations in the Local Plan. Belvoir Castle is located around 9km south-west of the site.

There is the potential for noise impact from the adjoining A1, however this is not deemed a constraint to commercial/employment development. The employment uses are located away from existing residential areas or settlements and so would not impact upon them in terms of noise or pollution.

Overhead power cables adjoin the site boundary along Gonerby Lane. It is assumed the overhead cables that run northward across the site only service the existing farmhouse and therefore will become redundant on its demolition and will be removed prior to commencement of development works.

There is the potential for areas for high quality landscaping to site boundaries, particularly to the western boundary where the site adjoins further open arable farmland with potential views into the Site.

There are no Tree Preservation Orders on or adjacent to the site and the site is not covered by any landscape or nature conservation designation that would suggest an increased value or sensitivity to change. There are no Public Rights Of Way (PRoW) crossing the site.

The site has no ownership constraints, with a single land owner and no ownership issues with regard to access.

At this stage there are no known physical or technical constraints which would prevent development from taking place on the site.

PHOTO (top) **VIEW OF THE SOUTHERN PART OF THE SITE FROM GONERBY LANE** | google earth
PHOTO (bottom) **VIEW OF THE NORTHERN PART OF THE SITE FROM A1 SLIP ROAD** | google earth

FIG. 3 (opposite page) **OPPORTUNITIES AND CONSIDERATIONS PLAN** | not to scale

A1 NORTH

REDUNDANT FARM BUILDINGS

TO ALLINGTON

GONERBY LANE

A1 SOUTH

TO A1

A1 SERVICE STATION

TO GREAT GONERBY & GRANTHAM

Gonerby Moor

Gonerby Moor Motorcross Track

College Farm

Willowtops House

Home Farm

Pasture Farm

Hunters Lodge

Globe Lodge

Hatchery

Foston Beck

Track

Pond

Drain

Tank

Reservoir

El Sub Sta

Solar Panels

OPPS & CONS LEGEND

- Site boundary
- Primary local vehicular routes
- A1
- Existing site access
- Potential noise impact from the A1
- Potential views into the site
- Existing drain / watercourse
- Existing built form
- Potentially sensitive boundary to countryside / open agricultural land
- Bus stop

ACCESSIBILITY AND TRANSPORT

It is proposed that the primary site access for all vehicles will be provided via the existing gated access and private farm track off Gonerby Lane, to the south of the site.

No technical constraints have been identified that would prevent appropriate highways enhancements being made. Upgrades to the carriageway are likely to be required, including road widening to Gonerby Lane to accommodate two-way commercial traffic and adequate turning provision.

The A1 adjoins the site's eastern boundary and the site is well connected to the existing highway infrastructure. The site is serviced by a dumbbell junction to the A1 which connects directly to Gonerby Lane and provides the site with a strategic connection to the A1.

Gonerby Lane leads to the settlement of Allington in the West and connects with the B1174 to the East, providing access from Great Gonerby, Grantham and the A1. As such, the site is well located in respect of access to the Strategic Road Network (SRN). Direct connections to the A1, both north bound and south bound, are provided via the un-signalised dumbbell Junction located to the immediate east of the site.

The nearest train station is located at Grantham (approx. 5.5km from the site).

A full Transport Assessment will accompany a future planning application to identify and, if necessary, address highway capacity and safety issues associated with the development proposal. Based on a preliminary assessment of the site it is not expected that development would have a significant impact on local highways capacity or road safety.

To enhance access to the site for employees, it is proposed that the existing pedestrian and cycle links are extended into the site to allow connections by sustainable travel to the areas to the east of the A1 and south of the existing junction. This includes the existing commercial and retail areas and the existing bus services which stops outside of the Downtown Superstore and provides bus services to Newark and Grantham.

There are no Public Rights of Way (PRoW) that intersect the site boundary. There are a number of ProWs within 1.5km of the site.

PHOTO (top) **EXISTING ACCESS OFF GONERBY LANE** | google earth
AERIAL PHOTO (bottom) **DUMBBELL JUNCTION TO A1** | Getmapping

LANDSCAPE & VISUAL ANALYSIS

Urban Wilderness were commissioned to complete a Landscape Capacity Study to assess the landscape and visual impact of the site.

LANDSCAPE SUMMARY

The site is generally open on all elevations with the northern and western boundaries being the most sensitive due to passing motorists on the A1 motorway and along Gonerby Lane. The proposed development would affect the sense of openness within the study area. However, the area is already significantly urbanised due to a mixture of existing built components including the existing commercial sheds, A1 service station, overhead power lines and the significant noise pollution from the A1 dual carriageway. These elements detract from the sense of place and rural tranquillity.

There is potential to improve the depleted landscape baseline by improving the landscape framework in line with National and District level guidance.

The proposed development would benefit from strengthening the woodland cover to help create a distinctive sense of place and has the potential to shield the surrounding countryside from the noise pollution generated from the local transport network.

It is anticipated that should any potential disturbance be identified following a Phase 1 Habitat Survey, ecological mitigation could be successfully combined with on-site landscape interventions. This in turn would help enhance the sense of separation from the A1 transport corridor, improve the perception of tranquillity and enhance the landscape character of the surrounding area.

VISUAL ANALYSIS SUMMARY

As part of their Landscape Capacity Study, Urban Wilderness completed a visual analysis to establish the visibility of the site from a representative sample of surrounding receptors (i.e. people who have a view over or towards the site).

Receptors include local residents and rural industry workers, users of Public Rights of Way (PROW), and motorists on the A1 and the local road network.

Visual impacts have been identified and fully considered in preparing the scheme proposals, including any potential visual impact to Belvoir Castle to the south-west.

New or improved hedgerow boundaries to the perimeter of the site will screen and soften the impact of the employment land from the receptors identified, reducing the overall visual effects.

However, It is anticipated that the visual effects of the proposals will be low as the development will often be seen against the backdrop of existing development. There is an opportunity to redesign this area around the A1 junction and improve the surrounding landscape character in the process.

ECOLOGY

Given the current intensive agricultural use of the Site it is not expected there will be any notable ecological impacts as a result of the Site's development. Nonetheless, any future detailed proposals will be informed by appropriate ecology survey work and where necessary protected species surveys.

Site development may require the removal of some existing field hedgerows within the site, although it is expected such losses to be fully mitigated in line with emerging requirements in respect of Biodiversity Net Gain.

In delivering net gains, losses will be avoided to minimise the impact on biodiversity. If sufficient net gains cannot be mitigated wholly on-site then compensation will be made for losses that cannot be avoided, in agreement with external decision-makers.

HERITAGE

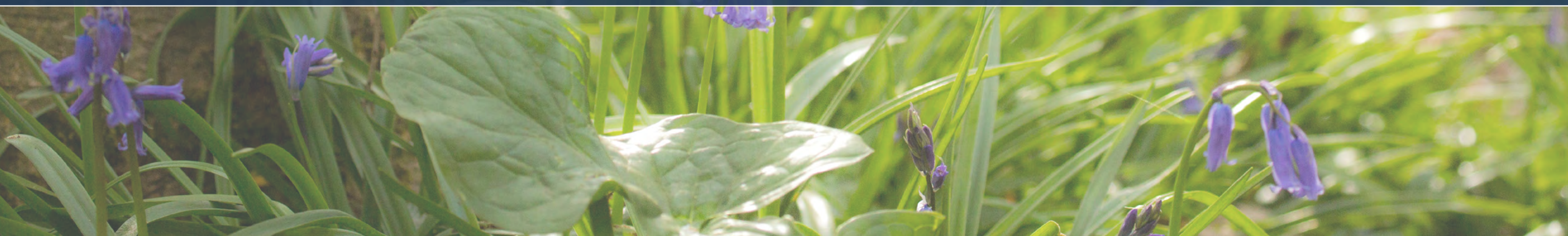
A review of local heritage assets indicates that these are concentrated in the nearby settlements of Allington, Great Gonerby and Sedgebrook, with Conservation Areas in Allington and Great Gonerby.

Belvoir Castle, a Grade I Listed historic castle and stately home, is located around 9km south-west of the site.

Following a review of the relationship of the local heritage assets with the site it is considered unlikely that proposed development would have a significant effect on any heritage assets given the intervening vegetation, buildings, landform and distance.

Great Gonerby is located to the east of the site on higher ground, the high point being in the vicinity of Newark Hill at around 112m AOD. However, most heritage assets are located to the south of the village and there would be no intervisibility between proposed development and the majority of heritage assets within the village.

Where views are possible however, they will be in the context of the existing commercial and retail development to the immediate east of the proposal site as well as the A1 and other transport routes. Significant impact on the setting of any local heritage assets is therefore unlikely.



FLOOD RISK & DRAINAGE

The site is located within Flood Zone 1 and therefore at low risk of fluvial flooding, as shown on the map opposite (source: Environment Agency)

There is some low surface water flood risk on site. Although not widespread, it appears to be mainly in the vicinity of ditches that form existing field boundaries. Surface water flow paths will be factored into the design and layout of the site layout, however this is not considered to represent a notable constraint to site delivery.

The delivery of a Sustainable Drainage System to serve the site is possible, although detailed consideration will be required such as an assessment of the impermeable area and allowable discharge rate to understand and finalise the appropriate surface water attenuation requirements.

An appropriate allowance for Climate Change reflecting the design life of the buildings will inform the design of the SuDS. A detailed drainage scheme will form part of a future application and the necessary allowances for on-site attenuation defined as the detailed design and layout of the scheme is agreed. Given the flat nature of the site and the relative lack of fall it is likely that SuDS may need to be based around the use of swales and below ground attenuation.

UTILITIES

Connections to gas and electricity networks are possible although some reinforcements of local networks could be required reflecting the scale and nature of the proposal.

Desk based assessments indicate that a potable water supply can be taken from water pipes which run down Gonerby Lane.

Surface water drainage will likely be to a local watercourse along Gonerby Lane which flows west to connect to Foston Beck at Allington. Alternately a pumped surface water connection to Toll Bar Drain to the east of the former A1 roundabout may be an option.

Currently foul drains on the Gonerby Triangle industrial estate drain to an existing Anglian Water foul pumping station, located on B1174 Great North Road, next to the access into the A1 Grantham services. This is then pumped to Marston Waste Water Treatment Works around 4km to the north-east. For the proposed development to connect into this system it would need a network of foul sewers which drain to a new pumping station, which would connect to the existing Anglian Water pumping station on Great North Road.

5 DEVELOPMENT VISION

ILLUSTRATIVE MASTERPLAN

- Provision for 13 employment units, comprising a mixed use of warehouses and office space in a range of sizes with associated parking provision;

- The proposed units combine to provide a total internal floor space of circa 123,000sq.m (1,325,000 sq.ft) across the site;

- A dedicated vehicular access proposed off Gonerby Lane;

- Dedicated routes through the development for vehicles and pedestrians;

- Circa 3.2ha (8 acres) of unallocated green space and land for high-quality landscape planting;

- A landscaped buffer, with new and enhanced planting along boundaries, providing a green edge to the development and softening the transition between new development and the agricultural land to the west; and

- Compliance with current biodiversity net gain legislation, through enhancing biodiversity on site and offsetting mitigation measures.

FIG. 4 **ILLUSTRATIVE MASTERPLAN** | prepared by RPS | not to scale

6 SUSTAINABILITY

OUR APPROACH TO SUSTAINABLE DEVELOPMENT

As a specialist regeneration led developer of land and property, a commitment to sustainability is embedded across Harworth's culture, strategy and developments. Harworth view this commitment as critical to making a lasting positive impact on the communities and the environments within which they work.

As a business Harworth's commitment to sustainability is delivered through the five impact pillars of 'The Harworth Way', which encapsulates their continually evolving approach to both their business and the sustainable developments they create.

The Harworth Way defines the Key Impact Areas of Planet, Communities, People, Governance and Partners. These are split into Harworth's Impact Pillars; those that have a direct impact on their development proposals and can make the most positive societal and environmental impact within their regeneration and development projects and their Supporting Pillars that guide the business as it seeks to create sustainable, long term developments.

HARWORTH'S APPROACH TO NET ZERO CARBON

The transition to a Net Zero Carbon economy has particular implications for property developers – and for those invested in them – due to the significant contribution that the sector makes to global carbon emissions.

As a business that specialises in transformation, Harworth is embracing the challenges and opportunities that the transition to Net Zero represents.

Harworth's Transformation to Net Zero will set out their commitment to reaching Net Zero Carbon by 2030 for Scope 1 & Scope 2 emissions, and those Scope 3 emissions relating to business travel and employee commuting.

Harworth also commit to reaching Net Zero Carbon for all emissions by 2040.

7 CASE STUDIES

HARWORTH GROUP

Harworth Group are a leading regenerator of land and property for sustainable development in the UK.

Harworth Group own and manage over 15,000 acres on around 100 sites in the Midlands and the North of England. Harworth Group's core market for commercial development is well suited in these regions where there is a strong demand for quality commercial space as part of the regeneration and growth of the UK.

Harworth Group have an impressive track record in masterplanning and delivering some of the UK's most important commercial developments. Harworth Group have a strong reputation for delivering new commercial units to commercial occupiers across their sites.

The following pages feature examples of current commercial projects by Harworth Group, providing an indication of the type of employment land development proposed for the site in Gonerby Moor.

FIG.5 **SKELTON GRANGE, LEEDS |** CGI visualisation

GATEWAY 36, BARNSLEY

127 acres
1.5m sq.ft of consented commercial space

Harworth Group have transformed the former Rockingham Colliery into Gateway 36 – A new, high quality mixed-use development adjacent to Junction 36 of the M1 with direct frontage on to the Dearne Valley Parkway in Barnsley.

Planning permission for Phase 1 was secured in 2015 for 198,000 sq ft of commercial space. Three R-evolution units were initially built by Harworth with Barnsley Council taking a pre-let on all three units with subsequent sub-lets to Esco GB, Talurit and the Environmental Agency

A final 75,277 sq ft unit was speculatively built by Harworth, named Helix, completed in Sept 2016 and let to Motor Depot in 2018.

A Greene King pub and new units for KFC, Dunkin' Donuts and Taco Bell were also developed on-site.

Phase 1 was sold by Harworth to Mayfair Capital in Summer 2019.

Development of Phase 2 land is now in progress for the build out of a range of bespoke industrial and logistics units ranging from 5,000 - 300,000 sq ft across 51 acres of the site.

FIG.6 **GATEWAY 36, BARNSLEY, SOUTH YORKSHIRE |** CGI visualisation

SKELTON GRANGE, LEEDS

The former Skelton Grange power station site, located adjacent to Junction 45 of the M1 and the Aire Valley Enterprise Zone, was purchased by Harworth Group in 2014 and is currently being masterplanned for a new commercial scheme, bringing forward a range of commercial opportunities for the local economy.

Following outline approval in 2017, Harworth Group's plans for Skelton Grange would see the development of industrial & logistics space across up to five units, ranging in size from 126,000 sq ft to 202,000 sq ft.

Alongside infrastructure upgrades, the plans include a segregated cycle and pedestrian path that is proposed to connect to the Trans Pennine Trail and Sustrans Route 67, as well as tree planting, hedge planting and other ecological enhancements.

FIG.7 **SKELTON GRANGE, LEEDS |** CGI visualisation

LOGISTICS NORTH

250 acres
4m sq.ft of consented commercial space
550 acre country park

A 250-acre employment scheme with s 550-acre Country Park.

Consent was given in 2013 for 4m sq.ft of employment space. To date 3 million sq.ft of commercial space has been built. 5,500 people are currently working on-site with occupiers including Amazon, Lidl, Whistl, Aldi, MBDA and Komatsu.

'Multiply scheme', comprising of ten bespoke industrial units, is a joint venture between Harworth and the Lancashire County Pension Fund - a scheme which is now fully let.

A 550-acre Country Park has been completed which offers significant benefits to both on-site workers and local residents in Bolton, Wigan and Salford.

FIG.8 **LOGISTICS NORTH, BOLTON, GREATER MANCHESTER |** Aerial view and masterplan

8 CONCLUSIONS

This Vision Document has demonstrated that the Site is a logical and deliverable location for employment land in Gonerby Moor. The Site is sustainable, available and deliverable for commercial development. As such, it will make a valuable contribution to the District's employment land supply.

Demand for employment land provision is likely to have increased since the Council last reviewed local employment land needs. Subsequent analysis of the Site's location and context has informed a masterplan which demonstrates the Site's ability to provide large-scale employment provision for the local area.

The Site is available now, offers a suitable location for sustainable development, is achievable and viable.

Accordingly, for the reasons set out within this document, Harworth Group wish to engage with South Kesteven District Council with a view to including the Site as an employment allocation within the emerging Local Plan Review.

Marrons Planning

www.marrons-planning.co.uk

TRANSPORT APPRAISAL

LAND AT GONERBY MOOR
GRANTHAM, LINCOLNSHIRE

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4	09/04/2024	D Hobday	T Cooke	third issue to the client team

CONTENTS

DRAWINGS

Drawing ADC3032-DR-002-P4 (Site Access Roundabout)

TRAFFIC FLOW DIAGRAMS

APPENDICES

1.0 INTRODUCTION

1.1 Harworth Group and Caddick Land commissioned ADC Infrastructure Limited to provide transport and highways advice in support of a Regulation 18 Local Plan allocation submission, for land adjacent to the A1 at Gonerby Moor, Lincolnshire.

1.2 The proposed development site sits on land immediately west of the Gonerby Moor Interchange on the A1, approximately 6km northwest of Grantham. South Kesteven District Council (SKDC) are the local planning authority, and Lincolnshire County Council (LCC) are the local highway authority. The A1 and its slip roads are under the jurisdiction of National Highways.

1.3 Harworth Group's land sits north of Gonerby Lane, and Caddick Group's land is located to the south. The illustrative development masterplan prepared for Harworth Group indicates that their site could accommodate up 1.4million sqft (130,033sqm) of employment development. Caddick Groups land holding is larger, and their illustrative masterplan indicates that it could accommodate up to 2.3million sqft (213,677sqm) of employment development.

1.4 The two sites share a frontage of approximately 400m on Gonerby Lane. The intention is that the two landowners work together to promote forward a combined access strategy, via a new four arm roundabout, which would straddle Gonerby Lane and use land from each site.

1.5 This report examines the accessibility of the site by all modes of transport, undertakes an assessment of the potential traffic impact of the combined developments on the surrounding highway network, including a detailed analysis of the Gonerby Moor Interchange and proposes an appropriate access strategy, demonstrating that safe and suitable access can be achieved. The illustrative development masterplans are in **Appendix A**.

1.6 This Transport Appraisal has been shared with both LCC and NH, who have reviewed and commented on the initial proposals. Both responses were largely positive. The comments and suggestions contained within each response would be addressed as part of the Transport Assessment prepared in support of any future application. Both responses are at **Appendix B**.

2.0 OPPORTUNITIES FOR SUSTAINABLE TRAVEL

Site location and existing use

2.1 The general site location is shown in **Figure 1,** with an aerial photograph of the two sites at **Figure 2.**

Figure 1: general site location

2.2 Harworth's proposed development site comprises 29.9ha of land and is currently undeveloped arable farmland with a collection of farm buildings located towards the northern boundary, and a gated access on Gonerby Lane, which forms the southern boundary.

2.3 Caddick's site comprises 65.5ha of land, and similarly undeveloped arable farmland. It too has a gated access on Gonerby Lane.

2.4 The land to the east of each site belongs to National Highways and forms the embankments and associated infrastructure for the A1.

2.5 The Gonerby Moor interchange was constructed in 2008/09 as part of a major improvements scheme, which introduced grade-separation to several junctions along the A1. The junction has a single bridge deck over the A1 and two roundabouts located either side of the bridge. The western roundabout is the smaller of the two with an inscribed circle diameter (ICD) of 45m. There are single lanes on all approaches, on the circulatory and on the A1 northbound on-slip. The eastern roundabout is larger, with and ICD of 80m, and provides access to the B1174, the existing Grantham North motorway service area and Downtown Retail Park and an industrial estate via the B1174.

2.6 Alongside the Downtown Retail Park, the land east of the Gonerby Moor Interchange also houses several employment developments, primarily concerned with logistics and vehicle hire.

2.7 The Downtown Retail Park has planning consent for a significant redevelopment (planning ref S17/2155). The expansion would encompass the land south of the service station and the planning consent states that it would comprise the construction of a '*Designer Outlet Centre of up to 20,479 sqm (GEA) of floorspace comprising retail units (A1), restaurants and cafes (A3), and storage. Additional large goods retail (5,574 sqm GEA), garden centre (5,521 sqm GEA) and external display area for garden centre (1,393 sqm), tourist information and visitor centre, training academy, leisure unit and offices. Demolition of existing garden centre and sales area and existing warehouse*'

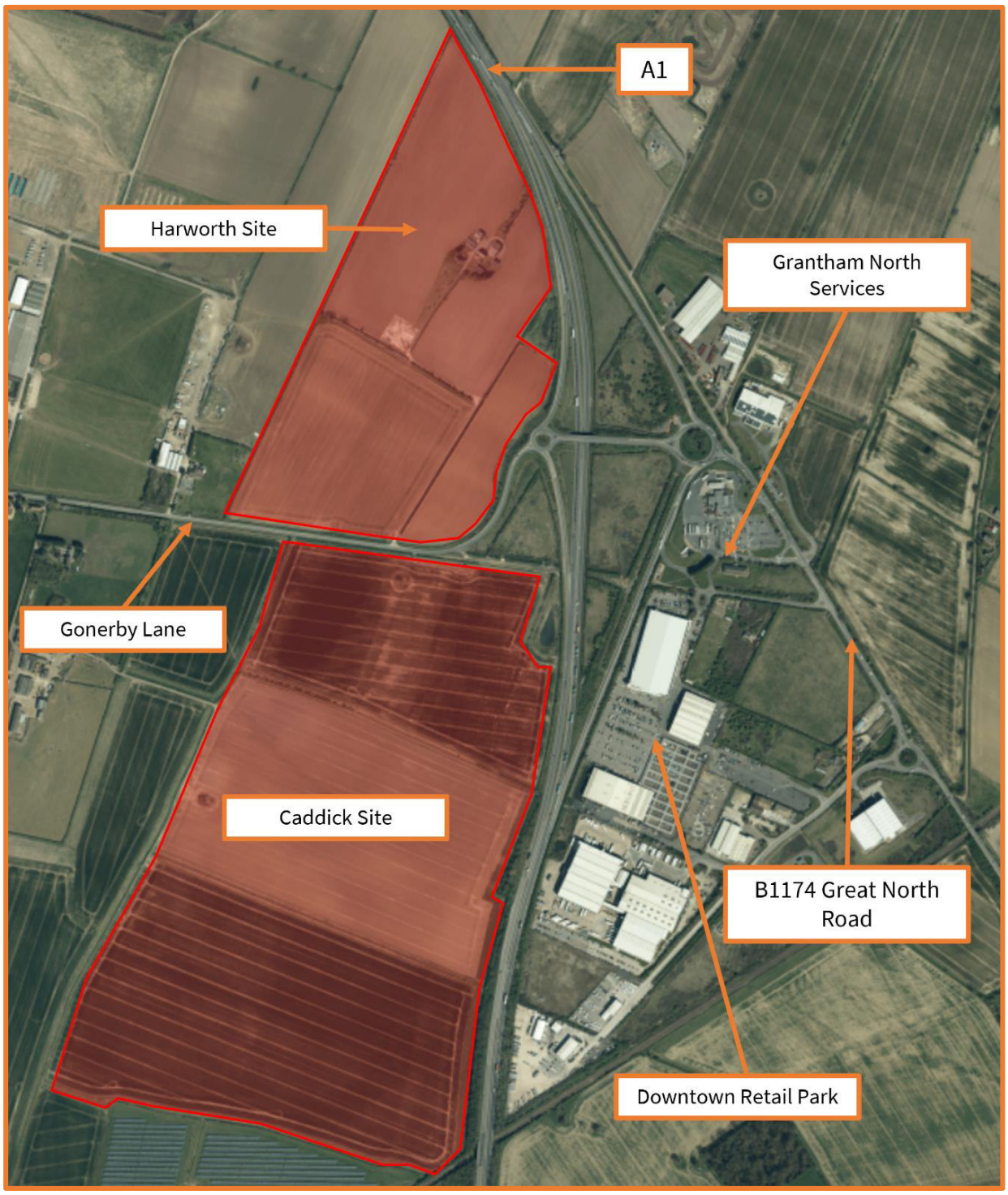


Figure 2: aerial photograph

Opportunities for pedestrian travel

2.8 For commuters without mobility impairment, up to 500 metres is the desirable walking distance, up to 1,000 metres is an acceptable walking distance, and up to 2,000 metres is the preferred maximum walking distance[1]. **Figure 3** shows a 2km pedestrian catchment from the centre of each site

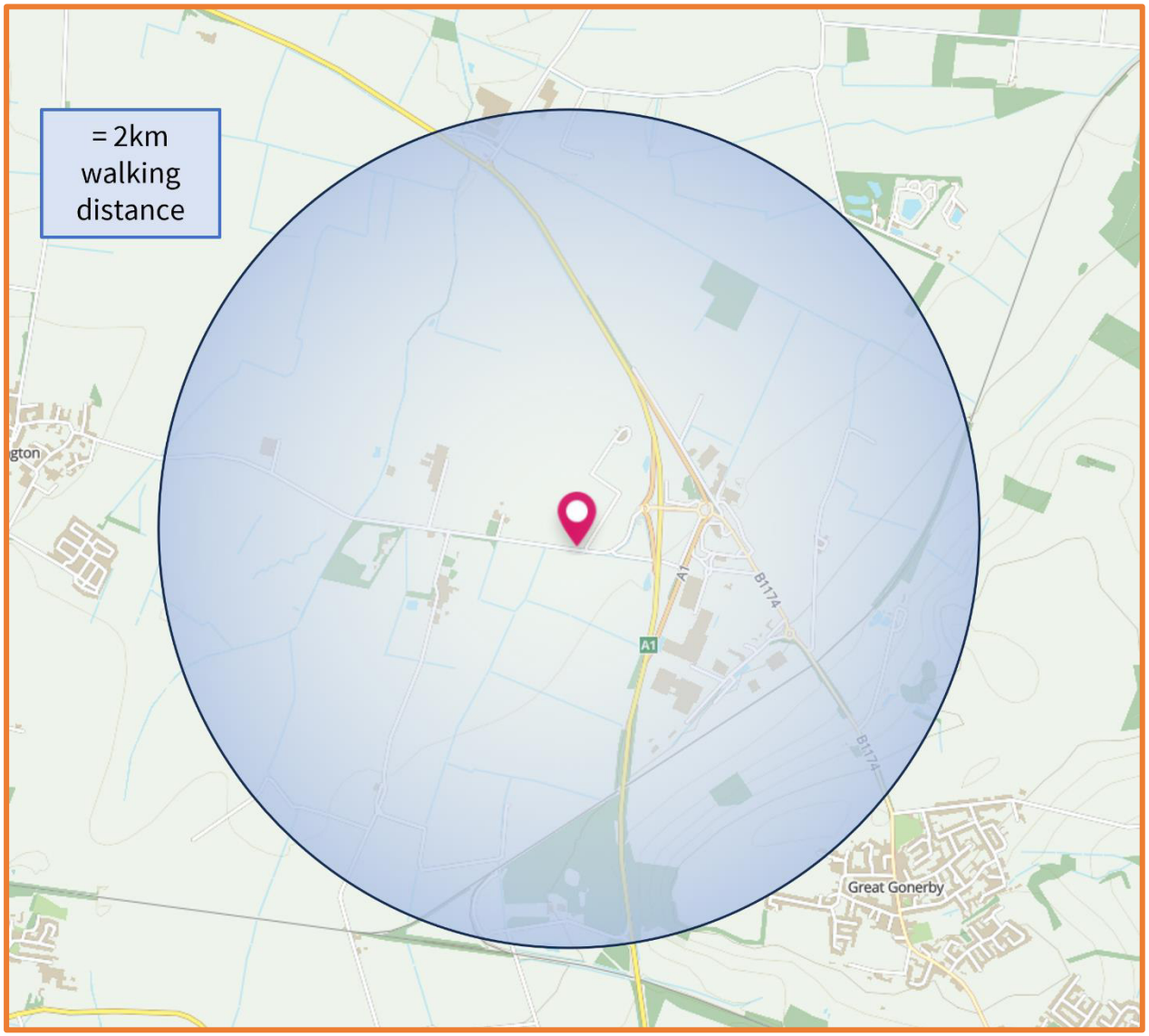


Figure 3: 2km walking distance from the site access.

2.9 The sites are relatively remote from any settlements, and this naturally limits its accessibility on foot for most potential employees. Great Gonerby is approximately a 3km, or 40 minute walk from the centre of the site, with Grantham town centre approximately 6km (75 minutes' walk).

2.10 As part of the Gonerby Moor junction upgrades, a shared footway/cycleway was constructed, commencing approximately 50m east of the existing gated farm access, on the Caddick Land side of the carriageway. The shared infrastructure extends around the western dumbbell roundabout, across the overbridge, before terminating at the Motorway Service Area (MSA) access adjacent to the eastern dumbbell. Crossing the two slip roads is achieved via uncontrolled crossing points with dropped kerbs and tactile paving. Beyond the MSA there is a footway along the eastern side

[1] Guidelines for Providing for Journeys on Foot, Institution of Highways and Transportation, 2000

of the B1174 running south into Great Gonerby, and on into Grantham, although for the northern section it appears to be slightly substandard in width and may require upgrading.

2.11 This means that there is a footway connection between the site and Grantham town centre, however the existing infrastructure stops short of the proposed site accesses and would require extending to serve the proposed development. Allington is approximately 2.5km west of the site, however the lack of footway along Gonerby Lane makes walking the route unsafe. The existing infrastructure can be seen in **Figures 4** and **5**.

Figure 4: existing shared footway/cycleway on the southern side of Gonerby Lane, looking north towards the A1

Figure 5: existing footway along the B1174, looking south towards Great Gonerby

Opportunities for cycle travel

2.12 The National Travel Survey records that the average UK cycle journey for non-leisure purposes such as commuting to work is 5km each way, however many people will choose to cycle considerably further than this if the topography, highway conditions and general infrastructure both along the route and at their destination are favourable. **Figure 6** below shows a 5km catchment, measured from the site access roundabout.

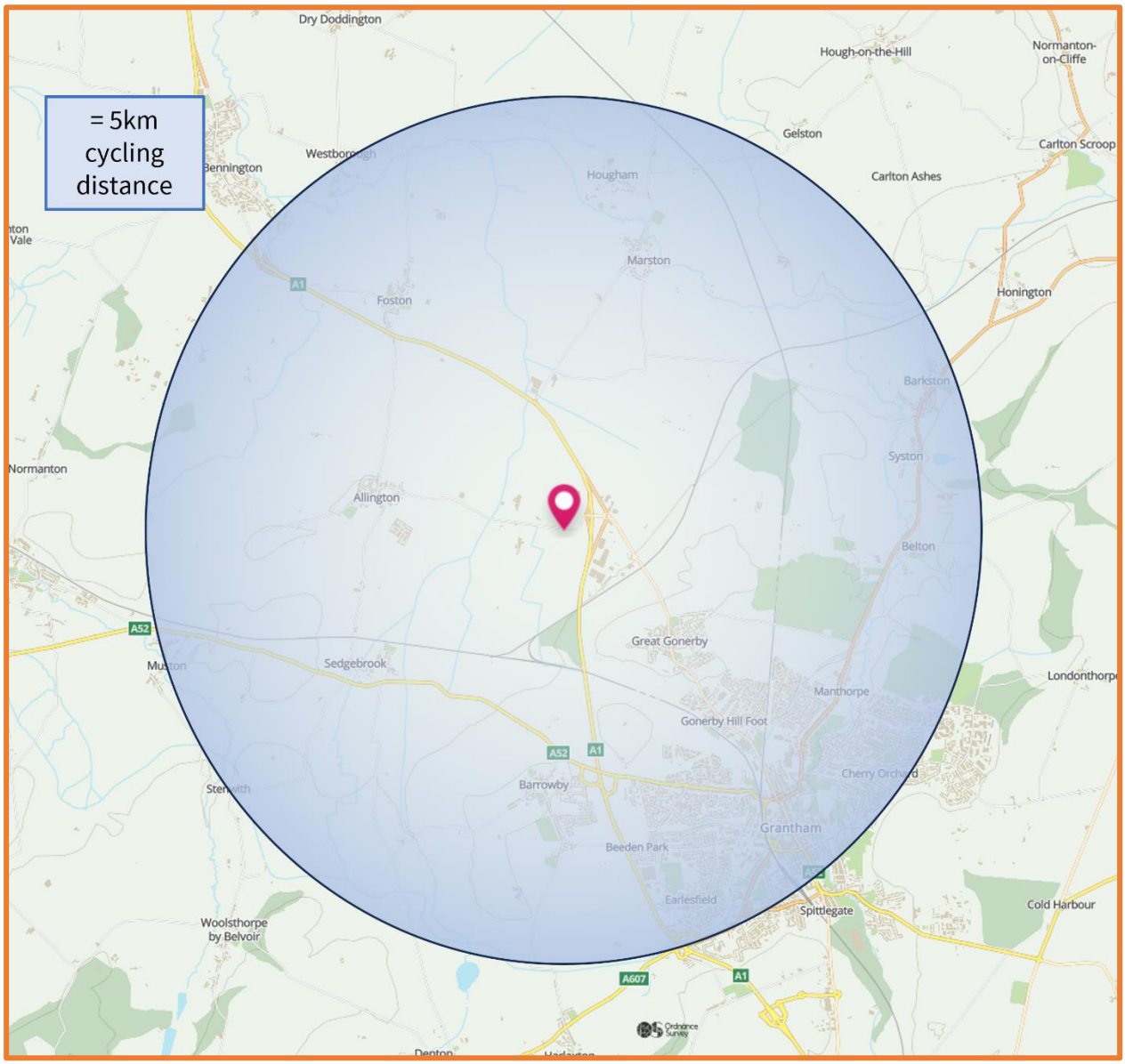


Figure 6: 5km cycling distance from the site access.

2.13 The local topography is relatively flat, although there is a ridge of land between the site and Grantham over which the B1174 passes, just north of Great Gonerby. There is a shared cycleway/footway along the southern edge of the carriageway around the Gonerby Moor Interchange, with uncontrolled crossing points on both roundabouts, however this terminates adjacent to the service station access.

2.14 Given the rural location of the site, aside from this short section, dedicated cycle infrastructure is understandably limited. West of the site, Gonerby Lane is lightly trafficked and relatively flat, meaning it is possible to cycle to the neighbouring villages of Allington and Sedgebrook. Barrowby is also within 5km as the crow flies, although to avoid cycling along the A52 a diversion

is required that extends the distance beyond 5km and the journey takes approximately 40 minutes.

2.15 Upgrading the pedestrian and cycle connectivity between the site and the surrounding amenities would be a requirement of developing the land.

2.16 The Deportment for Transport's Local Transport Note 1/20 (LTN 1/20) sets the benchmark for sustainable transport infrastructure design, particularly for cycling infrastructure. A development of this scale would be expected to provide fully LTN 1/20 compliant infrastructure.

2.17 Table 5-2 of LTN 1/20 states that two way cycle track serving less than 1000 movements in a peak hour should be a minimum of 3m wide, with an absolute minimum width of 2m at constraints. The cycle track should be segregated from the carriageway by a buffer strip, which for a road of 40mph would need to be an absolute minimum of 0.5m in width. A 2m wide footway would be constructed adjacent to the cycle track, on the non-carriageway side.[2]

2.18 **Drawing ADC3103-DR-002-P2** shows an LTN 1/20 compliant footway/cycleway extending from both site access arms along Gonerby Lane to the west. The proposed infrastructure along the southern side of the carriageway is shown tying into the existing 3m wide shared facility shown on **Figure 4** above. On the northern side of the carriageway, the proposed segregated facility extends as far as the existing provision, at which points users would be required to cross the carriageway via an uncontrolled dropped kerb transition and join the existing provision on the southern side of the carriageway.

2.19 The existing infrastructure pre-dates LTN 1/20's standards, and while the current guidance leans towards fully segregated facilities of the type proposed at the site accesses, section 6.5 of the document states that shared use facilities may be appropriate in some situations, provided they are well designed and implemented. This includes situations where a length of shared use may be acceptable to achieve continuity of a cycle route.[3] The A1 overbridge is not wide enough to provide a fully segregated facility on each side of the carriageway. Both pedestrian and cyclist flows will be low enough that the existing shared facility will be acceptable.

Opportunities for rail travel

2.20 Grantham Railway Station is located approximately 6.5km to the southeast of the proposed development. The train station is a primary station on the East Coast Mainline and is managed by the London North Eastern Railway (LNER). The train station is served by trains operated by LNER, East Midlands Railway and Hull Trains with regular services to regional and national destinations. There are express intercity services between Grantham and London Kings Cross (approx. 1hr 5mins journey time) via Peterborough (19mins) and northbound to Edinburgh (3hrs 45mins) via Doncaster (20mins) and Leeds (45mins). East Midlands Railway operate an hourly regional service between Grantham and Nottingham (35mins).

2.21 The station is within 500m walking distance of the stop served by the 14 and 24 buses described below. It is a major regional commuter station, with 263 car parking spaces and 73 accessible parking spaces. There are 63 restricted access covered cycle stands. While the station is well beyond walking distance from the proposed development, there is the potential for train travel to form part of a multi-modal trip with either bus or perhaps bicycle.

[2] Cycle Infrastructure Design (publishing.service.gov.uk)p52
[3] Cycle Infrastructure Design (publishing.service.gov.uk) p67

Opportunities for bus travel

2.22 As shown in **Figure 7,** the nearest bus stop to the site is in the Downtown Shopping Centre car park. The stop is served by the 14 and 24 bus services and is marked by a basic flag and pole arrangement, with timetabling but no shelter or real time information. The stop is approximately 1.6km walking distance from the centre of the site.

2.23 The number 14 is a local service operating between Grantham town centre and the nearby village of Great Gonerby. Once a day the service route is extended to call at the Downtown shopping centre, with the return service departing at 15:18.

2.24 The 24-bus service is a loop service between Grantham and Newark via Great Gonerby and Long Bennington. The service currently operates 6 times a day between Grantham town centre and the Downtown shopping centre. Currently only three services a day extend as far as Newark, with the remainder terminating at the village of Long Bennington. The journey time between the shopping centre and Grantham town centre is timetabled as taking 17 minutes meaning that the site has the potential to be easily accessible by bus.

2.25 Either of the two existing services could be extended to call at the site, performing a loop within the proposed developments before returning to their original route. Frequencies could increase at peak times if deemed necessary or be altered to coincide with shift changeovers to increase potential patronage.

2.26 The Downtown Retail Park expansion is subject to a Section 106 planning obligation which requires the provision of a new bus service. The terms of the S106 agreement require.

'such enhancements to result in the bus service linking the Development with Grantham Town Centre for a minimum period of three years from the first occupancy of the Development to operate at a frequency between the Site and Grantham Town Centre of:

- *One service every 30 minutes during the peak period of each day and that the development is open to the public and trading; and*
- *One service every 60 minutes during the off-peak period being the period during which the development is open to the public (except for any time falling within the peak periods) o each day that the development is trading.*

2.27 Depending on the timescales involved, the Downtown Retail Park with be significantly enhancing bus provision to the area, albeit the buses will only be calling at the retail park, which would still require a walk for anyone wishing to access the proposed development. There is the potential to extend this new service to serve both sites as well as the retail park or to provide a shuttle bus service between the two. The site is therefore accessible by bus, subject to these improvements.

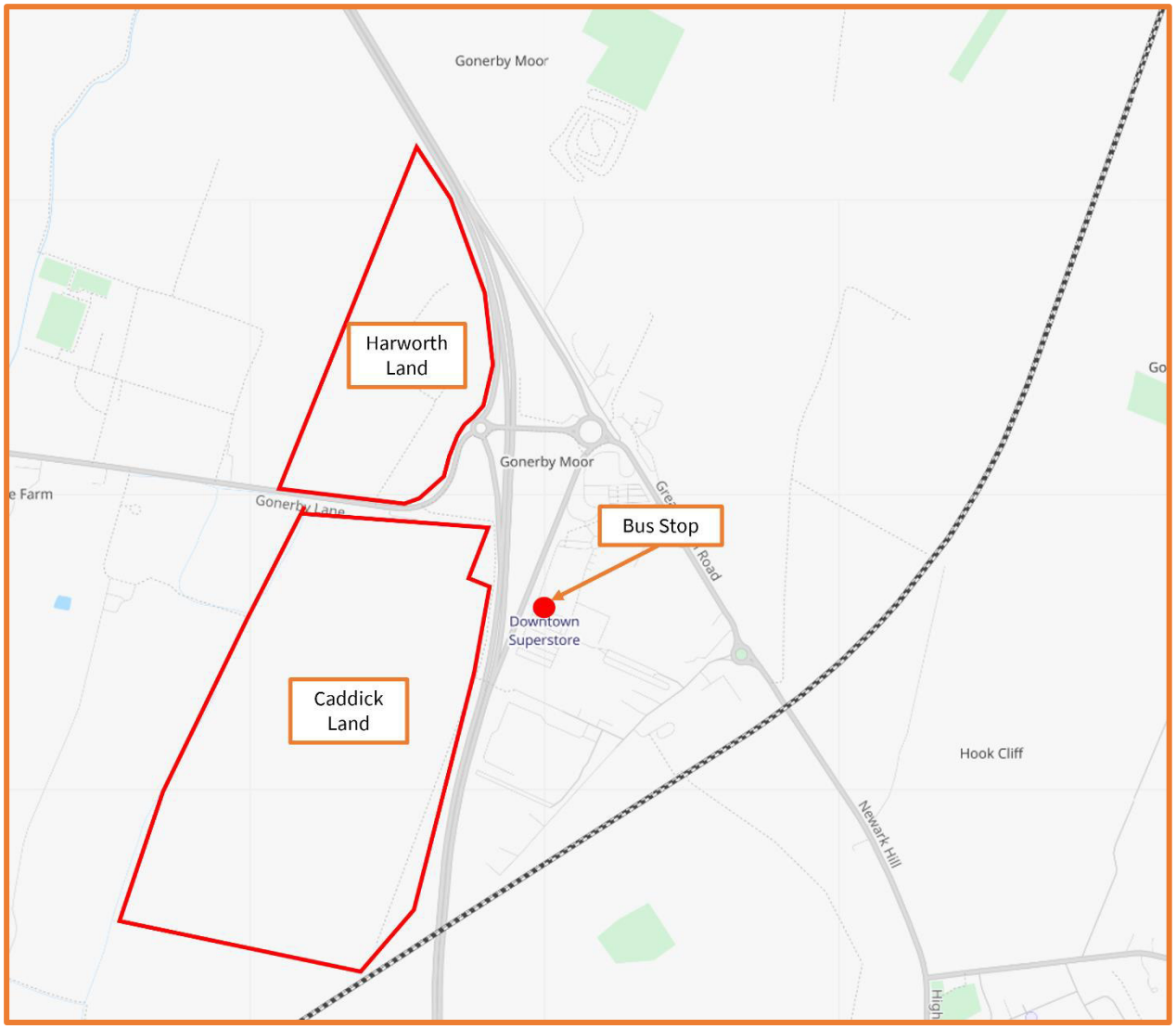


Figure 8: Existing Bus stop locations

Accident record

2.28 The personal injury accident (PIA) data for the surrounding highway network has been examined, using Crashmap.co.uk, for the last 5 years to establish any existing clusters or areas of concern that may be made worse by the proposed development. The PIAs are shown in **Figure 9** below. The accident reports are at **Appendix C**.

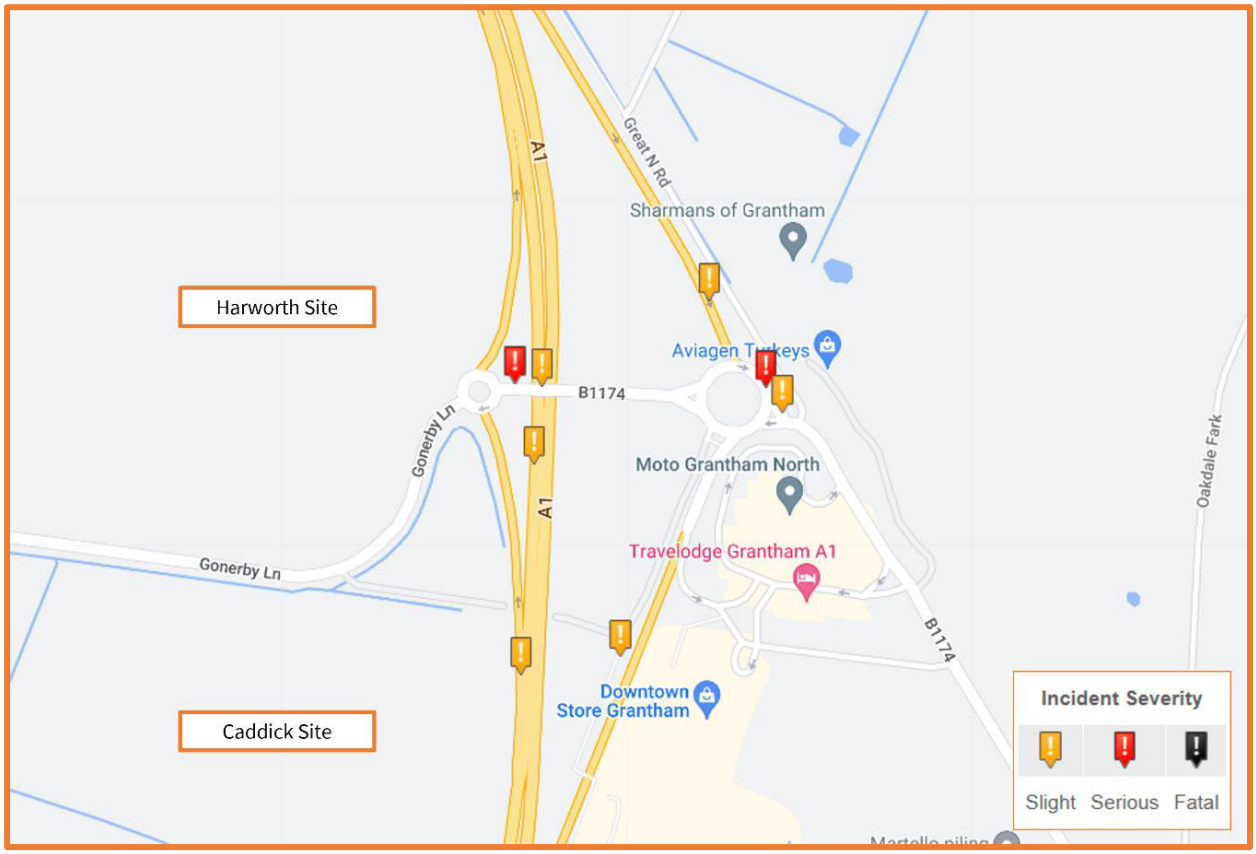


Figure 9: PIA locations relative to the site

2.29 Two collisions occurred on the A1 overbridge, one of these was a rear end shunt type collision on the approach to the western dumbbell, which resulted in slight injuries to one individual. The other was a head on collision between a car and a good vehicle on the bridge, resulting in serious injuries to one individual.

2.30 Two collisions occurred at the eastern dumbbell roundabout. One involved a goods vehicle overrunning the roundabout and hitting the nearside kerb, resulting in serious injuries to one individual. The other involved a rear-end shunt type collision on the northbound approach, resulting in slight injuries to one individual.

2.31 One collision occurred on the A1 southbound off-slip no provisional details are available on the nature of the accident, however it occurred at night, in wet conditions.

2.32 One collision occurred on the A1 northbound off-slip and involved a rear end shunt type collision resulting in slight injuries to one individual.

2.33 One collision occurred on the A1 northbound mainline carriageway and involved a rear end shunt type collision resulting in slight injuries to one individual.

2.34 One collision occurred on the A1 southbound on-slip and involved a rear end shunt type collision resulting in slight injuries to two individuals.

2.35 The frequency, severity and causation factors of the collisions that have occurred do not point to an inherent highway safety problem at the junction that would be exacerbated by additional development generated traffic.

3.0 VEHICULAR ACCESS

Local highway network

3.1 Gonerby Lane forms the southern boundary of the site. It runs east-west between the A1 interchange and the village of Allington, which is approximately 2.5km to the west of the proposed development site. It is rural in character and flanked by high hedges in the vicinity of the site, and the carriageway is approximately 6m wide. To the west of the site, Gonerby Lane is extremely straight for approximately a kilometre with excellent forward visibility on the approach to the proposed site access. Immediately east of the site it turns almost 90 degrees north on the approach to the western dumbbell roundabout of the Gonerby Moor Interchange. Gonerby Lane has a weight restriction in place for vehicles greater than 7.5t, because west of the site it passes through the village of Allington, and the carriageway narrows as it passes through the centre of the village making it unsuitable for large vehicles.

3.2 The character of Gonerby Lane is clearly visible in **Figure 10** below, which was taken from the location of the existing access gate to the development land during a site visit in July 2022 and looks west towards Allington, and east towards the A1 junction.

Figure 10: Gonerby Lane looking west (on the left), and east (on the right) from the existing access

3.3 The Gonerby Moor Interchange was significantly upgraded in 2008, with grade-separation being introduced.

3.4 The B1174 runs south from the eastern roundabout into Grantham town centre, via the village of Great Gonerby. The B1174 is rural in character and governed by the national speed limit until it approaches Great Gonerby at which point the speed limit reduces to 30mph. It has a footway along the eastern edge of the carriageway and street lighting along its full length.

Vehicular access proposals

3.5 Access to the two development sites is proposed to be achieved via a new roundabout on Gonerby Lane. As Gonerby Lane is predominantly rural in character, has no footway provision and is governed by the national speed limit as it passes along the site frontage, it is therefore classified as a 'road' not a 'street'. Hence, both the site access junction design and its associated visibility requirements should be determined by the parameters set out in the Design Manual for Roads and Bridges (DMRB).

3.6 Although Gonerby Lane has a national speed limit, vehicle speeds along the site frontage will be lower than 60mph, given the proximity of the A1 junction and the ninety degree bend on the approach to the western roundabout. The construction of a new roundabout would also act as a speed constraint.

3.7 Ultimately, the speed limit along Gonerby Lane would be reduced to 40mph as part of the development proposals, with the speed limit change located well beyond the western boundary of the site. This requires the granting of a Speed Limit Order (SLO), which takes place independently of the planning application and cannot be guaranteed, particularly in advance of any determination. As such, it is necessary to design any new access to the standards associated with the existing design speed, to mitigate the risk of the SLO not being granted. In terms of roundabout design, the key elements affected by the design speed of the road are forward visibility and centreline radius. These parameters have been designed to the existing road speed of 100kph. The start of the weight restriction would also be moved westwards to allow HGV access to the sites.

3.8 **Drawing ADC3032-DR-002-P2** shows a four-arm roundabout spanning Gonerby Lane. The roundabout has been designed in accordance with the DMRB volumes CD109 and CD116. It has an inscribed circular diameter of 50m. Both the site access arms measure 7.3m in width, and Gonerby Lane would be widened to 7.3m, with the relevant widening through the bend between the site access and the western dumbbell roundabout to ensure two way HGV movements. Forward visibility of 215m can be comfortably achieved on both mainline approaches, and the required deflection achieved while maintaining a minimum centreline radius of 720m on each.

3.9 The drawing shows an LTN 1/20 compliant footway/cycleway extending from both site accesses along Gonerby lane towards and connecting into the existing infrastructure on the southern edge of Gonerby Lane.

4.0 OFF SITE HIGHWAY IMPACT

Background traffic

4.1 Junction turning counts were undertaken at each of the Gonerby Moor Interchange roundabouts during the week of 20th November 2023. These counts give a set of observed traffic flows for the morning and evening peak hours and are shown at **Diagrams 1 and 2** respectively. The raw count data is at **Appendix D**.

4.2 The next iteration of SKDC's local plan would run util 2041. Hence, 2041 has been used as the future year in which to model the impact of the development. The following growth factors have been derived from TEMPRO version 8.1, using the 2022 core scenario traffic projections.

NTEM Growth Factors: South Kesteven 002 MSOA: 2023-41	
AM Peak	1.1297
PM Peak	1.1333

4.3 The above growth factors demonstrate a predicted growth in background traffic of approximately 13% over the local plan period. The growth factors have been applied to the 2023 Observed flows to form the 2041 Base traffic flows, which are at **Diagrams 3 and 4** for the morning and evening peak hours respectively.

Committed developments

4.4 The traffic flows for the Downtown Retail Park redevelopment have been extracted from the Transport Assessment for that site and are at **Diagrams 5 and 6** for the morning and evening peak hours.

4.5 There are no other committed developments in the local area that would present an impact at the Gonerby Moor interchange. The additional traffic generated by developments further afield would be accounted for in the background growth from TEMPRO. The committed development flows have been added to the 2041 Base flows to give a 2041 Background flow set, shown at **Diagrams 7 and 8** for the morning and evening peak hours respectively.

Trip rates

4.6 The overall land use makeup of the proposed development has yet to be determined. However, in order to assess the potential trip generation, an arbitrary split has been applied, with 75% of the site being assessed as B8 Storage and Distribution uses, and the remaining 25% as B2 general industrial uses. This would be refined and adjusted as necessary as the development proposals progress.

4.7 With any potential employment site, it is important to derive trip generation profiles for both light vehicles and Heavy Goods Vehicles (HGVs), particularly so given that B8 developments generate significantly higher numbers of HGV trips as an overall percentage of their traffic. The TRICS database, version 7.10.3, has been consulted to establish a suitable trip rate for both land uses, for both light vehicle and HGVs, and the trip rates are shown in the tables below, with the TRICS reports at **Appendix E**.

B2 Trip Rates	Peak	Arrive	Depart	Two-way
Total Vehicle trip rates (per 100sqm GFA)	AM Peak	0.371	0.127	0.498
	PM Peak	0.110	0.355	0.465
Light Vehicle trip rates (per 100 sqm GFA)	AM Peak	0.346	0.106	0.452
	PM Peak	0.097	0.344	0.441
HGV trip rates (per 100 sqm GFA)	AM Peak	0.025	0.021	0.046
	PM Peak	0.013	0.011	0.024
B8 Trip Rates	**Peak**	**Arrive**	**Depart**	**Two-way**
Total Vehicle trip rates (per 100 sqm GFA)	AM Peak	0.063	0.037	0.100
	PM Peak	0.037	0.059	0.096
Light Vehicle trip rates (per 100 sqm GFA)	AM Peak	0.061	0.021	0.082
	PM Peak	0.019	0.044	0.063
HGV trip rates (per 100 sqm GFA)	AM Peak	0.002	0.016	0.018
	PM Peak	0.018	0.015	0.033

Trip generation – Harworth Land

4.8 Using the above trip rates, and a 75%/25% B8/B2 land use split, the proposed Harworth development site of 1.4million sqft (130,033sqm), as shown on the illustrative masterplan at **Appendix A**, would generate up to 259 and 245 two-way vehicle movements in the morning and evening peak hours, respectively. The breakdown of this traffic is shown in the table below.

Harworth Site Trip Generation						
Vehicle Trips	AM Peak Hour			PM Peak Hour		
130,033sqm	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Total Vehicles	182	77	259	72	173	245
Light Vehicles	172	55	227	50	155	205
HGVs	10	22	32	22	18	40

Trip generation – Caddick Land

4.9 As shown in their illustrative masterplan at **Appendix A,** the Caddick Developments' site comprises 2.3million sqft (213,677sqm) of mixed B2/B8 land uses.

4.10 Using the same trip rates displayed above, and assuming the same 75%/25% B8/B2 land use split, the Caddick site would generate up to 426 and 402 two-way vehicle movements in the morning and evening peak hours, respectively. The breakdown of this traffic is shown in the table below.

Caddick Site Trip Generation						
Vehicle Trips	AM Peak Hour			PM Peak Hour		
213,677sqm	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Total Vehicles	299	126	426	118	284	402
Light Vehicles	283	90	373	82	254	337
HGVs	16	37	53	36	30	66

Trip generation – Combined developments

4.11 The combined developments would generate up to 686 and 647 two-way vehicle movements in the morning and evening peak hours, respectively. The breakdown of this traffic is shown in the table below.

Combined Sites Trip Generation						
Vehicle Trips	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Total Vehicles	481	205	686	190	457	647
Light Vehicles	455	145	600	132	409	541
HGVs	26	59	86	58	48	106

Trip distribution – light vehicles

4.12 To determine the likely distribution pattern of the proposed development traffic, reference was made to the 2011 National Census 'Location of usual residence and place of work by method of travel to work' dataset (reference WU03EW). The data provides information on the origin/destination of trips for each middle layer super output area (MSOA) associated with journeys to work.

4.13 The site is in the 'South Kesteven 002' MSOA. Therefore, the data was examined to identify where people working within the South Kesteven 002 MSOA live. From this information the likely travel routes have been estimated using Google Maps, and the proportion using each route identified. A copy of the Census data and routing is in **Appendix F**. This approach is appropriate given that it is likely that new employees within the development will display similar travel patterns to existing employment sites, particularly those immediately east of the A1 interchange.

4.14 The development traffic will divide at the site access junctions, with 92% routing to/from the east along Gonerby Lane towards the A1 interchange, and the remaining 8% routing to/from the west in the direction of Allington.

4.15 At the A1 interchange the traffic will divide, with 36% routing to/from the north along the A1, and 32% routing along the A1 to/from the south. The remaining 24% would route along the B1174 to/from Grantham. This distribution pattern is shown in **Figure 11** below, with the two-way trip profile in the table beneath it.

Figure 11: light vehicle distribution routings

Route	A	B	C	D
Percentage of light vehicle traffic	24%	32%	36%	8%
Two-way movements AM peak - lights	144	192	216	48
Two-way movements PM peak - lights	130	173	194	43
Percentage of HGV traffic		50%	50%	
Two-way movements AM peak - HGV		43	43	
Two-way movements PM peak - HGV		53	53	

Trip distribution – HGVs

4.16 The weight restrictions on Gonerby Lane means that west of the site it is unsuitable for HGV traffic. For the purposes of this report, it has been assumed that all HGV traffic would route along the A1, and a 50/50 north/south split has been applied. The two-way trip profile is shown in the table above.

4.17 The distribution described above is shown in **Diagram 9**. The Harworth Group's development traffic assignment is at **Diagrams 10 and 11** and the Caddick Land development traffic is at **Diagrams 12 and 13**, for the morning and evening peak hours respectively. **Diagrams 14 and 15** show the total traffic assignment for the combined sites.

Minimising the impact on local villages.

4.18 It should be noted that Gonerby Lane provides a shortcut between the site and the A52, allowing traffic to bypass the Grantham North junction on the A1. To avoid HGV's routing through the village, an existing weight restriction is in place on Gonerby Lane, which would be relocated west of the site access roundabout. Additional measures to prevent HGVs routing west along Gonerby Lane would also ne considered, with potential options including physical barriers such as height or width restrictors, or Automatic Numberplate Recognition (ANPR) monitoring for HGV's.

4.19 Light vehicle traffic routing through Allington and Sedgebrook is also of considerable local concern.

4.20 LCC have acknowledged this in their initial response to the proposals, stating that *We would want to limit any traffic impact through the villages of Allington and Sedgebrook, the distribution results in nearly 50 additional vehicles in the peak hour along this route which should be compared to base flows. It may be a high percentage increase, and it would be helpful if consideration could be given to ways to reduce this impact.*

4.21 Detailed analysis of the background traffic through both villages will be undertaken as part of any TA for the developments. This will allow the increases to be quantified in percentage terms. Based on an initial analysis of the increases on Gonerby Lane, the development would result in approximately 15% more light vehicle traffic routing to/from the west.

4.22 The Downtown Retail Park was required by condition to implement a signage strategy to discourage drivers from using Gonerby Lane. It can be assumed then, that measures to minimise traffic routing through the nearby villages would be required for the proposed development, and these should be considered at an early stage, through discussion with LCC.

'With development' Traffic Flows

4.23 The combined traffic assignment at **Diagrams 14 and 15** has been added to the 2041 Background Traffic flows to give a 2041 With Development flow set, which is shown in **Diagrams 16 and 17**.

5.0 HIGHWAY IMPACT

Site Access Roundabout

5.1 The site access roundabout shown in **Drawing ADC3032-DR-001-P2** has been modelled using Junctions 9 ARCADY. The 2041 With Development flows have been modelled for both morning and evening peak hours. The results are shown in the tables below, and the full ARCADY report is at **Appendix G.**

	AM peak hour			PM peak hour		
	Queue (PCUs)	Delay (secs)	Ratio of Flow to Capacity	Queue (PCUs)	Delay (secs)	Ratio of Flow to Capacity
2041 With Development						
A – Gonerby Lane Westbound	0.7	3.80	41%	0.3	3.32	24%
B – Caddick Access	0.1	3.48	12%	0.3	3.18	22%
C – Gonerby Lane Eastbound	0.1	2.81	12%	0.1	2.84	13%
D - Harworth Access	0.1	3.26	7%	0.2	3.24	15%

5.2 As shown in the table above, in all scenarios in both the morning and evening peak hours the site access junction is forecast to operate with a maximum ratio of flow to capacity (RFC) of 41% and therefore have plenty of spare capacity. There would be no material queuing or delay associated with the proposed site access junction, which can therefore comfortably accommodate all the proposed development traffic with no detriment to the wider highway network.

Gonerby Moor Interchange – Western Dumbbell

5.3 The western roundabout of the Gonerby Moor interchange has been modelled using Junctions 9 ARCADY. The 2023 Observed flows have been modelled, along with the 2041 Background and 2041 With Development flows, for both morning and evening peak hours. The results are shown in the tables below, and the full ARCADY report is at **Appendix H.**

	AM peak hour			PM peak hour		
	Queue (PCUs)	Delay (secs)	Ratio of Flow to Capacity	Queue (PCUs)	Delay (secs)	Ratio of Flow to Capacity
2023 Observed						
A – A1 Overbridge	0.4	3.96	29%	0.5	4.02	34%
B – A1 Northbound Off- Slip	0.4	5.05	29%	0.3	4.93	24%
C – Gonerby Lane Eastbound	0.1	4.24	12%	0.2	4.32	15%
D - A1 Northbound On- Slip	Exit Only					
2041 Background						
A – A1 Overbridge	0.5	4.29	35%	0.9	5.02	47%
B – A1 Northbound Off- Slip	1.0	7.32	50%	0.7	7.11	43%
C – Gonerby Lane Eastbound	0.1	4.24	12%	0.3	5.71	22%
D - A1 Northbound On- Slip	Exit Only					
2041 With development						
A – A1 Overbridge	1.4	6.66	59%	1.4	6.56	58%
B – A1 Northbound Off- Slip	4.6	25.78	83%	1.5	11.68	60%
C – Gonerby Lane Eastbound	1.0	10.43	51%	5.5	33.00	86%
D - A1 Northbound On- Slip	Exit Only					

5.4 As shown in the table above, in the future year background scenario the roundabout is forecast to operate with a maximum ratio of flow to on any of its approaches of capacity (RFC) of 50% and therefore have plenty of spare capacity.

5.5 The addition of the combined development traffic would have an impact on the performance of the roundabout, as would be expected given its proximity to the site access. Crucially however, the roundabout would still operate within its maximum capacity in both peak hours with the development in place.

5.6 In the morning peak hour, as many vehicles arrive at the sites, the primary impact would be on the A1 Northbound off-slip, which would operate at 83% of its capacity, with an average delay of 25.78 seconds. Despite this, queuing on the slip road would still be low, with a predicted length of 4.6 PCU's. This equates to a queue of approximately 26m in length. The off slip has a length of approximately 290m, meaning it can comfortably accommodate the predicted queuing without impacting on the A1 mainline flow.

5.7 In the evening peak hour, the primary impact is on the Gonerby Lane approach as vehicles seek to leave the sites. It would operate at 86% of its capacity, with a delay of 33 seconds and a queue of 5.5 PCU's or approximately 32m in length. There is ample space between the roundabout and the proposed site access to accommodate the predicted queuing.

5.8 In both peak hours the A1 overbridge would continue to operate with ample spare capacity, and minimal queuing. There would be no adverse interaction between the two dumbbell roundabouts because of the development traffic.

5.9 The western dumbbell roundabout can therefore accommodate the developments traffic in its current form, without requiting mitigation.

Gonerby Moor Interchange – Eastern Dumbbell

5.10 The eastern roundabout of the Gonerby Moor interchange has been modelled using Junctions 9 ARCADY. The 2023 Observed flows have been modelled, along with the 2041 Background and 2041 With Development flows, for both morning and evening peak hours. The results are shown in the tables below, and the full ARCADY report is at **Appendix I.**

	AM peak hour			PM peak hour		
	Queue (PCUs)	Delay (secs)	Ratio of Flow to Capacity	Queue (PCUs)	Delay (secs)	Ratio of Flow to Capacity
2023 Observed						
A – B1174 Great North Road	0.3	2.23	25%	0.4	2.16	27%
B – A1 Southbound On- Slip	Exit Only					
C – A1 Overbridge	0.2	1.95	17%	0.2	1.84	15%
D – A1 Southbound Off-Slip	0.2	2.11	19%	0.2	1.91	18%
2041 Background						
A – B1174 Great North Road	0.5	2.66	34%	0.9	3.12	48%
B – A1 Southbound On- Slip	Exit only					
C – A1 Overbridge	0.4	2.17	27%	0.3	2.00	23%
D – A1 Southbound Off-Slip	0.4	2.66	28%	0.3	2.26	24%
2041 With development						
A – B1174 Great North Road	0.9	3.82	46%	1.4	4.53	58%
B – A1 Southbound On- Slip	Exit Only					
C – A1 Overbridge	0.5	2.46	34%	0.5	2.43	35%
D – A1 Southbound Off-Slip	0.7	3.58	42%	0.5	3.26	35%

5.11 As shown in the table above, in all scenarios in both the morning and evening peak hours the eastern roundabout of the Gonerby Moor Interchange is forecast to operate with a maximum ratio of flow to capacity (RFC) of 58% and therefore have plenty of spare capacity. There would

be no material queuing or delay associated with the proposed site access junction, which can therefore comfortably accommodate all the proposed development traffic with no detriment to the wider highway network.

A1 Merge/Diverge Assessment

5.12 The A1 southbound merge and diverge, and the A1 northbound merge and diverge movements have all been examined. The 2041 Background and With Development traffic flows have been used to determine the merge and diverge requirements to and from the mainline A1 in accordance with *Figure 3.12a* and *Figure 3.26a* of CD122. The resulting diagrams are provided at **Appendix J.**

5.13 The A1 morning and evening peak hour mainline upstream and downstream flows were obtained from two DfT count points on the count A1. Count point 81401 is located south of the Gonerby Moor interchange, and count data was last recorded in 2019. Count point 92082 is located north of the Gonerby Moor interchange, and count data was last recorded in 2022. The count data for the 08:00-09:00 and 17:00-18:00 at each count point was then growthed to 2041 levels using the TEMPRO growth rates detailed below, for Trunk Roads in the Soth Kesteven 002 MSOA. The traffic flows on the slip roads were extracted from the relevant traffic flow diagrams.

NTEM Growth Factors: South Kesteven 002 MSOA: Trunk Roads: 2019-41	
AM Peak	1.1917
PM Peak	1.1969
NTEM Growth Factors: South Kesteven 002 MSOA: Trunk Roads: 2022-41	
AM Peak	1.1729
PM Peak	1.1770

5.14 Based on the traffic forecasts, for the worst case peak hour, the required layout of each merge and diverge is shown in the table below.

	A1 northbound diverge		A1 northbound merge	
	AM	PM	AM	PM
2041 background	Type A	Type A	Type A	Type A
2041 with development	Type A	Type A	Type A	Type A

	A1 southbound diverge		A1 southbound merge	
	AM	PM	AM	PM
2041 background	Type A	Type A	Type A	Type A
2041 with development	Type A	Type A	Type A	Type A

5.15 The table shows that the merge and diverge requirements are the same for all assessment scenarios. This means that there would be no change between the merge and diverge requirements based on the opening year or future year, either with or without the development.

5.16 Overall, the addition of the development traffic would not alter the level of compliance with CD122 regarding the merge/diverge layout requirements for the slip roads. Therefore, no mitigation measures are proposed.

6.0 SUMMARY AND CONCLUSIONS

6.1 Harworth Group and Caddick Group commissioned ADC Infrastructure Limited to provide transport and highways advice in support of a Local Plan allocation submission, for land adjacent to the A1 at Gonerby Moor, near Grantham, Lincolnshire.

6.2 The proposed development site sits on land immediately west of the Gonerby Moor Interchange on the A1, approximately 6km northwest of Grantham. South Kesteven District Council (SKDC) are the local planning authority, and Lincolnshire County Council (LCC) are the local highway authority. The A1 and its slip roads are under the jurisdiction of National Highways.

6.3 Harworth Group's land sits north of Gonerby Lane, and Caddick Group's land is located to the south. The illustrative development masterplan prepared for Harworth Group indicates that their site could accommodate up 1.4million sqft (130,033sqm) of employment development. Caddick Groups land holding is larger, and their illustrative masterplan indicates that it could accommodate up to 2.3million sqft (213,677sqm) of employment development.

6.4 The two sites share a frontage of approximately 400m on Gonerby Lane. The intention is that the two landowners work together to promote forward a combined access strategy, via a new four arm roundabout, which would straddle Gonerby Lane and use land from each site. This access strategy is shown in **Drawing ADC3032-DR-001-P2**. The proposed roundabout has been in accordance with the Design Manual for Roads and Bridges.

6.5 The site is relatively remote from any settlements, and as such sustainable transport provision is currently limited. The A1 interchange has shared footway/cycleways with uncontrolled crossing points on the slip roads, and the B1174 between the junction and Grantham has footway provision along its eastern edge. Therefore, the site is accessible by foot from nearby residential areas, albeit Grantham town centre is over hours walk from the site.

6.6 Cyclists are served by the shared footway/cycleway described above, however this infrastructure ceases beyond the A1 interchange and cyclists are required to rejoin the carriageway on the B1174. The roads around the site (with the exception of the A1) are, by and large, rural and lightly trafficked and are therefore suitable for use by cyclists. Grantham is approximately 6km from the site, via the B1174, so is within cycling distance for many potential employees, provided adequate facilities such as good quality cycle parking, showering, and changing facilities are installed at their destination. **Drawing ADC3032-DR-001-P2** shows the provision of a segregated cycleway with and adjected footway extending from both site accesses, along Gonerby Lane to the East, where it would tie into the existing infrastructure.

6.7 The proposed developments will need to be accessible by public transport, either via an existing service or a by the creation of a new one. The nearest bus stop to the site is in the Downtown Shopping Centre car park. The stop is served by the 14 and 24 bus services and is marked by a basic flag and pole arrangement, with timetabling but no shelter or real time information. The stop is approximately 1.6km walking distance from the centre of the site. As it currently stands, either of the two existing services could be extended to call at the site. The Downtown Shopping Centre has planning consent for a significant redevelopment, which is anticipated to commence in the near future. A condition of this consent is the provision of a new bus service linking the site to Grantham town centre. There is potential that this new service could ultimately be extended to call at the proposed development.

6.8 Based on a split of 75% B8, and 25% B2 land uses, the combined developments would generate up to 686 and 647 two-way vehicle movements in the morning and evening peak hours, respectively.

6.9 Traffic counts were undertaken in November 2023 at the Gonerby Moor Interchange roundabouts. Currently, background traffic is relatively light, and the junctions operate with ample spare capacity. The new SKDC local plan would run until 2041, and so 2041 has been used as a future year from which to model the impact of the combined development sites traffic.

6.10 The impact of the proposed development has been modelled at both A1 interchange roundabouts, as well as at the proposed site access roundabout to ensure it can accommodate both sites. The modelling shows that when assessed with the land use split described above, the roundabouts would continue to operate with a spare capacity in the future assessment year, with both developments in place.

6.11 Overall, safe and suitable access can be provided for all highway users. The development would be deliverable in transport terms, and there is no reason to prevent its allocation on highways grounds.

DRAWINGS

ROUNDABOUT DESIGNED TO DMRB CD116.

- 7.3M WIDE CARRIAGEWAYS ON ALL APPROACHES
- 7M ENTRY WIDTHS ON ALL APPROACHES
- 8M CIRCULATORY CARRIAGEWAY WIDTH
- 50M INSCRIBED CIRCLE DIAMETER
- 34M CENTRAL ISLAND DIAMETER
- 215M FORWARD VISIBILITY ON EASTBOUND MAINLINE APPROACH (100KPH)
- 120M FORWARD VISIBILITY ON WESTBOUND MAINLINE APPROACH (70KPH) NOTE; EXACT REQUIREMENT TO BE CONFIRMED BY SPEED SURVEY
- 720M MIN CENTERLINE RADII ON EASTBOUND MAINLINE (DMRB CD109)
- 3M WIDE CYCLEWAY ADJACENT TO A 2M WIDE FOOTWAY WITH 0.5M VERGE (LTN 1/20)

215M FORWARD VISIBILITY (100KPH)

HARWORTH LAND

SITE RED LINE BOUNDARY

THIRD PARTY LAND BOUNDARY
REQUIRES PRECISE CONFIRMATION

38.4m

Drain

130M MAX FORWARD VISIBILITY

120M FORWARD VISIBILITY (70KPH)

SITE BOUNDARY

HIGHWAY BOUNDARY (ORANGE)

SUB STATION - IS THIS 3RD PARTY LAND?
DO CADDICK NEED TO CLARIFY ACCESS REQUIREMENTS?

CADDICK LAND

GONERBY LANE WIDENED TO 7.3M

3M WIDE SHARED FOOTWAY/CYCLEWAY

38.4m

Drain

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Rev	Date	Description	Dr	Rev
P3	03/04/ 2024	Roundabout adjusted slightly to avoid 3rd party land	DH	TC
P3	20/03/ 2024	Roundabout relocated to reflect Harworth Layout - Test	DH	TC
P2	30/11/ 2023	Roundabout relocated to span both sites	DH	TC

Client:
Harworth Group & Caddick Land

Project:
Land at Gonerby Moor

Title:
Access Roundabout

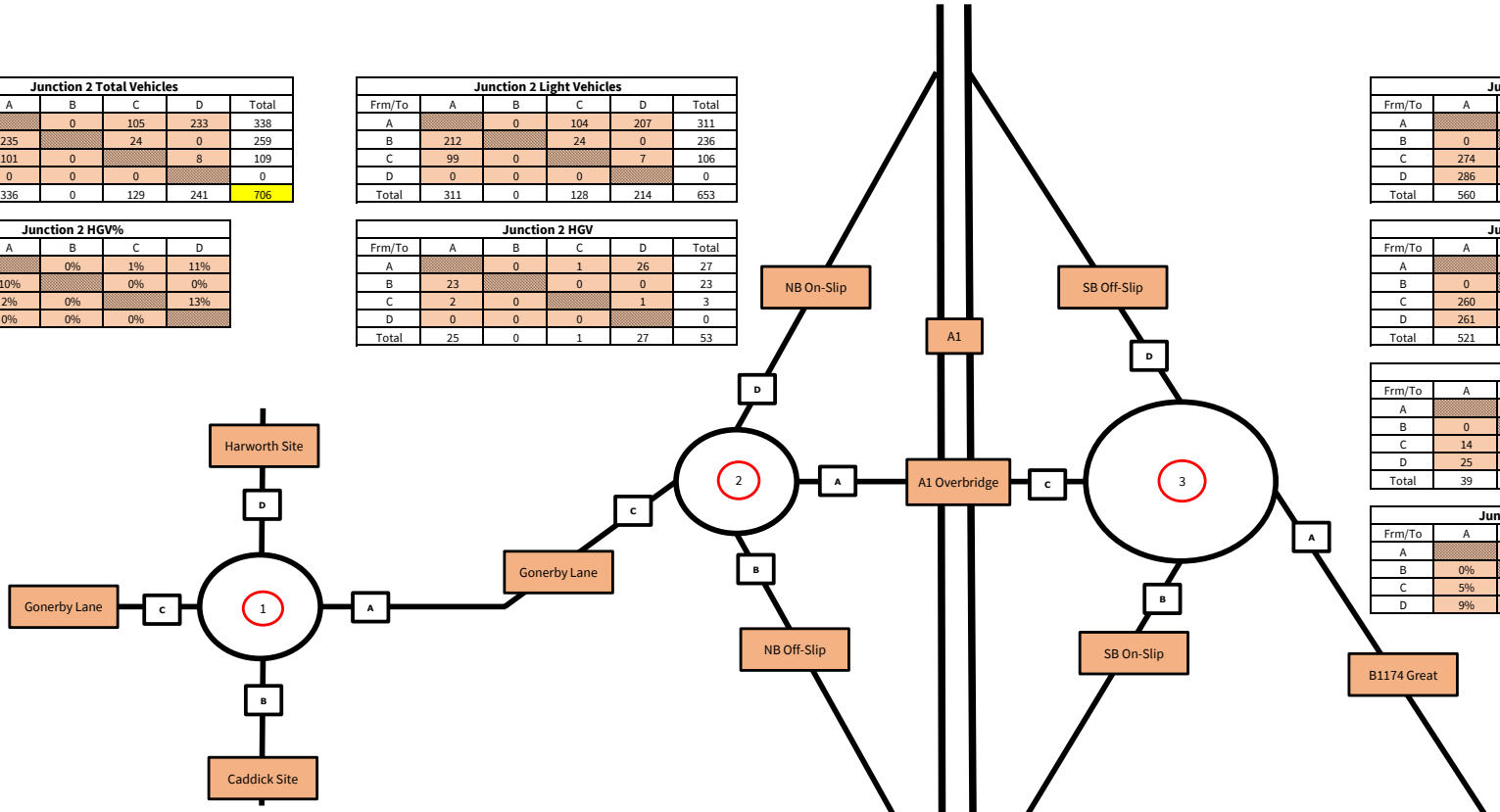
ADC INFRASTRUCTURE

Drawn:	Reviewed:	
DH	TC	
Size: A2	Scale: 1:1000	Date: 15 / 08 / 2022

Status: PRELIMINARY ISSUE

Project Reference	Type	Number	Revision
ADC3032	DR	002	P4

TRAFFIC FLOW DIAGRAMS



Junction 2 Total Vehicles

Frm/To	A	B	C	D	Total
A		0	105	233	338
B	235		24	0	259
C	101	0		8	109
D	0	0	0		0
Total	336	0	129	241	706

Junction 2 Light Vehicles

Frm/To	A	B	C	D	Total
A		0	104	207	311
B	212		24	0	236
C	99	0		7	106
D	0	0	0		0
Total	311	0	128	214	653

Junction 3 Total Vehicles

Frm/To	A	B	C	D	Total
A		222	271	0	493
B	0		0	0	0
C	274	71		0	345
D	286	29	49		364
Total	560	322	320	0	1202

Junction 2 HGV%

Frm/To	A	B	C	D
A		0%	1%	11%
B	10%		0%	0%
C	2%	0%		13%
D	0%	0%	0%	

Junction 2 HGV

Frm/To	A	B	C	D	Total
A		0	1	26	27
B	23		0	0	23
C	2	0		1	3
D	0	0	0		0
Total	25	0	1	27	53

Junction 3 Light Vehicles

Frm/To	A	B	C	D	Total
A		187	248	0	435
B	0		0	0	0
C	260	55		0	315
D	261	22	46		329
Total	521	264	294	0	1079

Junction 3 HGV

Frm/To	A	B	C	D	Total
A		35	23	0	58
B	0		0	0	0
C	14	16		0	30
D	25	7	3		35
Total	39	58	26	0	123

Junction 3 HGV%

Frm/To	A	B	C	D
A		16%	8%	0%
B	0%		0%	0%
C	5%	23%		0%
D	9%	24%	6%	

Junction 1 Light Vehicles

Frm/To	A	B	C	D	Total
A			128		128
B					0
C	106				106
D					0
Total	106	0	128	0	234

Junction 1 Total Vehicles

Frm/To	A	B	C	D	Total
A		0	129	0	129
B	0		0	0	0
C	109	0		0	109
D	0	0	0		0
Total	109	0	129	0	238

Junction 1 HGV

Frm/To	A	B	C	D	Total
A			1		1
B					0
C	3				3
D					0
Total	3	0	1	0	4

Junction 1 HGV%

Frm/To	A	B	C	D
A		0%	1%	0%
B	0%		0%	0%
C	3%	0%		0%
D	0%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

Diagram 1: 2023 Observed AM Peak

Junction 2 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	86	325	411
B	192		13	4	209
C	121	0		8	129
D	0	0	0		0
Total	313	0	99	337	749

Junction 2 HGV%				
Frm/To	A	B	C	D
A		0%	1%	3%
B	10%		0%	25%
C	0%	0%		0%
D	0%	0%	0%	

Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	85	315	400
B	172		13	3	188
C	121	0		8	129
D	0	0	0		0
Total	293	0	98	326	717

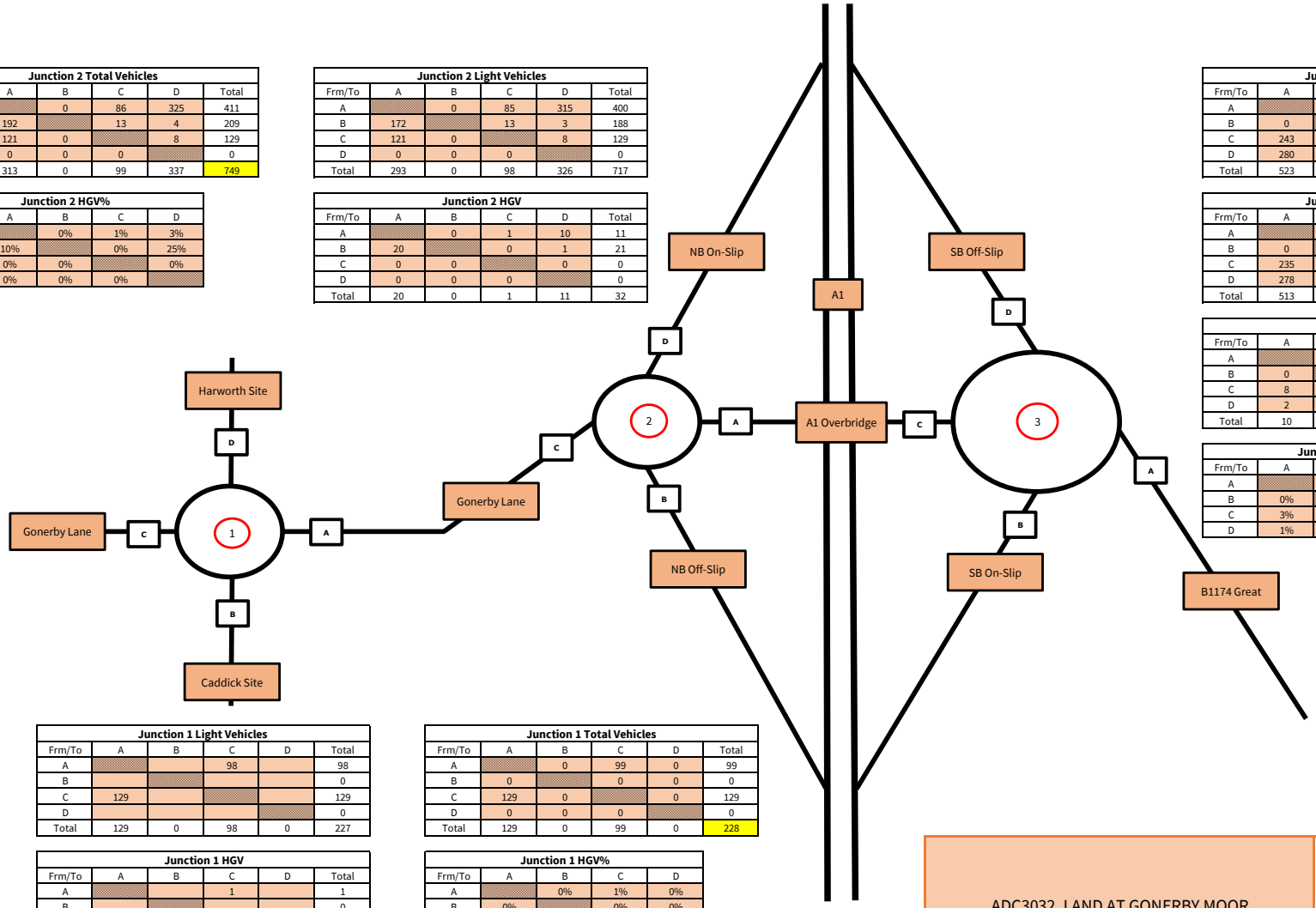
Junction 2 HGV					
Frm/To	A	B	C	D	Total
A		0	1	10	11
B	20		0	1	21
C	0	0		0	0
D	0	0	0		0
Total	20	0	1	11	32

Junction 3 Total Vehicles					
Frm/To	A	B	C	D	Total
A		216	351	0	567
B	0		0	0	0
C	243	72		0	315
D	280	28	56		364
Total	523	316	407	0	1246

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A		199	339	0	538
B	0		0	0	0
C	235	64		0	299
D	278	21	54		353
Total	513	284	393	0	1190

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A		17	12	0	29
B	0		0	0	0
C	8	8		0	16
D	2	7	2		11
Total	10	32	14	0	56

Junction 3 HGV%				
Frm/To	A	B	C	D
A		8%	3%	0%
B	0%		0%	0%
C	3%	11%		0%
D	1%	25%	4%	



Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A			98		98
B					0
C	129				129
D					0
Total	129	0	98	0	227

Junction 1 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	99	0	99
B	0		0	0	0
C	129	0		0	129
D	0	0	0		0
Total	129	0	99	0	228

Junction 1 HGV					
Frm/To	A	B	C	D	Total
A			1		1
B					0
C	0				0
D					0
Total	0	0	1	0	1

Junction 1 HGV%				
Frm/To	A	B	C	D
A		0%	1%	0%
B	0%		0%	0%
C	0%	0%		0%
D	0%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

Diagram 2: 2023 Observed PM Peak

Junction 2 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	119	263	382
B	265		27	0	292
C	114	0		9	123
D	0	0	0		0
Total	379	0	146	272	797

Junction 2 HGV%				
Frm/To	A	B	C	D
A		0%	1%	11%
B	10%		0%	0%
C	2%	0%		11%
D	0%	0%	0%	

Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	117	234	351
B	240		27	0	267
C	112	0		8	120
D	0	0	0		0
Total	352	0	144	242	738

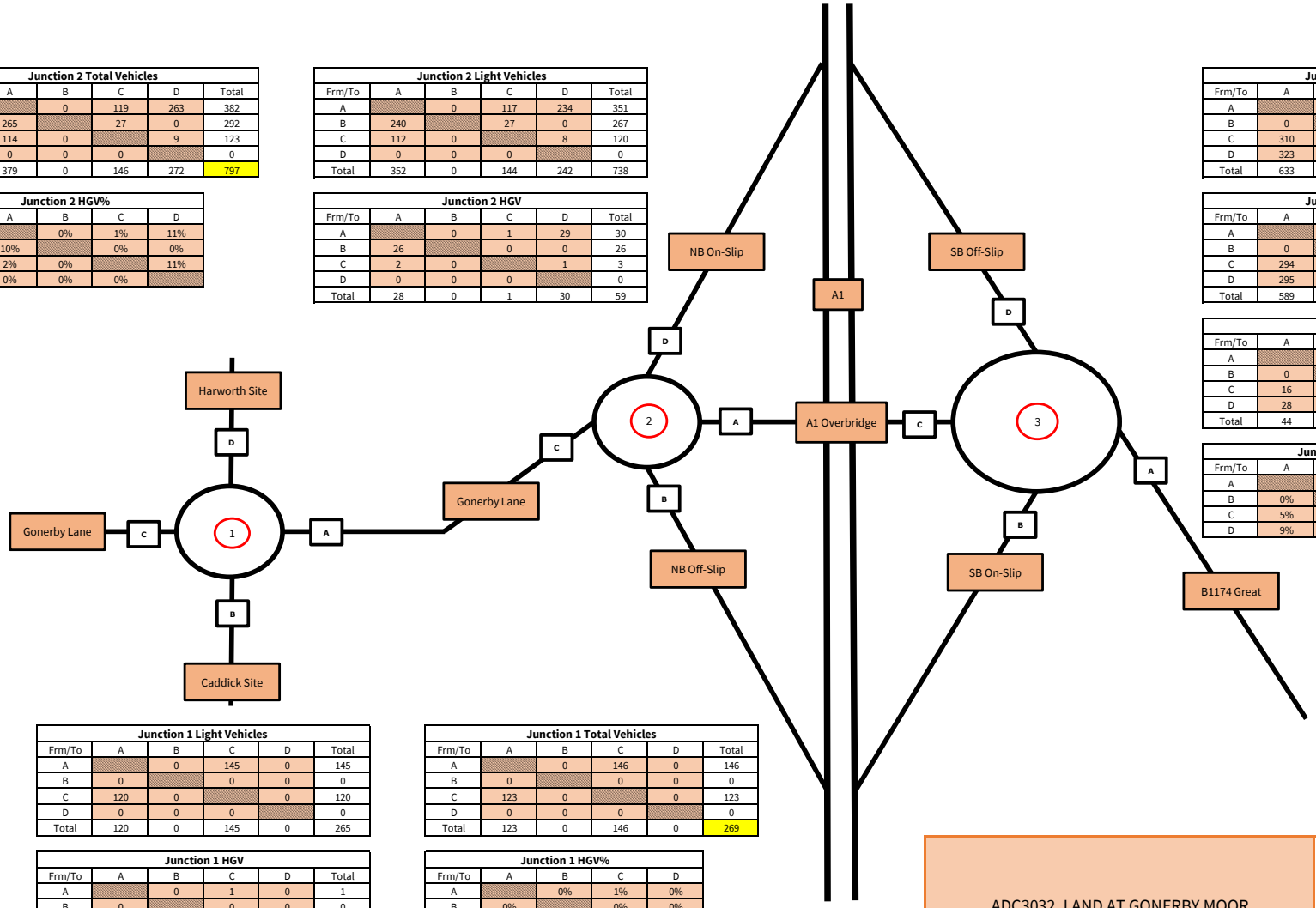
Junction 2 HGV					
Frm/To	A	B	C	D	Total
A		0	1	29	30
B	26		0	0	26
C	2	0		1	3
D	0	0	0		0
Total	28	0	1	30	59

Junction 3 Total Vehicles					
Frm/To	A	B	C	D	Total
A		251	306	0	557
B	0		0	0	0
C	310	80		0	390
D	323	33	55		411
Total	633	364	361	0	1358

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A		211	280	0	491
B	0		0	0	0
C	294	62		0	356
D	295	25	52		372
Total	589	298	332	0	1219

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A		40	26	0	66
B	0		0	0	0
C	16	18		0	34
D	28	8	3		39
Total	44	66	29	0	139

Junction 3 HGV%				
Frm/To	A	B	C	D
A		16%	8%	0%
B	0%		0%	0%
C	5%	23%		0%
D	9%	24%	5%	



Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	145	0	145
B	0		0	0	0
C	120	0		0	120
D	0	0	0		0
Total	120	0	145	0	265

Junction 1 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	146	0	146
B	0		0	0	0
C	123	0		0	123
D	0	0	0		0
Total	123	0	146	0	269

Junction 1 HGV					
Frm/To	A	B	C	D	Total
A		0	1	0	1
B	0		0	0	0
C	3	0		0	3
D	0	0	0		0
Total	3	0	1	0	4

Junction 1 HGV%				
Frm/To	A	B	C	D
A		0%	1%	0%
B	0%		0%	0%
C	2%	0%		0%
D	0%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

Diagram 3: 2041 Base AM Peak

Junction 2 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	97	368	465
B	218		15	5	238
C	137	0		9	146
D	0	0	0		0
Total	355	0	112	382	849

Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	96	357	453
B	195		15	3	213
C	137	0		9	146
D	0	0	0		0
Total	332	0	111	369	812

Junction 3 Total Vehicles					
Frm/To	A	B	C	D	Total
A		245	398	0	643
B	0		0	0	0
C	275	82		0	357
D	317	32	63		412
Total	592	359	461	0	1412

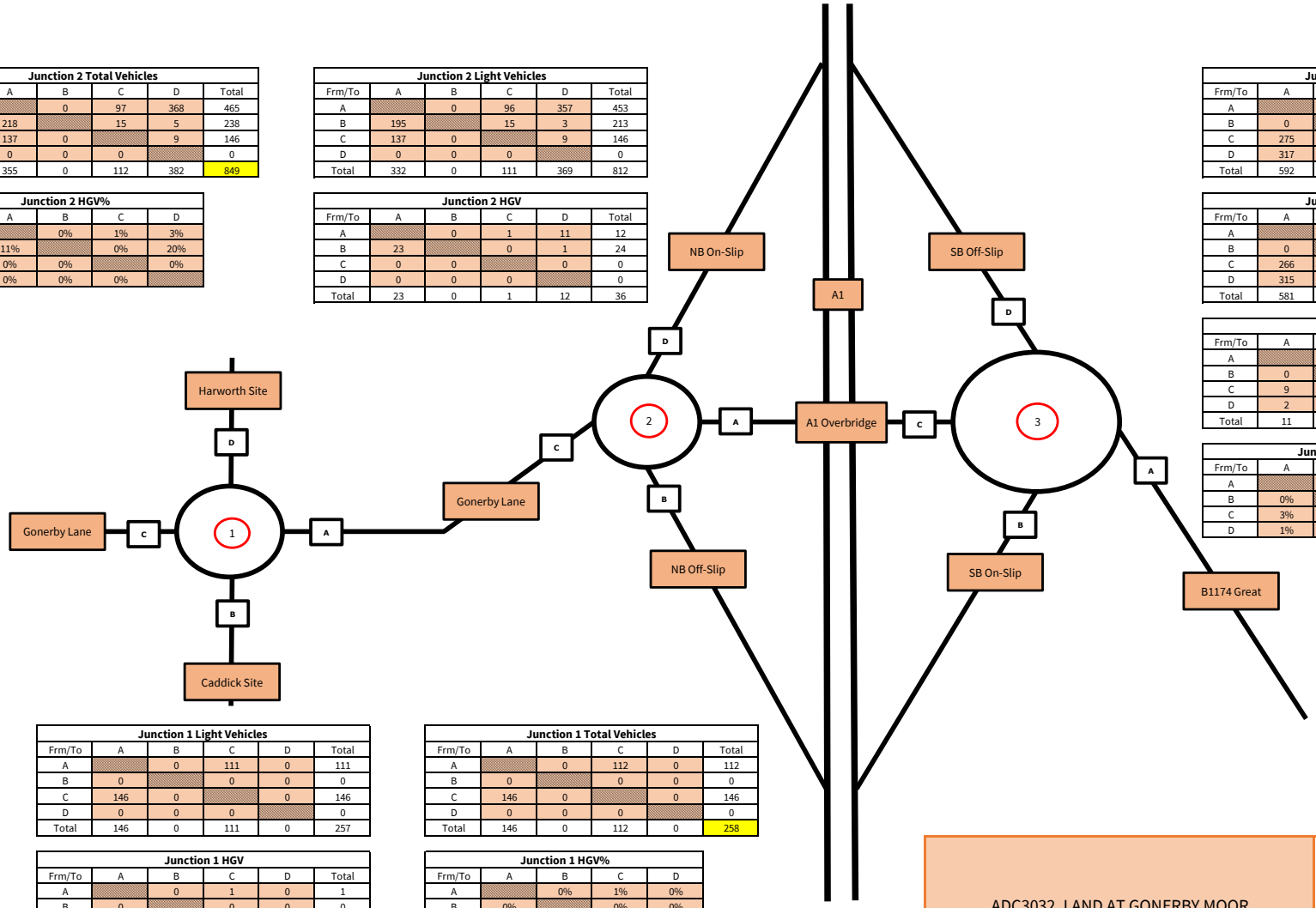
Junction 2 HGV%				
Frm/To	A	B	C	D
A		0%	1%	3%
B	11%		0%	20%
C	0%	0%		0%
D	0%	0%	0%	

Junction 2 HGV					
Frm/To	A	B	C	D	Total
A		0	1	11	12
B	23		0	1	24
C	0	0		0	0
D	0	0	0		0
Total	23	0	1	12	36

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A		226	384	0	610
B	0		0	0	0
C	266	73		0	339
D	315	24	61		400
Total	581	323	445	0	1349

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A		19	14	0	33
B	0		0	0	0
C	9	9		0	18
D	2	8	2		12
Total	11	36	16	0	63

Junction 3 HGV%				
Frm/To	A	B	C	D
A		8%	4%	0%
B	0%		0%	0%
C	3%	11%		0%
D	1%	25%	3%	



Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	111	0	111
B	0		0	0	0
C	146	0		0	146
D	0	0	0		0
Total	146	0	111	0	257

Junction 1 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	112	0	112
B	0		0	0	0
C	146	0		0	146
D	0	0	0		0
Total	146	0	112	0	258

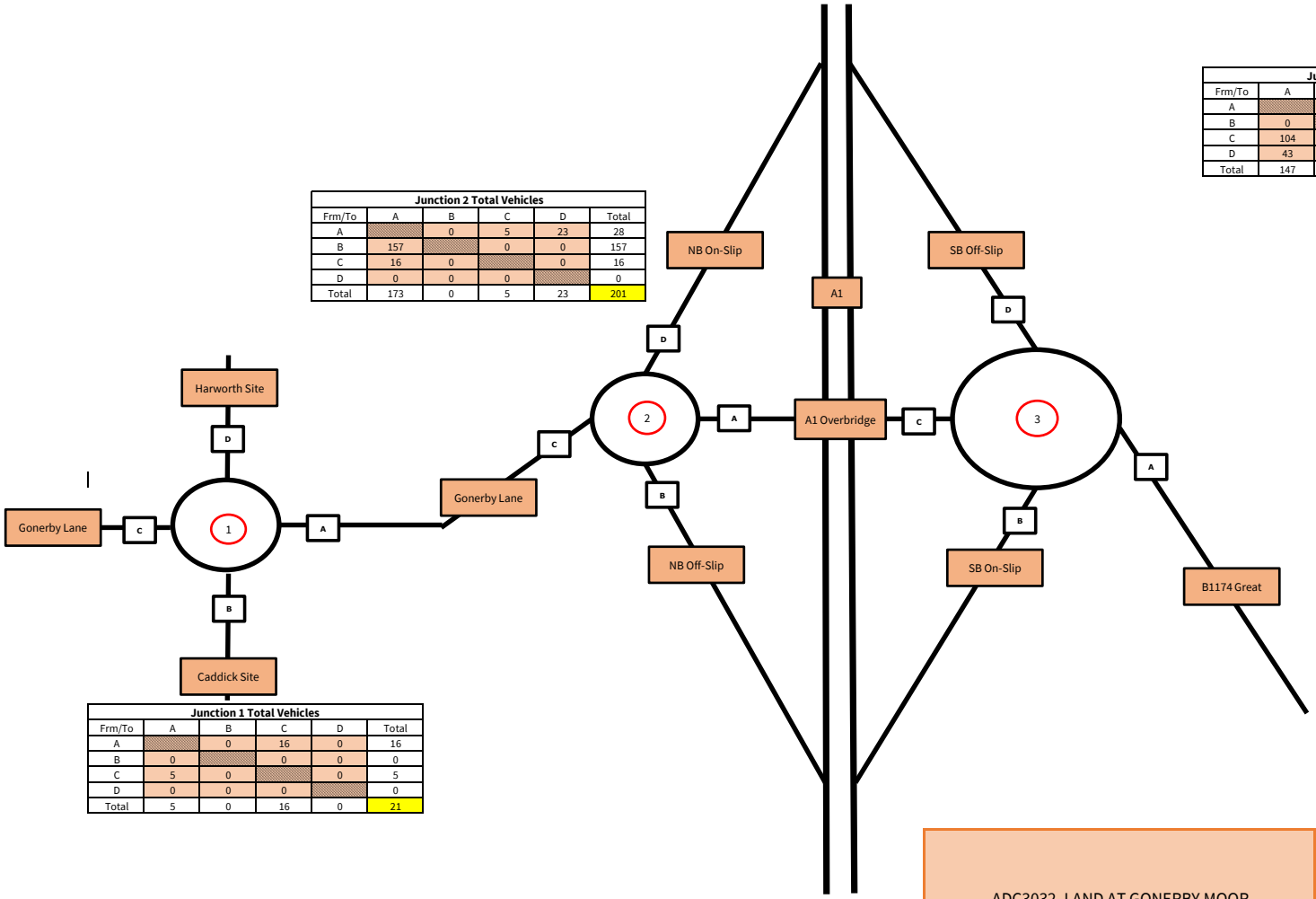
Junction 1 HGV					
Frm/To	A	B	C	D	Total
A		0	1	0	1
B	0		0	0	0
C	0	0		0	0
D	0	0	0		0
Total	0	0	1	0	1

Junction 1 HGV%				
Frm/To	A	B	C	D
A		0%	1%	0%
B	0%		0%	0%
C	0%	0%		0%
D	0%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

Diagram 4: 2041 Base PM Peak



Junction 1 Total Vehicles

Frm/To	A	B	C	D	Total
A		0	16	0	16
B	0		0	0	0
C	5	0		0	5
D	0	0	0		0
Total	5	0	16	0	21

Junction 2 Total Vehicles

Frm/To	A	B	C	D	Total
A		0	5	23	28
B	157		0	0	157
C	16	0		0	16
D	0	0	0		0
Total	173	0	5	23	201

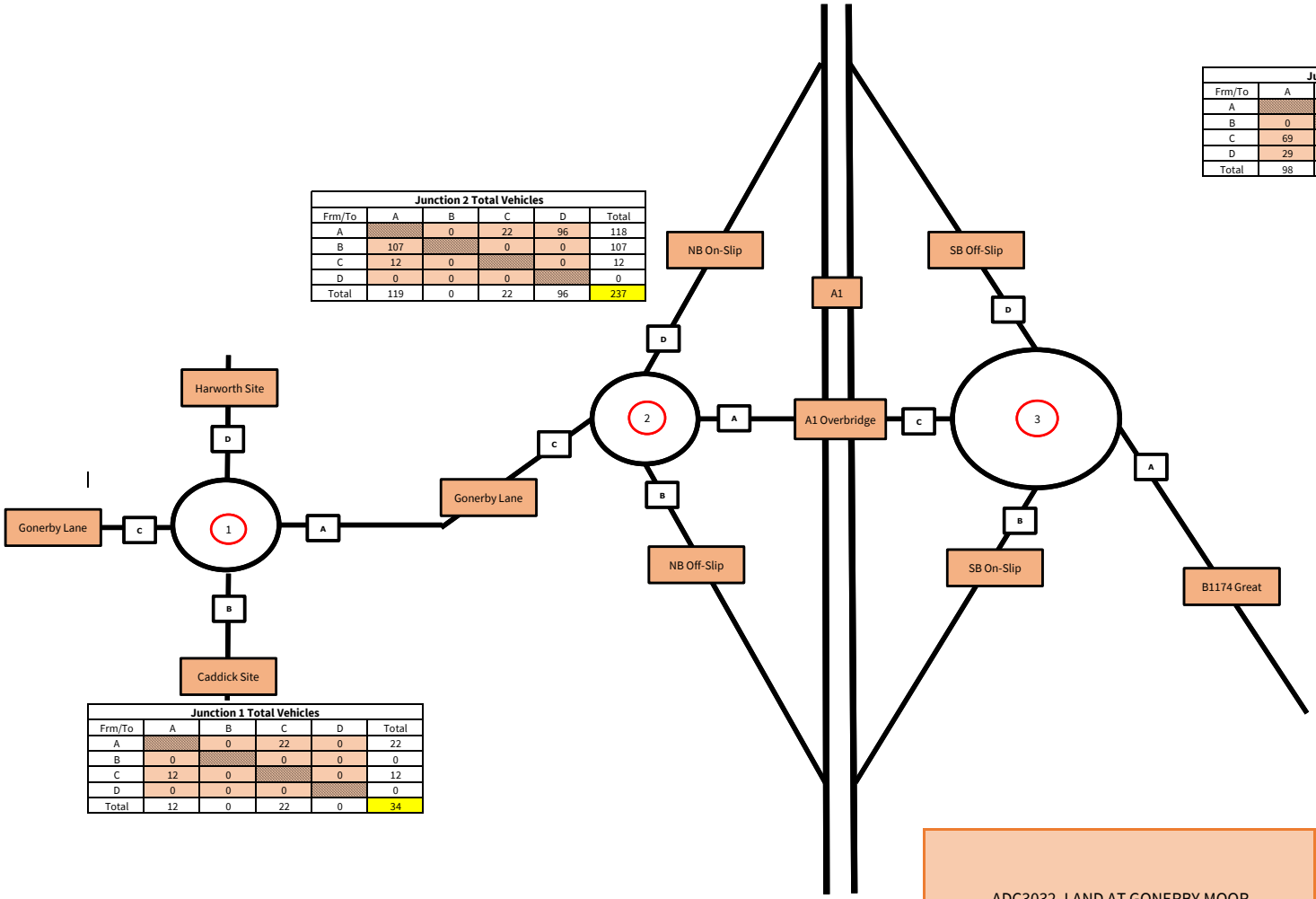
Junction 3 Total Vehicles

Frm/To	A	B	C	D	Total
A		47	28	0	75
B	0		0	0	0
C	104	69		0	173
D	43	29	0		72
Total	147	145	28	0	320

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 5: COMMITTED DEVELOPMENT FLOWS. DOWNTOWN SHOPPING VILLAGE S17/2155. AM PEAK HOUR



Junction 1 Total Vehicles

Frm/To	A	B	C	D	Total
A		0	22	0	22
B	0		0	0	0
C	12	0		0	12
D	0	0	0		0
Total	12	0	22	0	34

Junction 2 Total Vehicles

Frm/To	A	B	C	D	Total
A		0	22	96	118
B	107		0	0	107
C	12	0		0	12
D	0	0	0		0
Total	119	0	22	96	237

Junction 3 Total Vehicles

Frm/To	A	B	C	D	Total
A		199	119	0	318
B	0		0	0	0
C	69	50		0	119
D	29	23	0		52
Total	98	272	119	0	489

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 6: COMMITTED DEVELOPMENT FLOWS. DOWNTOWN SHOPPING VILLAGE S17/2155. PM PEAK HOUR

Junction 2 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	123	286	409
B	423		27	0	450
C	130	0		9	139
D	0	0	0		0
Total	553	0	150	295	998

Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	122	257	379
B	397		27	0	424
C	128	0		8	136
D	0	0	0		0
Total	525	0	149	265	939

Junction 3 Total Vehicles					
Frm/To	A	B	C	D	Total
A		298	334	0	632
B	0		0	0	0
C	414	149		0	563
D	366	62	55		483
Total	780	509	389	0	1678

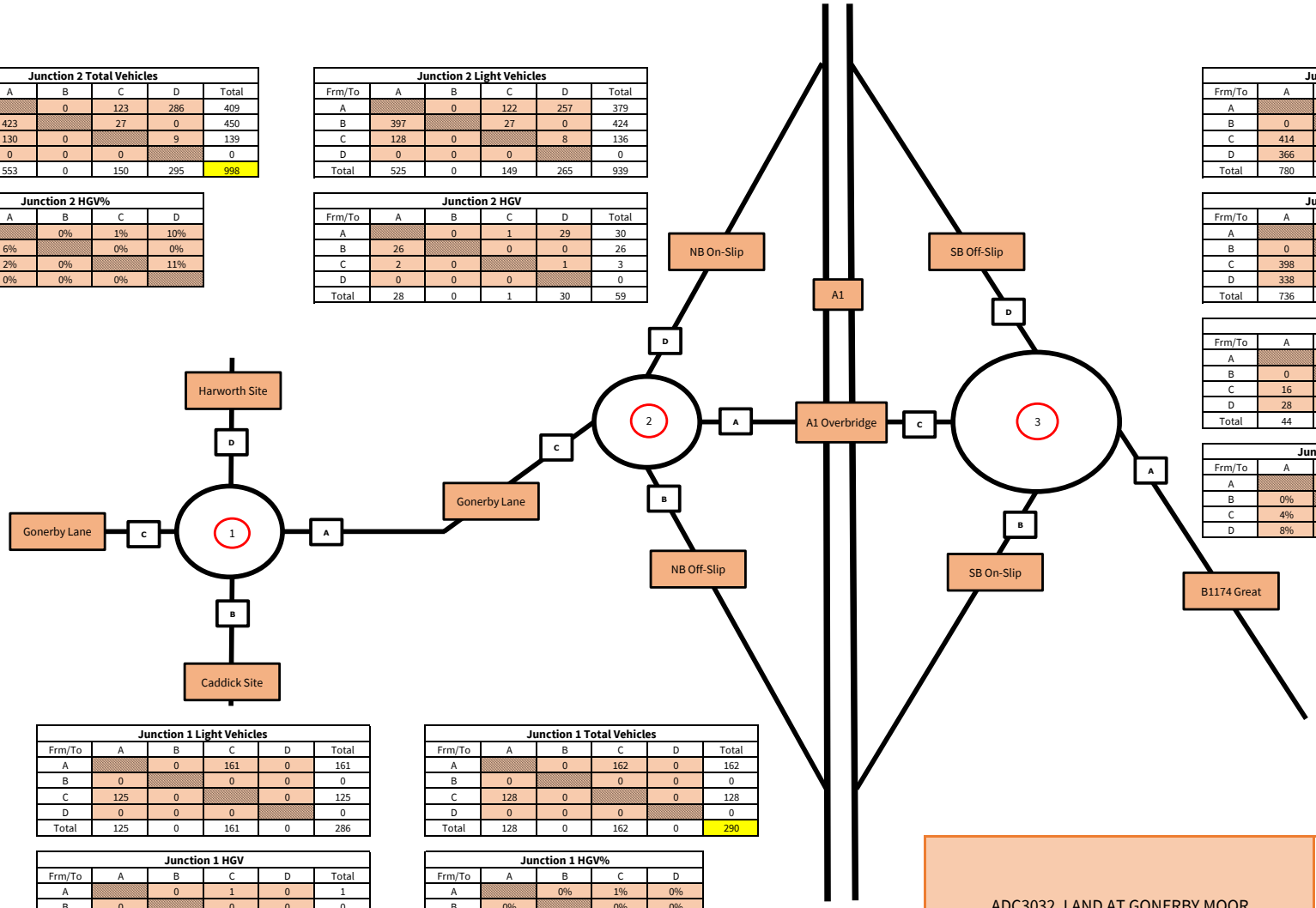
Junction 2 HGV%				
Frm/To	A	B	C	D
A		0%	1%	10%
B	6%		0%	0%
C	2%	0%		11%
D	0%	0%	0%	

Junction 2 HGV					
Frm/To	A	B	C	D	Total
A		0	1	29	30
B	26		0	0	26
C	2	0		1	3
D	0	0	0		0
Total	28	0	1	30	59

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A		258	308	0	566
B	0		0	0	0
C	398	131		0	529
D	338	54	52		444
Total	736	443	360	0	1539

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A		40	26	0	66
B	0		0	0	0
C	16	18		0	34
D	28	8	3		39
Total	44	66	29	0	139

Junction 3 HGV%				
Frm/To	A	B	C	D
A		13%	8%	0%
B	0%		0%	0%
C	4%	12%		0%
D	8%	13%	5%	



Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	161	0	161
B	0		0	0	0
C	125	0		0	125
D	0	0	0		0
Total	125	0	161	0	286

Junction 1 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	162	0	162
B	0		0	0	0
C	128	0		0	128
D	0	0	0		0
Total	128	0	162	0	290

Junction 1 HGV					
Frm/To	A	B	C	D	Total
A		0	1	0	1
B	0		0	0	0
C	3	0		0	3
D	0	0	0		0
Total	3	0	1	0	4

Junction 1 HGV%				
Frm/To	A	B	C	D
A		0%	1%	0%
B	0%		0%	0%
C	2%	0%		0%
D	0%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 7: 2041 BACKGROUND AM

Junction 2 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	119	464	583
B	325		15	4	344
C	149	0		9	158
D	0	0	0		0
Total	474	0	134	477	1085

Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	118	453	571
B	302		15	3	320
C	149	0		9	158
D	0	0	0		0
Total	451	0	133	465	1049

Junction 3 Total Vehicles					
Frm/To	A	B	C	D	Total
A		444	517	0	961
B	0		0	0	0
C	344	132		0	476
D	346	55	63		464
Total	690	631	580	0	1901

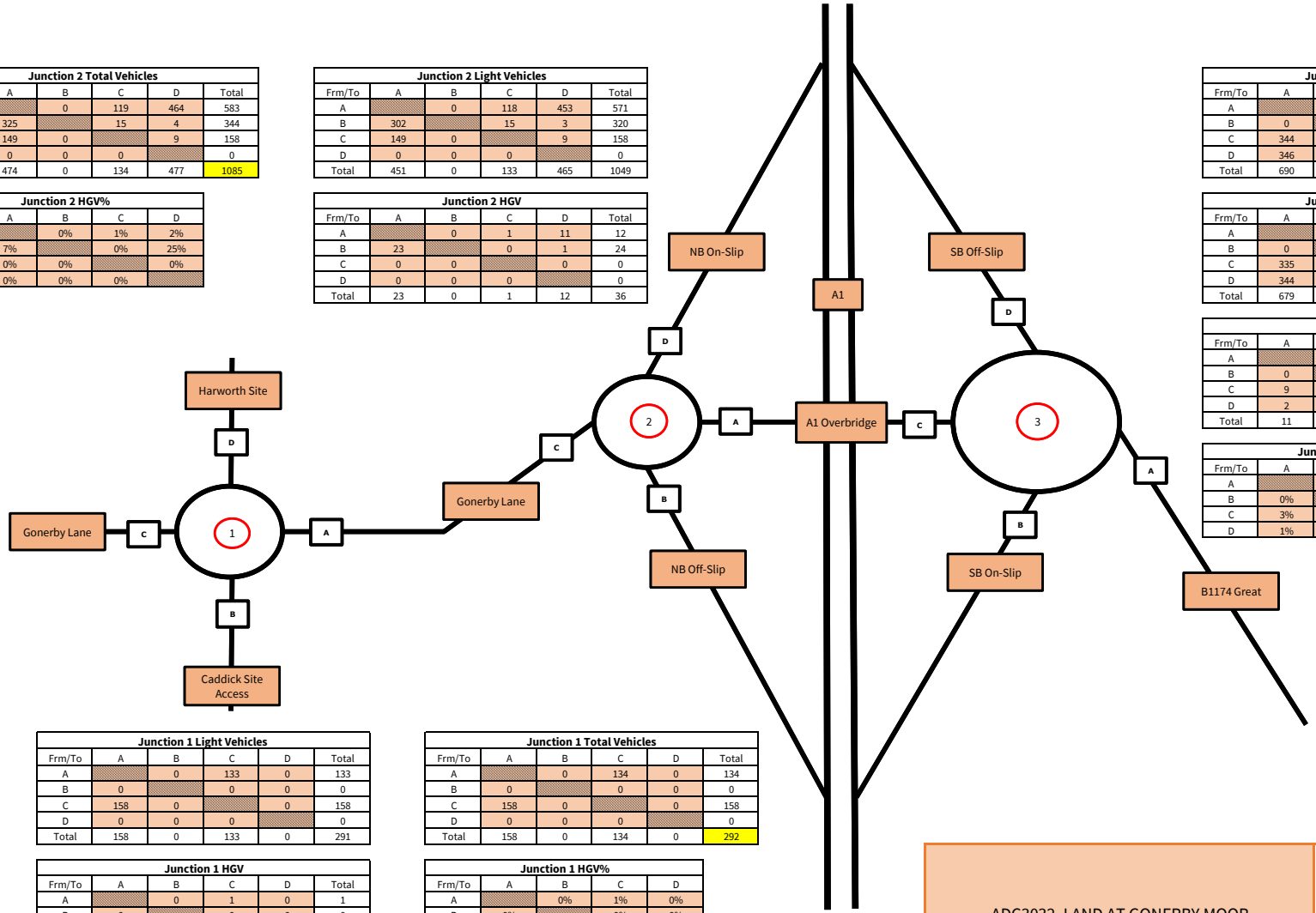
Junction 2 HGV%				
Frm/To	A	B	C	D
A		0%	1%	2%
B	7%		0%	25%
C	0%	0%		0%
D	0%	0%	0%	

Junction 2 HGV					
Frm/To	A	B	C	D	Total
A		0	1	11	12
B	23		0	1	24
C	0	0		0	0
D	0	0	0		0
Total	23	0	1	12	36

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A		425	503	0	928
B	0		0	0	0
C	335	123		0	458
D	344	47	61		452
Total	679	595	564	0	1838

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A		19	14	0	33
B	0		0	0	0
C	9	9		0	18
D	2	8	2		12
Total	11	36	16	0	63

Junction 3 HGV%				
Frm/To	A	B	C	D
A		4%	3%	0%
B	0%		0%	0%
C	3%	7%		0%
D	1%	15%	3%	



Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	133	0	133
B	0		0	0	0
C	158	0		0	158
D	0	0	0		0
Total	158	0	133	0	291

Junction 1 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	134	0	134
B	0		0	0	0
C	158	0		0	158
D	0	0	0		0
Total	158	0	134	0	292

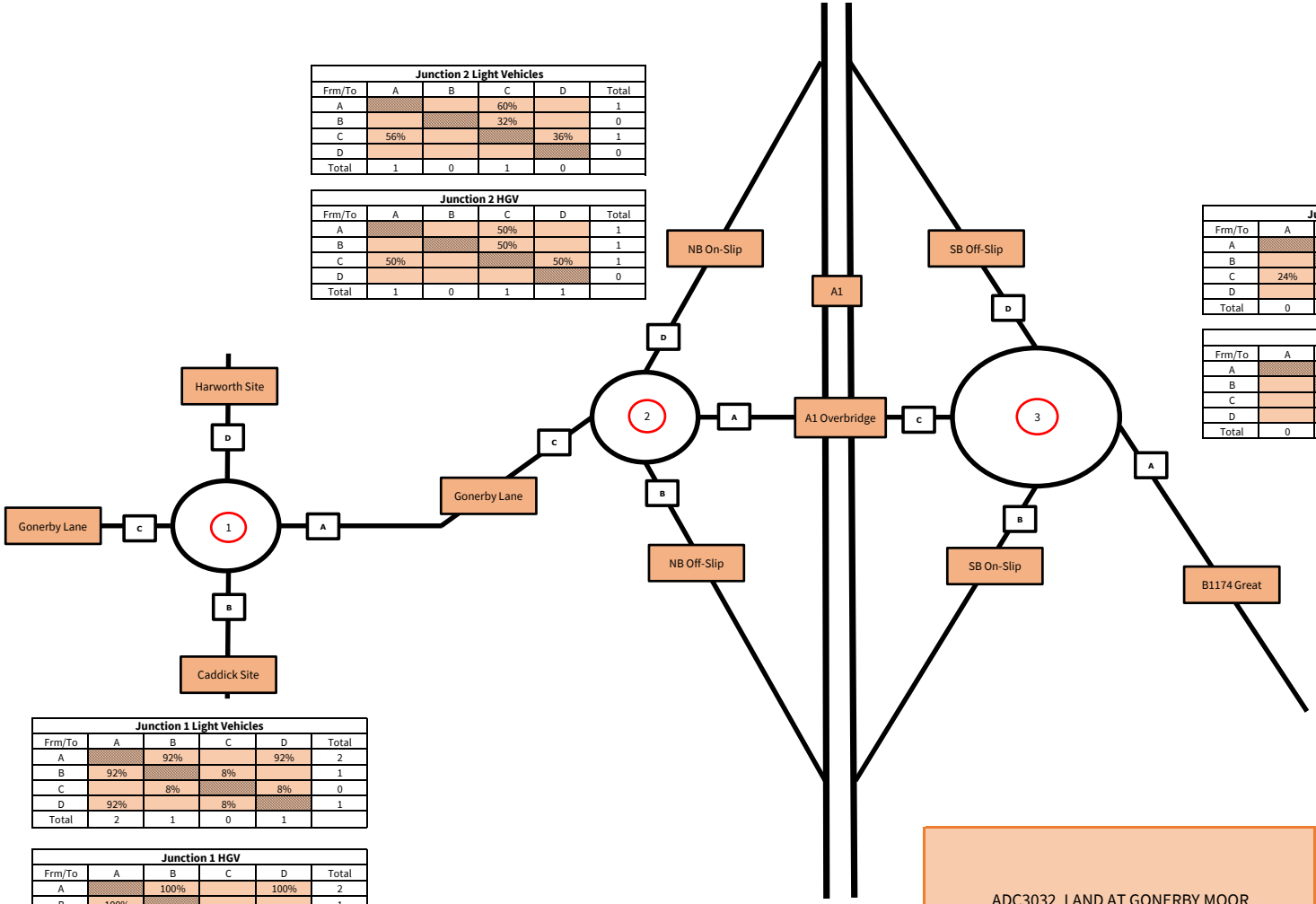
Junction 1 HGV					
Frm/To	A	B	C	D	Total
A		0	1	0	1
B	0		0	0	0
C	0	0		0	0
D	0	0	0		0
Total	0	0	1	0	1

Junction 1 HGV%				
Frm/To	A	B	C	D
A		0%	1%	0%
B	0%		0%	0%
C	0%	0%		0%
D	0%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 8: 2041 BACKGROUND PM



Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A			60%		1
B			32%		0
C	56%			36%	1
D					0
Total	1	0	1	0	

Junction 2 HGV					
Frm/To	A	B	C	D	Total
A			50%		1
B			50%		1
C	50%			50%	1
D					0
Total	1	0	1	1	

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A			24%		0
B					0
C	24%	32%			1
D			36%		0
Total	0	0	1	0	

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A					0
B					0
C		50%			1
D			50%		1
Total	0	1	1	0	

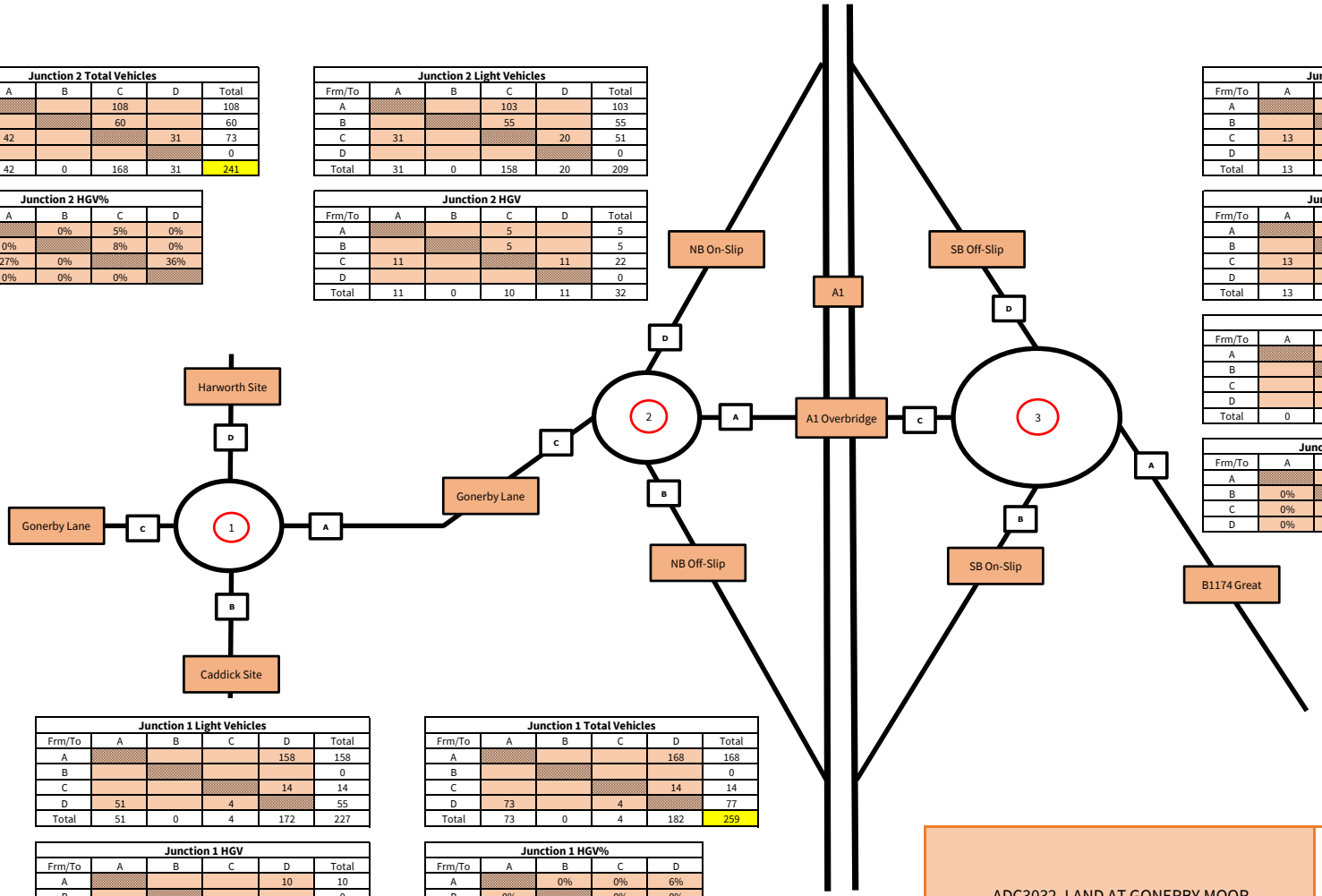
Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A		92%		92%	2
B	92%		8%		1
C		8%		8%	0
D	92%		8%		1
Total	2	1	0	1	

Junction 1 HGV					
Frm/To	A	B	C	D	Total
A		100%		100%	2
B	100%				1
C					0
D	100%				1
Total	2	1	0	1	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 9: TRIP DISTRIBUTION



Junction 2 Total Vehicles

Frm/To	A	B	C	D	Total
A			108		108
B			60		60
C	42			31	73
D					0
Total	42	0	168	31	241

Junction 2 Light Vehicles

Frm/To	A	B	C	D	Total
A			103		103
B			55		55
C	31			20	51
D					0
Total	31	0	158	20	209

Junction 3 Total Vehicles

Frm/To	A	B	C	D	Total
A			41		41
B					0
C	13	29			42
D			67		67
Total	13	29	108	0	150

Junction 2 HGV%

Frm/To	A	B	C	D
A		0%	5%	0%
B	0%		8%	0%
C	27%	0%		36%
D	0%	0%	0%	

Junction 2 HGV

Frm/To	A	B	C	D	Total
A			5		5
B			5		5
C	11			11	22
D					0
Total	11	0	10	11	32

Junction 3 Light Vehicles

Frm/To	A	B	C	D	Total
A			41		41
B					0
C	13	18			31
D			62		62
Total	13	18	103	0	134

Junction 3 HGV

Frm/To	A	B	C	D	Total
A					0
B					0
C			11		11
D				5	5
Total	0	11	5	0	16

Junction 3 HGV%

Frm/To	A	B	C	D
A		0%	0%	0%
B	0%		0%	0%
C	0%	39%		0%
D	0%	0%	7%	

Junction 1 Light Vehicles

Frm/To	A	B	C	D	Total
A				158	158
B					0
C				14	14
D	51		4		55
Total	51	0	4	172	227

Junction 1 Total Vehicles

Frm/To	A	B	C	D	Total
A				168	168
B					0
C				14	14
D	73		4		77
Total	73	0	4	182	259

Junction 1 HGV

Frm/To	A	B	C	D	Total
A				10	10
B					0
C					0
D	22				22
Total	22	0	0	10	32

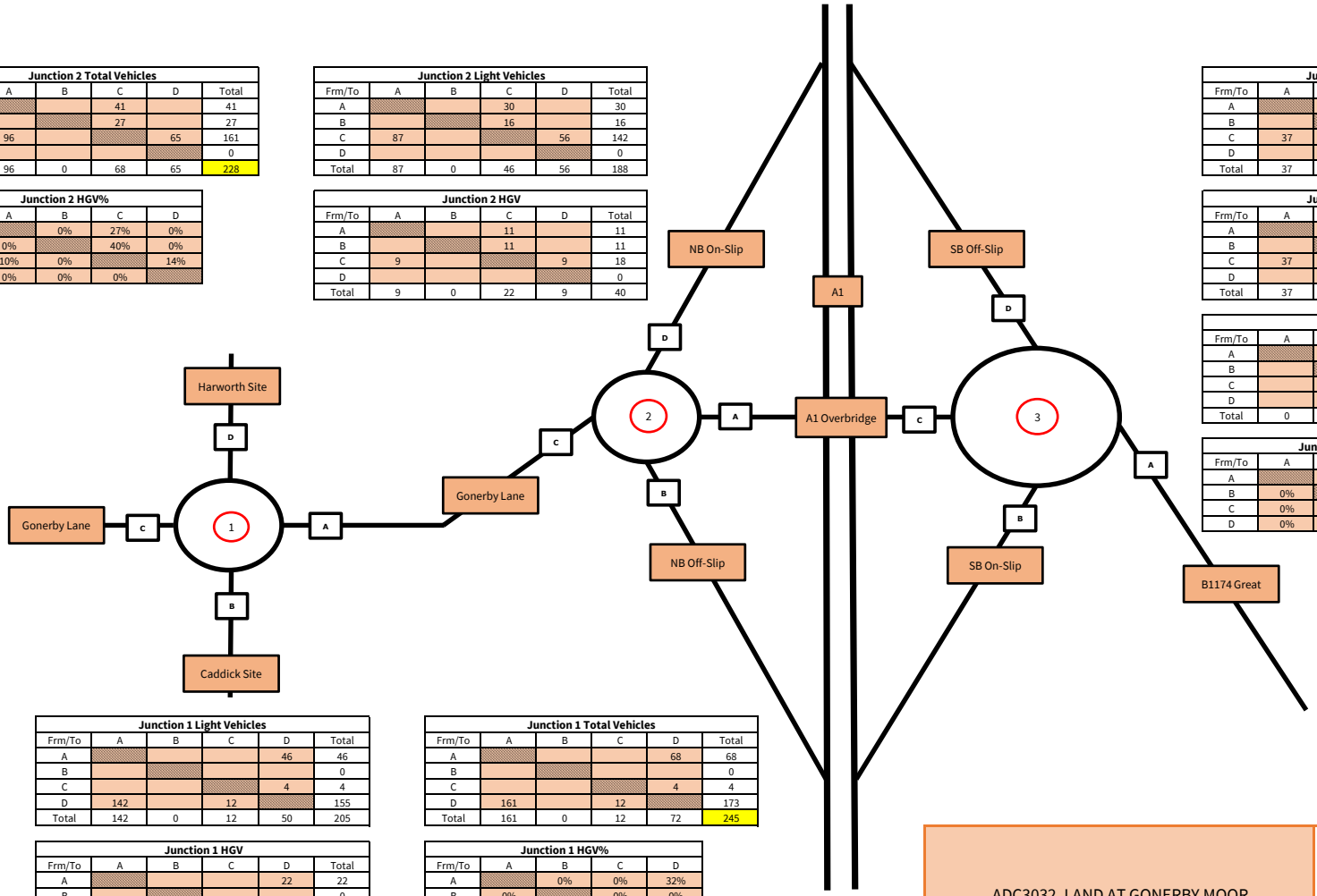
Junction 1 HGV%

Frm/To	A	B	C	D
A		0%	0%	6%
B	0%		0%	0%
C	0%	0%		0%
D	31%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 10: HARWORTH TRAFFIC ASSIGNMENT AM



Junction 2 Total Vehicles

Frm/To	A	B	C	D	Total
A			41		41
B			27		27
C	96			65	161
D					0
Total	96	0	68	65	228

Junction 2 Light Vehicles

Frm/To	A	B	C	D	Total
A			30		30
B			16		16
C	87			56	142
D					0
Total	87	0	46	56	188

Junction 3 Total Vehicles

Frm/To	A	B	C	D	Total
A			12		12
B					0
C	37	59			96
D			29		29
Total	37	59	41	0	137

Junction 2 HGV%

Frm/To	A	B	C	D
A		0%	27%	0%
B	0%		40%	0%
C	10%	0%		14%
D	0%	0%	0%	

Junction 2 HGV

Frm/To	A	B	C	D	Total
A			11		11
B			11		11
C	9			9	18
D					0
Total	9	0	22	9	40

Junction 3 Light Vehicles

Frm/To	A	B	C	D	Total
A			12		12
B					0
C	37	50			87
D			18		18
Total	37	50	30	0	117

Junction 3 HGV

Frm/To	A	B	C	D	Total
A					0
B					0
C		9			9
D			11		11
Total	0	9	11	0	20

Junction 3 HGV%

Frm/To	A	B	C	D
A		0%	0%	0%
B	0%		0%	0%
C	0%	16%		0%
D	0%	0%	38%	

Junction 1 Light Vehicles

Frm/To	A	B	C	D	Total
A				46	46
B					0
C				4	4
D	142		12		155
Total	142	0	12	50	205

Junction 1 Total Vehicles

Frm/To	A	B	C	D	Total
A				68	68
B					0
C				4	4
D	161		12		173
Total	161	0	12	72	245

Junction 1 HGV

Frm/To	A	B	C	D	Total
A				22	22
B					0
C					0
D	18				18
Total	18	0	0	22	40

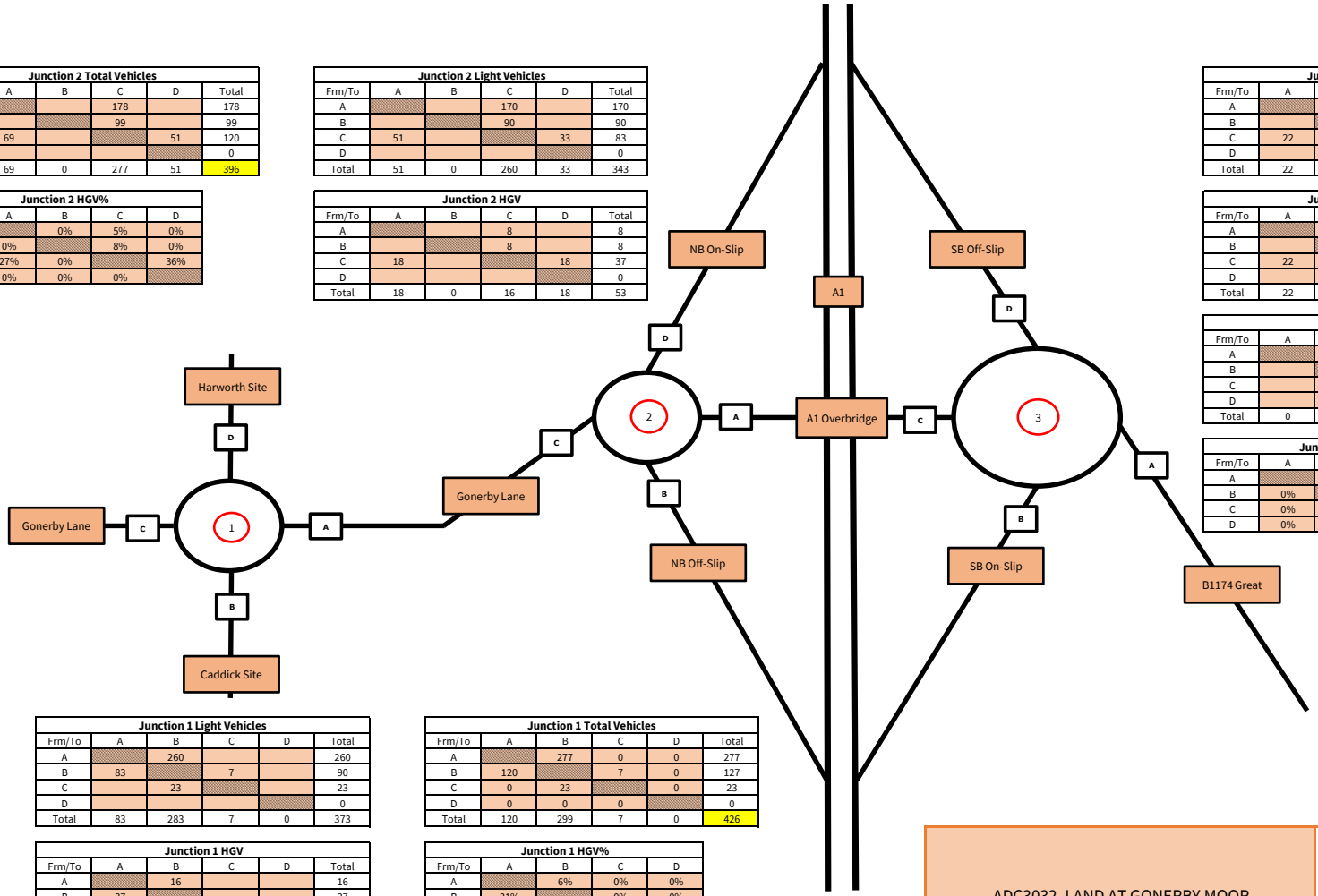
Junction 1 HGV%

Frm/To	A	B	C	D
A		0%	0%	32%
B	0%		0%	0%
C	0%	0%		0%
D	11%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 11: HARWORTH TRAFFIC ASSIGNMENT PM



Junction 2 Total Vehicles

Frm/To	A	B	C	D	Total
A			178		178
B			99		99
C	69			51	120
D					0
Total	69	0	277	51	396

Junction 2 Light Vehicles

Frm/To	A	B	C	D	Total
A			170		170
B			90		90
C	51			33	83
D					0
Total	51	0	260	33	343

Junction 3 Total Vehicles

Frm/To	A	B	C	D	Total
A			68		68
B					0
C	22	47			69
D			110		110
Total	22	47	178	0	247

Junction 2 HGV%

Frm/To	A	B	C	D
A		0%	5%	0%
B	0%		8%	0%
C	27%	0%		36%
D	0%	0%	0%	

Junction 2 HGV

Frm/To	A	B	C	D	Total
A			8		8
B			8		8
C	18			18	37
D					0
Total	18	0	16	18	53

Junction 3 Light Vehicles

Frm/To	A	B	C	D	Total
A			68		68
B					0
C	22	29			51
D			102		102
Total	22	29	170	0	220

Junction 3 HGV

Frm/To	A	B	C	D	Total
A					0
B					0
C		18			18
D			8		8
Total	0	18	8	0	27

Junction 3 HGV%

Frm/To	A	B	C	D
A		0%	0%	0%
B	0%		0%	0%
C	0%	39%		0%
D	0%	0%	7%	

Junction 1 Light Vehicles

Frm/To	A	B	C	D	Total
A		260			260
B	83		7		90
C		23			23
D					0
Total	83	283	7	0	373

Junction 1 Total Vehicles

Frm/To	A	B	C	D	Total
A		277	0	0	277
B	120		7	0	127
C	0	23		0	23
D	0	0	0		0
Total	120	299	7	0	426

Junction 1 HGV

Frm/To	A	B	C	D	Total
A		16			16
B	37				37
C					0
D					0
Total	37	16	0	0	53

Junction 1 HGV%

Frm/To	A	B	C	D
A		6%	0%	0%
B	31%		0%	0%
C	0%	0%		0%
D	0%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 12: CADDICK TRAFFIC ASSIGNMENT AM

Junction 2 Total Vehicles					
Frm/To	A	B	C	D	Total
A			67		67
B			44		44
C	157			106	264
D					0
Total	157	0	111	106	375

Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A			49		49
B			26		26
C	142			92	234
D					0
Total	142	0	76	92	310

Junction 3 Total Vehicles					
Frm/To	A	B	C	D	Total
A			20		20
B					0
C	61	96			157
D			48		48
Total	61	96	67	0	225

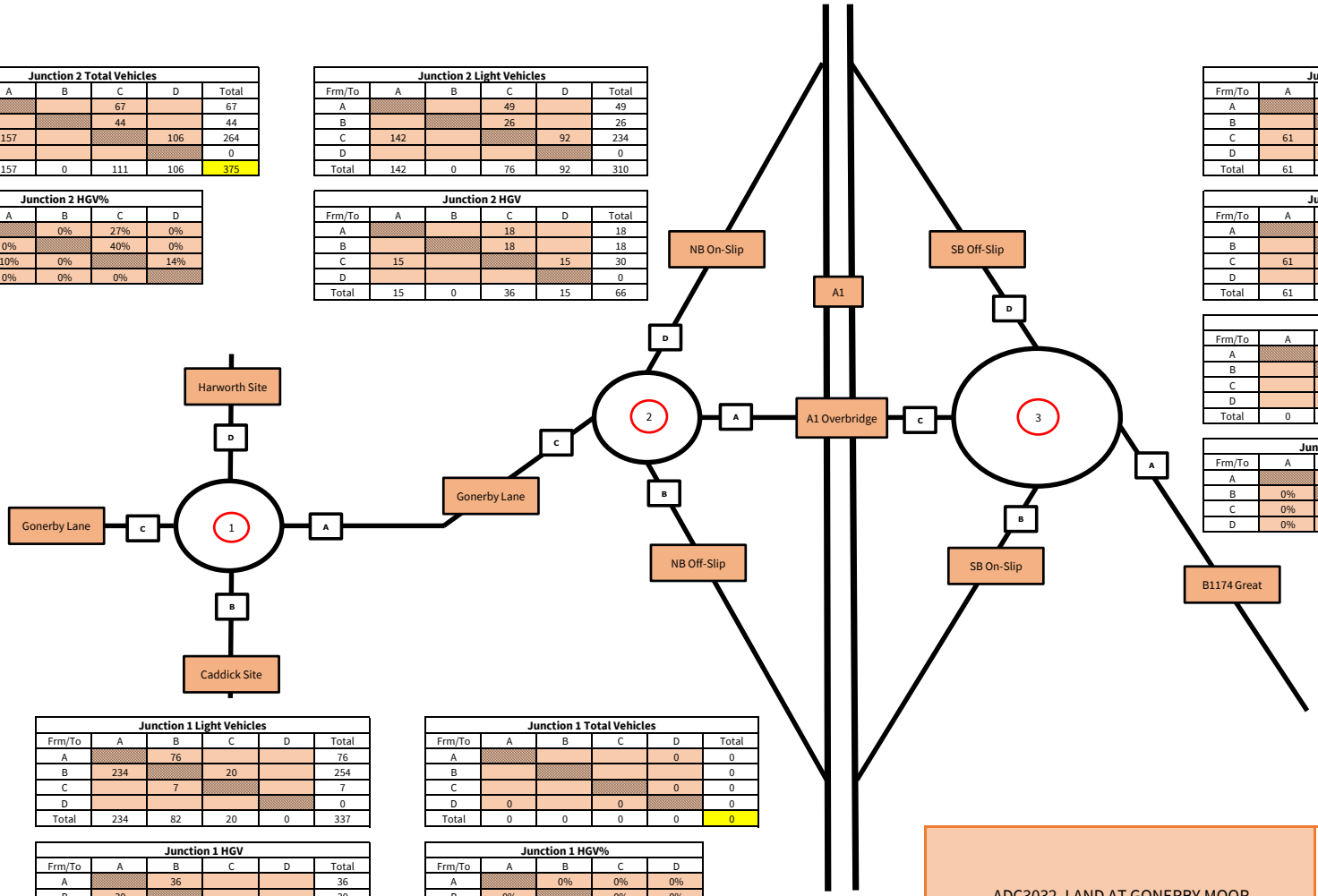
Junction 2 HGV%				
Frm/To	A	B	C	D
A		0%	27%	0%
B	0%		40%	0%
C	10%	0%		14%
D	0%	0%	0%	

Junction 2 HGV					
Frm/To	A	B	C	D	Total
A			18		18
B			18		18
C	15			15	30
D					0
Total	15	0	36	15	66

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A			20		20
B					0
C	61	81			142
D			30		30
Total	61	81	49	0	192

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A					0
B					0
C		15			15
D			18		18
Total	0	15	18	0	33

Junction 3 HGV%				
Frm/To	A	B	C	D
A		0%	0%	0%
B	0%		0%	0%
C	0%	16%		0%
D	0%	0%	38%	



Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A		76			76
B	234		20		254
C		7			7
D					0
Total	234	82	20	0	337

Junction 1 Total Vehicles					
Frm/To	A	B	C	D	Total
A				0	0
B					0
C				0	0
D	0		0		0
Total	0	0	0	0	0

Junction 1 HGV					
Frm/To	A	B	C	D	Total
A		36			36
B	30				30
C					0
D					0
Total	30	36	0	0	66

Junction 1 HGV%				
Frm/To	A	B	C	D
A		0%	0%	0%
B	0%		0%	0%
C	0%	0%		0%
D	0%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 13: CADDICK TRAFFIC ASSIGNMENT PM

Junction 2 Total Vehicles					
Frm/To	A	B	C	D	Total
A			286		286
B			159		159
C	111			82	193
D					0
Total	111	0	445	82	638

Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A			273		273
B			146		146
C	81			52	134
D					0
Total	81	0	418	52	552

Junction 3 Total Vehicles					
Frm/To	A	B	C	D	Total
A			109		109
B					0
C	35	76			111
D			177		177
Total	35	76	286	0	397

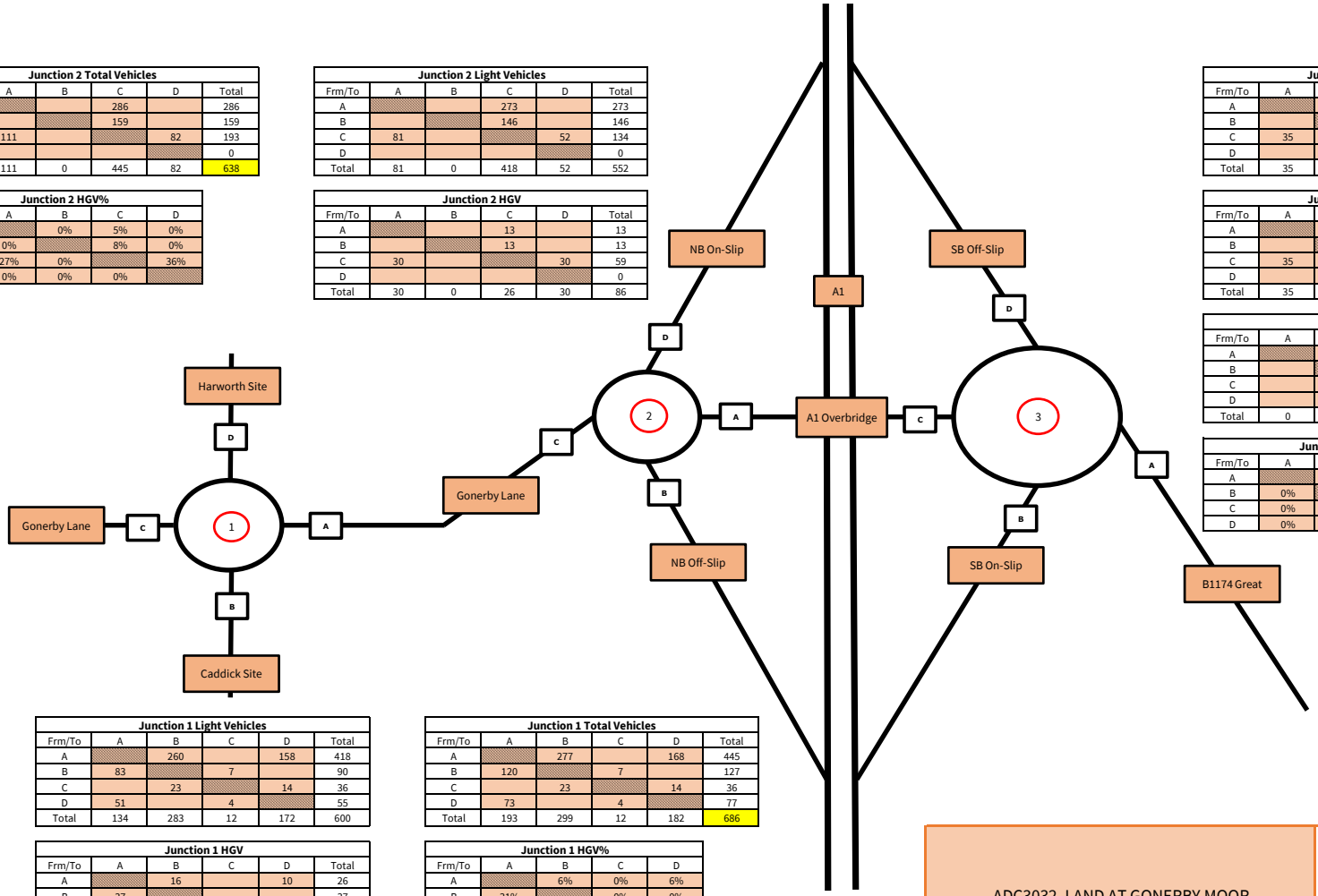
Junction 2 HGV%				
Frm/To	A	B	C	D
A		0%	5%	0%
B	0%		8%	0%
C	27%	0%		36%
D	0%	0%	0%	

Junction 2 HGV					
Frm/To	A	B	C	D	Total
A			13		13
B			13		13
C	30			30	59
D					0
Total	30	0	26	30	86

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A			109		109
B					0
C	35	46			81
D			164		164
Total	35	46	273	0	354

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A					0
B					0
C		30			30
D			13		13
Total	0	30	13	0	43

Junction 3 HGV%				
Frm/To	A	B	C	D
A		0%	0%	0%
B	0%		0%	0%
C	0%	39%		0%
D	0%	0%	7%	



Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A		260		158	418
B	83		7		90
C		23		14	36
D	51		4		55
Total	134	283	12	172	600

Junction 1 Total Vehicles					
Frm/To	A	B	C	D	Total
A		277		168	445
B	120		7		127
C		23		14	36
D	73		4		77
Total	193	299	12	182	686

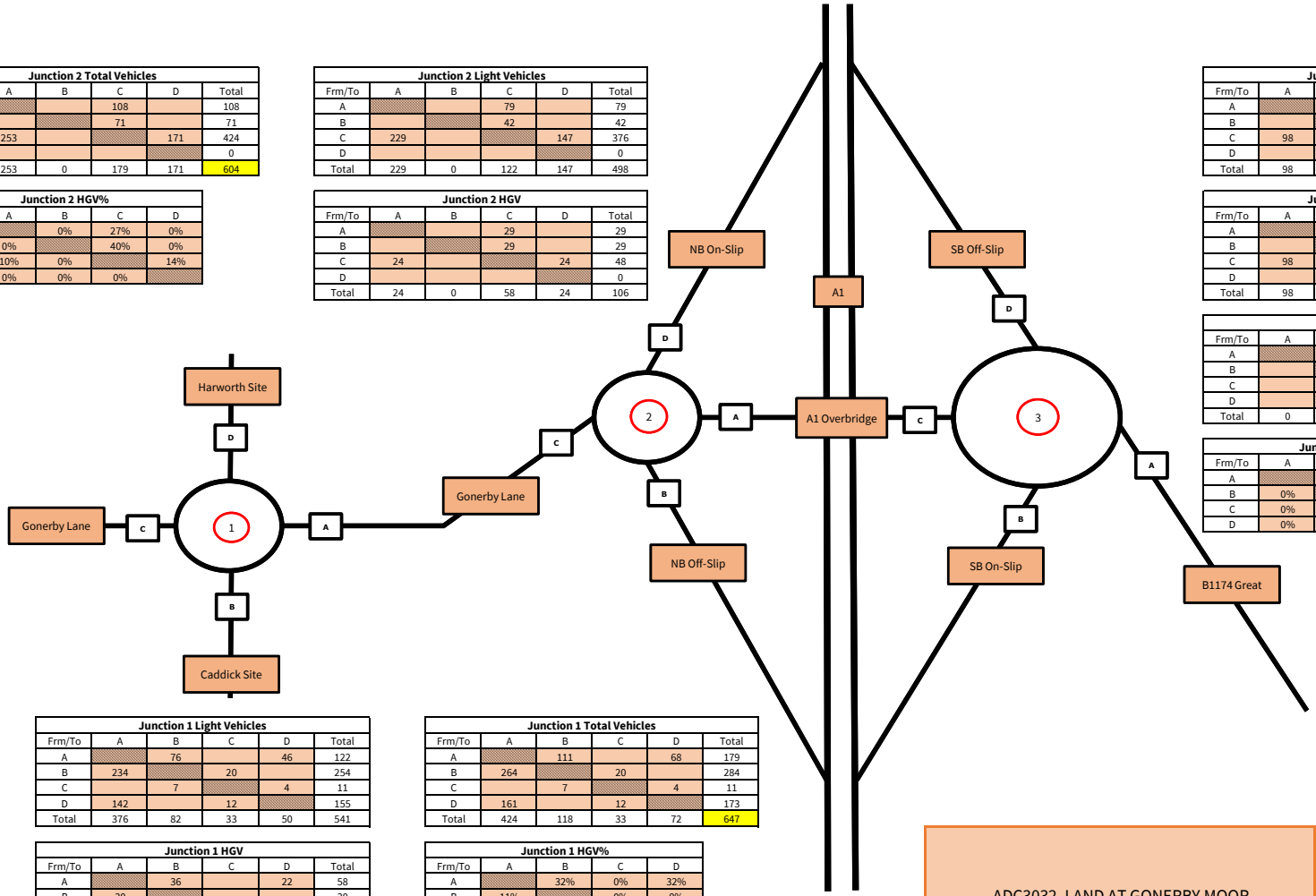
Junction 1 HGV					
Frm/To	A	B	C	D	Total
A		16		10	26
B	37				37
C					0
D	22				22
Total	59	16	0	10	86

Junction 1 HGV%				
Frm/To	A	B	C	D
A		6%	0%	6%
B	31%		0%	0%
C	0%	0%		0%
D	31%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 14: COMBINED SITES TRAFFIC ASSIGNMENT AM



Junction 2 Total Vehicles

Frm/To	A	B	C	D	Total
A			108		108
B			71		71
C	253			171	424
D					0
Total	253	0	179	171	604

Junction 2 Light Vehicles

Frm/To	A	B	C	D	Total
A			79		79
B			42		42
C	229			147	376
D					0
Total	229	0	122	147	498

Junction 3 Total Vehicles

Frm/To	A	B	C	D	Total
A			32		32
B					0
C	98	155			253
D			76		76
Total	98	155	108	0	361

Junction 2 HGV%

Frm/To	A	B	C	D
A		0%	27%	0%
B	0%		40%	0%
C	10%	0%		14%
D	0%	0%	0%	

Junction 2 HGV

Frm/To	A	B	C	D	Total
A			29		29
B			29		29
C	24			24	48
D					0
Total	24	0	58	24	106

Junction 3 Light Vehicles

Frm/To	A	B	C	D	Total
A			32		32
B					0
C	98	131			229
D			48		48
Total	98	131	79	0	308

Junction 3 HGV

Frm/To	A	B	C	D	Total
A					0
B					0
C			24		24
D				29	29
Total	0	24	29	0	53

Junction 3 HGV%

Frm/To	A	B	C	D
A		0%	0%	0%
B	0%		0%	0%
C	0%	16%		0%
D	0%	0%	38%	

Junction 1 Light Vehicles

Frm/To	A	B	C	D	Total
A		76		46	122
B	234		20		254
C		7		4	11
D	142		12		155
Total	376	82	33	50	541

Junction 1 Total Vehicles

Frm/To	A	B	C	D	Total
A		111		68	179
B	264		20		284
C		7		4	11
D	161		12		173
Total	424	118	33	72	647

Junction 1 HGV

Frm/To	A	B	C	D	Total
A		36		22	58
B	30				30
C					0
D	18				18
Total	48	36	0	22	106

Junction 1 HGV%

Frm/To	A	B	C	D
A		32%	0%	32%
B	11%		0%	0%
C	0%	0%		0%
D	11%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 15: COMBINED SITES TRAFFIC ASSIGNMENT PM

Junction 2 Total Vehicles					
Frm/To	A	B	C	D	Total
A		0	409	286	695
B	423		186	0	609
C	241	0		91	332
D	0	0	0		0
Total	664	0	595	377	1636

Junction 2 HGV%				
Frm/To	A	B	C	D
A		0%	3%	10%
B	6%		7%	0%
C	13%	0%		34%
D	0%	0%	0%	

Junction 2 Light Vehicles					
Frm/To	A	B	C	D	Total
A		0	395	257	652
B	397		173	0	570
C	209	0		60	270
D	0	0	0		0
Total	606	0	567	317	1491

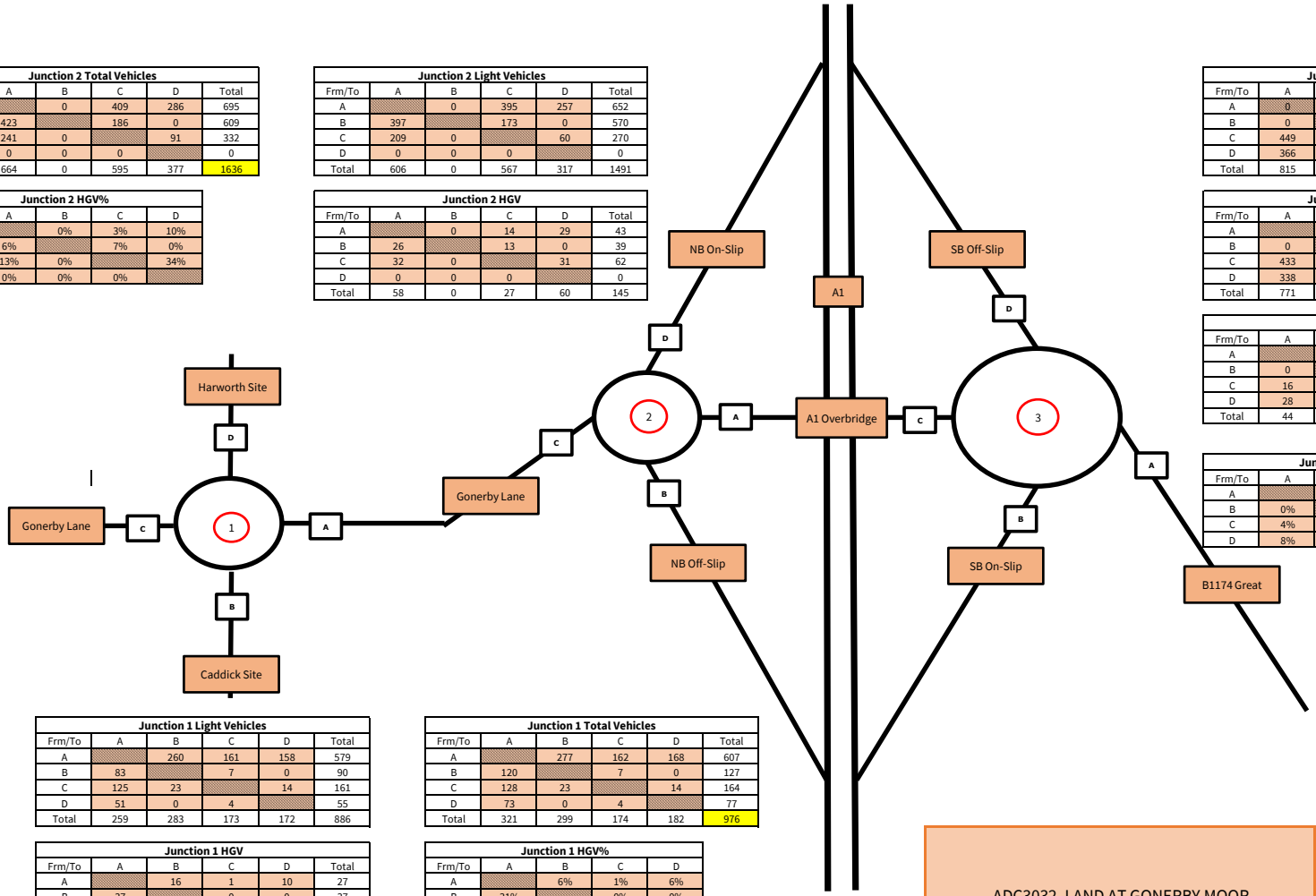
Junction 2 HGV					
Frm/To	A	B	C	D	Total
A		0	14	29	43
B	26		13	0	39
C	32	0		31	62
D	0	0	0		0
Total	58	0	27	60	145

Junction 3 Total Vehicles					
Frm/To	A	B	C	D	Total
A	0	298	443	0	741
B	0		0	0	0
C	449	225		0	674
D	366	62	232		660
Total	815	585	675	0	2075

Junction 3 Light Vehicles					
Frm/To	A	B	C	D	Total
A		258	417	0	675
B	0		0	0	0
C	433	177		0	610
D	338	54	216		608
Total	771	489	633	0	1893

Junction 3 HGV					
Frm/To	A	B	C	D	Total
A		40	26	0	66
B	0		0	0	0
C	16	48		0	64
D	28	8	16		52
Total	44	96	42	0	182

Junction 3 HGV%				
Frm/To	A	B	C	D
A		13%	6%	0%
B	0%		0%	0%
C	4%	21%		0%
D	8%	13%	7%	



Junction 1 Light Vehicles					
Frm/To	A	B	C	D	Total
A		260	161	158	579
B	83		7	0	90
C	125	23		14	161
D	51	0	4		55
Total	259	283	173	172	886

Junction 1 Total Vehicles					
Frm/To	A	B	C	D	Total
A		277	162	168	607
B	120		7	0	127
C	128	23		14	164
D	73	0	4		77
Total	321	299	174	182	976

Junction 1 HGV					
Frm/To	A	B	C	D	Total
A		16	1	10	27
B	37		0	0	37
C	3	0		0	3
D	22	0	0		22
Total	62	16	1	10	90

Junction 1 HGV%				
Frm/To	A	B	C	D
A		6%	1%	6%
B	31%		0%	0%
C	2%	0%		0%
D	31%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 16: 2041 WITH DEVELOPMENT AM

Junction 2 Total Vehicles

Frm/To	A	B	C	D	Total
A		0	227	464	691
B	325		86	4	415
C	402	0		180	582
D	0	0	0		0
Total	727	0	313	648	1689

Junction 2 Light Vehicles

Frm/To	A	B	C	D	Total
A		0	197	453	650
B	302		57	3	362
C	378	0		156	534
D	0	0	0		0
Total	680	0	255	612	1547

Junction 3 Total Vehicles

Frm/To	A	B	C	D	Total
A		444	549	0	993
B	0		0	0	0
C	442	287		0	729
D	346	55	139		540
Total	788	786	688	0	2262

Junction 2 HGV%

Frm/To	A	B	C	D
A		0%	13%	2%
B	7%		33%	25%
C	6%	0%		13%
D	0%	0%	0%	

Junction 2 HGV

Frm/To	A	B	C	D	Total
A		0	30	11	41
B	23		29	1	53
C	24	0		24	48
D	0	0	0		0
Total	47	0	59	36	142

Junction 3 Light Vehicles

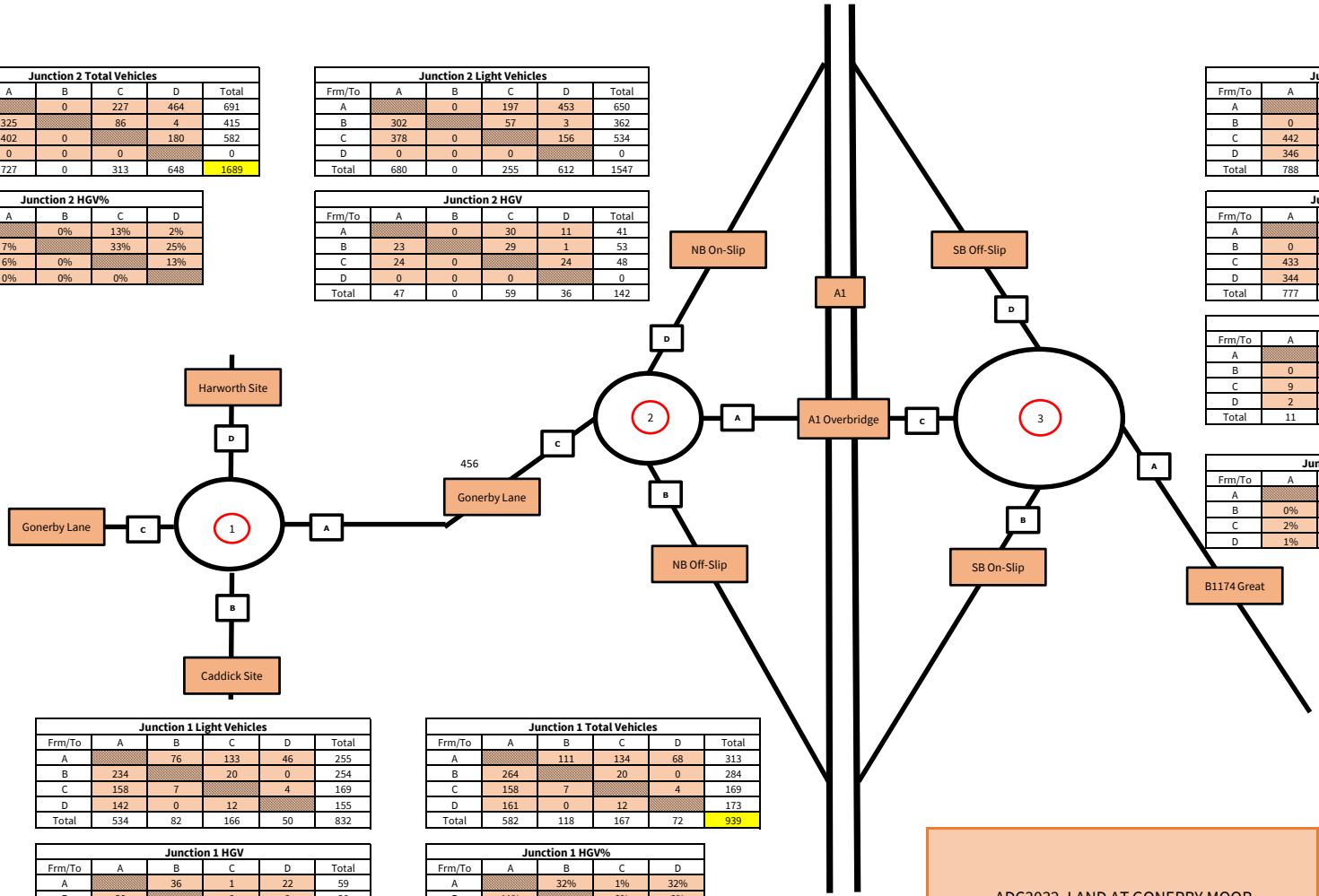
Frm/To	A	B	C	D	Total
A		425	535	0	960
B	0		0	0	0
C	433	254		0	687
D	344	47	109		500
Total	777	726	643	0	2146

Junction 3 HGV

Frm/To	A	B	C	D	Total
A		19	14	0	33
B	0		0	0	0
C	9	33		0	42
D	2	8	31		41
Total	11	60	45	0	116

Junction 3 HGV%

Frm/To	A	B	C	D
A		4%	3%	0%
B	0%		0%	0%
C	2%	12%		0%
D	1%	15%	22%	



Junction 1 Light Vehicles

Frm/To	A	B	C	D	Total
A		76	133	46	255
B	234		20	0	254
C	158	7		4	169
D	142	0	12		155
Total	534	82	166	50	832

Junction 1 Total Vehicles

Frm/To	A	B	C	D	Total
A		111	134	68	313
B	264		20	0	284
C	158	7		4	169
D	161	0	12		173
Total	582	118	167	72	939

Junction 1 HGV

Frm/To	A	B	C	D	Total
A		36	1	22	59
B	30		0	0	30
C	0	0		0	0
D	18	0	0		18
Total	48	36	1	22	107

Junction 1 HGV%

Frm/To	A	B	C	D
A		32%	1%	32%
B	11%		0%	0%
C	0%	0%		0%
D	11%	0%	0%	

ADC3032. LAND AT GONERBY MOOR

ADC INFRASTRUCTURE

DIAGRAM 17: 2041 WITH DEVELOPMENT PM

APPENDIX A

ILLUSTRATIVE DEVELOPMENT MASTERPLANS

Notes:

1. This drawing is subject to copyright and is not to be reproduced in part or whole without approval.
2. Do not scale this drawing - check all dimensions on site.

This drawing has been superimposed onto an Ordnance Survey dataset and is therefore subject to a detailed boundary and levels survey of the site. It is also subject to confirmation of legal ownership boundaries, approvals and agreements of all statutory authorities and undertakers necessary for all supplies, wayleaves and diversions, all of which are unknown at the time of preparing this drawing.

Development layouts are shown indicatively and subject to design review.

Northern Parcel (Harworth)

Southern Parcel (Caddick)

Unit 11 - 18k
Unit 10 - 25k
Unit 9 - 86k
Unit 8 - 60k
Unit 7 - 49k
Unit 1 - 519k
Unit 5 - 41k
Unit 4A - 15k
Unit 4B
Unit 3A - 15k
Unit 3B - 16k
Unit 2 - 64k

UNIT 1
UNIT 2
UNIT 3
UNIT 4
UNIT 5
UNIT 6
UNIT 7
UNIT 8
UNIT 9
UNIT 10
UNIT 11

PROPOSED LANDSCAPER BUFFER
PROPOSED WOODLAND AND BUFFER PLANTING
EXISTING DRAINAGE DITCHES TO BE ENHANCED WITH HEDGE ROWS
CAR PARKING No.58 / 4 DISABLED
CAR PARKING No.59 / 7 DISABLED
CAR PARKING No.52 / 3 DISABLED
CAR PARKING No.54 / 10 DISABLED
CAR PARKING No.56 / 16 DISABLED
CAR PARKING No.60 / 20 DISABLED
CAR PARKING No.58 / 8 DISABLED
CAR PARKING No.106 / 102 DISABLED

PRELIMINARY
FOR DISCUSSION
PURPOSES ONLY

50m SCALE 1:2500

Rev:	Date:	Status/Amendments:	By:
P01	21.03.24	INITIAL ISSUE	AE

mosodi TECHNICAL
Manchester 0161 413 5168
Leeds 0113 323 0854

Client: Harworth

Project: Gonerby Moor

Drawing Title: Illustrative Masterplan showing possible access roundabout location

Drawn By:	Checked By:	Approved By:
AE	AE	AE
Scale: 1:2500	Paper Size: A1	Date Created: 20.03.24
Drawing Number: 24003-MOS-SI-XX-SK-A-0001		Drawing Revision: P01

APPENDIX B

LCC AND NATIONAL HIGHWAYS RESPONSES

David Hobday

From: Ian Field [redacted]
Sent: 26 January 2024 10:19
To: David Hobday
Subject: RE: Gonerby Moor Employment Site. Transport Appraisal for SKDC Local Plan representations.

Hi Dave,
I write in reply to your enquiry regarding this site and your initial Transport Appraisal. In general, the assessment is acceptable but I have the following comments:

- The 4 arm site access roundabout shown on Drawing ADC3032-DR-002-P2 is preferred form of access for the development. In Appendix A, priority junctions are shown as access points for the northern site and this would need further evidence as to their suitability.
- The pedestrian and cycle improvements shown on Drawing ADC3032-DR-002-P2 are necessary, also the widening of the carriageway to 7.3m to the roundabout.
- The distribution proposed seems reasonable. We would want to limit any traffic impact through the villages of Allington and Sedgebrook, the distribution results in nearly 50 additional vehicles in the peak hour along this route which should be compared to base flows. It may be a high percentage increase, and it would be helpful if consideration could be given to ways to reduce this impact.
- A McDonalds fast food and drive-thru has been consented on Allington Lane East and the junction with the B1174 is to be upgraded to a roundabout. The flows from this committed development should be included in any assessment.
- The junction of Newark Hill / Belton Lane will need including in an assessment.
- Parking provision should be considered in the appraisal. Whilst LCC does not have parking standards, the amount of parking proposed should be justified by comparison to other sites (used for trip rates in TRICS). The provision should correlate with the trip rates used, and ideally parking provision should be limited as far as possible.

Please let me know if you have any queries.
Regards
Ian

Ian Field CEng, BEng(Hons), MCIHT, ACGI
Growth Manager (Special Projects)

Lincolnshire County Council
County Offices, Newland, Lincoln LN1 1YL

Phone: [redacted]
Teams: Chat with me
Website: www.lincolnshire.gov.uk

Lincolnshire COUNTY COUNCIL Working for a better future

David Hobday

From: Catherine Townend <[redacted]>
Sent: 29 January 2024 09:45
To: David Hobday
Subject: National Highway response - Gonerby Moor Employment Site. Transport Appraisal for SKDC Local Plan representations.

Good morning Dave,

Thank you for your below email in relation to pre-application consultation in support of a Regulation 18 Local Plan allocation submission for land adjacent to the A1 at Gonerby Moor, Lincolnshire.

Our consultants AECOM have reviewed your submitted transport appraisal note and more information is required as set out below:

Trip Generation and Distribution

We welcome the applicant using the TRICS database to identify the trip rates for each possible land use proposed at the development site. We recommend trip rates are derived using the latest available version of TRICS (v7.10.4) and that surveys carried out on Monday, Friday and weekends are omitted from the TRICS site selection.

The proposed area for B8 warehouse use in both the Harworth Group's land and Caddick Group's land exceeds the maximum gross floor area surveyed in TRICS. We recommend the applicant obtains trip rates (total, light vehicles and HGVs) from other sites with similar characteristics (e.g. land use, size, proximity to the SRN) for comparison with the trip rates available in TRICS to ensure that the traffic generation predicted is accurate for assessing the potential impact from the development on the adjacent SRN.

We also note that an arbitrary split between B8 Storage and Distribution and B2 General Industrial Uses is defined as 75% and 25% respectively. We suggest the applicant updates the traffic assessment with a more accountable split when available.

Furthermore, committed developments within the surrounding area should also be included in the vehicle trip assessment. Details of these developments should be confirmed with the Local Planning Authority.

We are content with the use of the national census data at MSOA level to derive the traffic distribution for the light vehicles.

In relation to the approach of adopting a 50% north and 50% south distribution of HGVs as proposed in the appraisal report, we recommend the applicant reviews the observed directional split of HGVs in order to justify the proposed methodology or to update the proposed directional splits as appropriate.

Junction Assessments

TEMPro Growth Factor - National Highways are content with the use of TEMPro Version 8.1 and the use of South Kesteven 002 MSOA for the background traffic growth. However, it is recommended that 'Trunk Road' is used for the TEMPro forecasts instead of 'All Roads' due to the vicinity of the site to the Strategic Road Network and the higher traffic growth it forecasts. We feel this would provide a more robust assessment.

Committed Development - All committed development traffic has been assigned as "cars". This has therefore meant that the heavy vehicle percentages have reduced accordingly. The applicant should provide all committed development traffic in cars / Light Vehicles and heavy vehicles for our review.

Further clarification is required to understand how the peak periods of 08:15 – 09:15 and 16:30 – 17:30 have been selected for the assessment. National Highways requires the highest combined peak period to be selected from background traffic plus development traffic.

Traffic Merge Assessment Flows – The slip road merge assessments have been reviewed. It appears that due to the location of the DfT traffic count sites, additional calculations were undertaken to identify the Upstream Mainline flows for the assessments. National Highways requires further clarity on how this has been calculated. We recommend the applicant submits the calculation spreadsheets for our review.

Traffic Modelling Geometry Measurements – Following independent measurements being undertaken, a few geometry measurements require a further review:

Western Dumbell Roundabout

- The entry width of the Gonerby Lane approach needs revising with an approximate width of 3.96 metres being identified.
- The entry radius on the A1 off-slip requires amendment with an approximate radius of 11.4 metres being identified.

National Highways also recommends that an annotated drawing of the geometry measurements for the roundabouts are provided to support the measurements used within the modelling.

I trust the above comments are helpful in progressing the representation of this site for the Regulation 18 Site Allocation process for the South Kesteven Local Plan. Should you have any questions please get in touch.

Kind regards

Catherine Townend
Spatial Planner
Operations Directorate (Midlands) – [redacted]
Web: www.nationalhighways.co.uk

My working days are Monday to Thursday

APPENDIX C

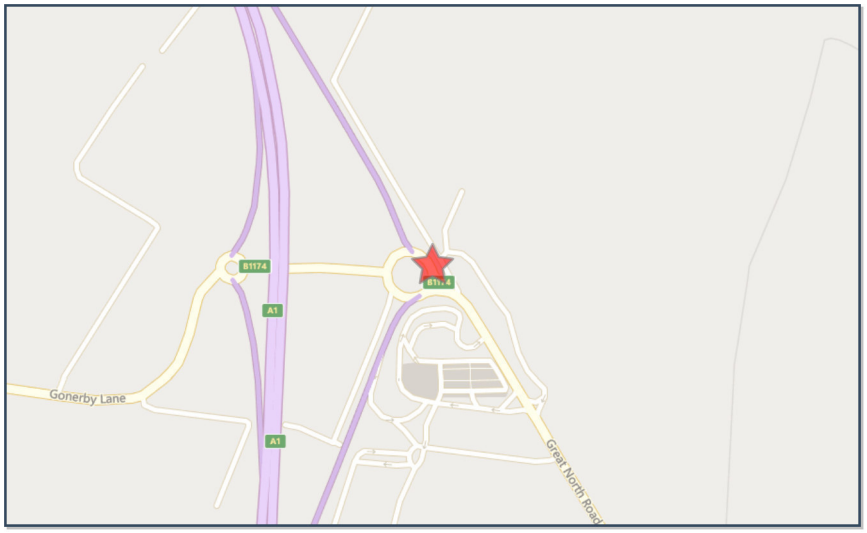
PERSONAL INJURY COLLISION DATA

crashmap.co.uk

Validated Data

Crash Date:	Thursday, June 14, 2018	**Time of Crash:**	1:19:00 PM	**Crash Reference:**	**2018320274860**

Highest Injury Severity:	Serious	**Road Number:**	A1	**Number of Casualties:**	1
Highway Authority:	Lincolnshire			**Number of Vehicles:**	1
Local Authority:	South Kesteven District			**OS Grid Reference:**	488856 340011
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Roundabout				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: *www.crashmap.co.uk/home/Faq*
To subscribe to unlimited reports using CrashMap Pro visit *www.crashmap.co.uk/Home/Premium_Services*

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Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Goods vehicle 7.5 tonnes mgw and over	1	Male	26 - 35	Vehicle is in the act of turning right	Nearside	Journey as part of work	Kerb	None

Casualties

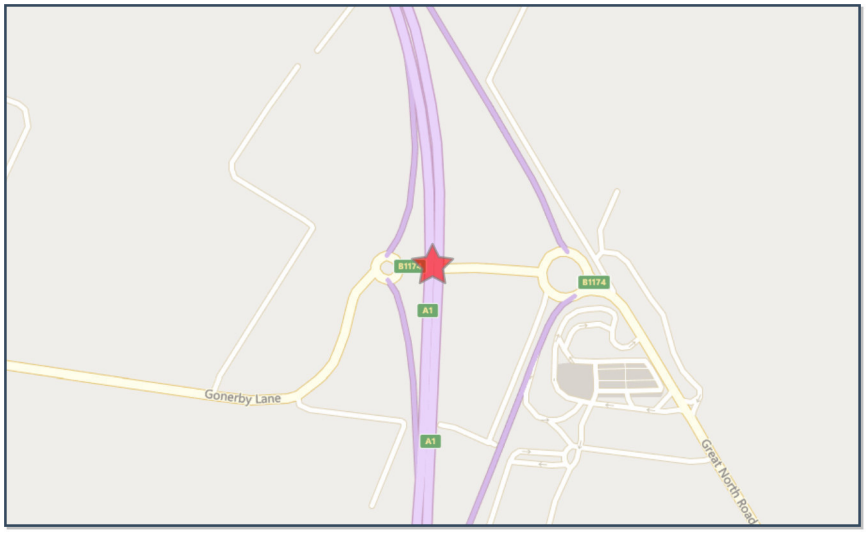
Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

crashmap.co.uk

Validated Data

Crash Date:	Tuesday, August 07, 2018	**Time of Crash:**	7:20:00 PM	**Crash Reference:**	**2018320374356**

Highest Injury Severity:	Slight	**Road Number:**	A1	**Number of Casualties:**	1
Highway Authority:	Lincolnshire			**Number of Vehicles:**	2
Local Authority:	South Kesteven District			**OS Grid Reference:**	488617 340007
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	70				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	Other object in carriageway				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Dual carriageway				
Junction Control:	Not Applicable				



For more information about the data please visit: *www.crashmap.co.uk/home/Faq*
To subscribe to unlimited reports using CrashMap Pro visit *www.crashmap.co.uk/Home/Premium_Services*

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Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Goods vehicle 7.5 tonnes mgw and over	5	Male	26 - 35	Vehicle proceeding normally along the carriageway, on a right hand bend	Front	Journey as part of work	Parked vehicle	None
2	Car (excluding private hire)	15	Male	46 - 55	Vehicle is parked in the carriageway	Back	Unknown	None	None

Casualties

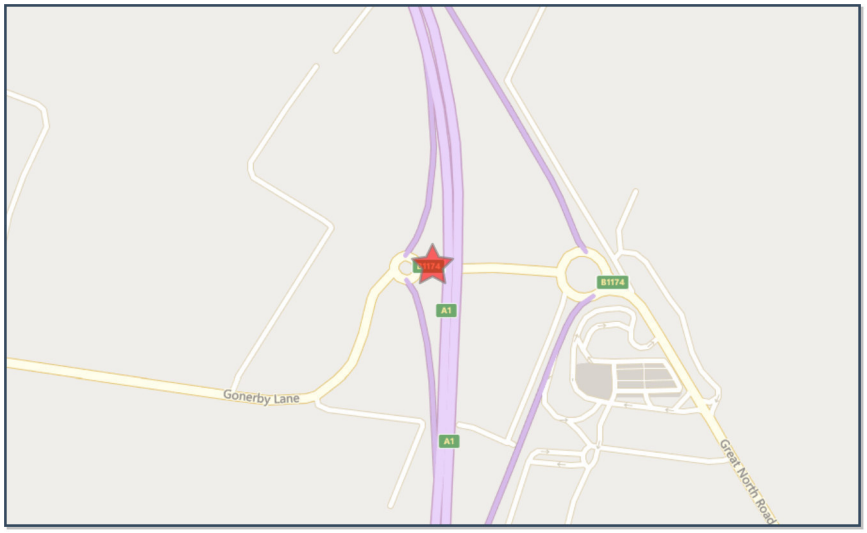
Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

crashmap.co.uk

Validated Data

Crash Date:	Wednesday, August 14, 2019	**Time of Crash:**	1:39:00 PM	**Crash Reference:**	**2019320431127**

Highest Injury Severity:	Serious	**Road Number:**	B1174	**Number of Casualties:**	1
Highway Authority:	Lincolnshire			**Number of Vehicles:**	2
Local Authority:	South Kesteven District			**OS Grid Reference:**	488588 340010
Weather Description:	Raining without high winds				
Road Surface Description:	Wet or Damp				
Speed Limit:	60				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Give way or uncontrolled				



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Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	1	Male	21 - 25	Vehicle proceeding normally along the carriageway, not on a bend	Front	Unknown	None	None
2	Goods vehicle 7.5 tonnes mgw and over	1	Male	56 - 65	Vehicle proceeding normally along the carriageway, not on a bend	Front	Journey as part of work	None	None

Casualties

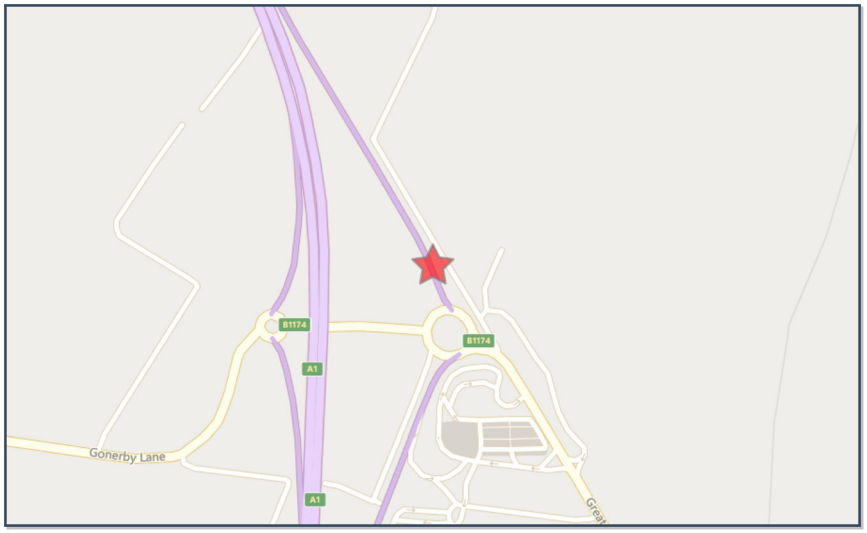
Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Driver or rider	Male	21 - 25	Unknown or other	Unknown or other

crashmap.co.uk

Provisional Data does not include vehicle and casualty records

Crash Date:	Tuesday, January 05, 2021	**Time of Crash:**	12:50:00 AM	**Crash Reference:**	**2021320006180**

Highest Injury Severity:	Slight	**Road Number:**	A1	**Number of Casualties:**	1
Highway Authority:				**Number of Vehicles:**	1
Local Authority:				**OS Grid Reference:**	488794 340102
Weather Description:	Fine without high winds				
Road Surface Description:	Wet or Damp				
Speed Limit:	70				
Light Conditions:	Darkness: no street lighting				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Dual carriageway				
Junction Control:	Not Applicable				



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Provisional Data does not include vehicle and casualty records

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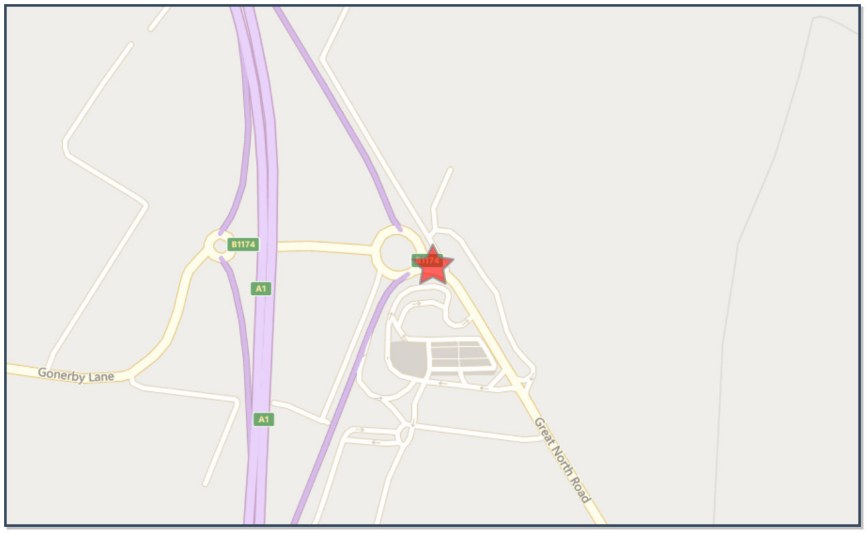
Validated Data

Crash Date:	Saturday, August 21, 2021	**Time of Crash:**	9:21:00 AM	**Crash Reference:**	**2021320479063**

Highest Injury Severity:	Slight	**Road Number:**	A1	**Number of Casualties:**	1
Highway Authority:	Lincolnshire			**Number of Vehicles:**	2
Local Authority:	South Kesteven District			**OS Grid Reference:**	488874 339983
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	60				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Roundabout				
Junction Control:	Give way or uncontrolled				



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Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Van or goods vehicle 3.5 tonnes mgw and under	-1	Unknown	36 - 45	Vehicle is slowing down or stopping	Front	Unknown	None	None
2	Car (excluding private hire)	6	Female	56 - 65	Vehicle is slowing down or stopping	Back	Unknown	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Female	56 - 65	Unknown or other	Unknown or other

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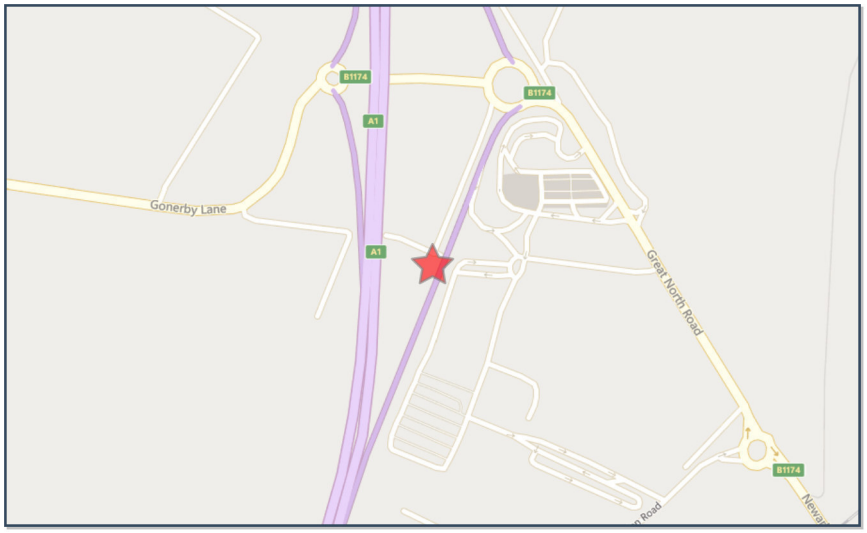
Validated Data

Crash Date:	Friday, October 22, 2021	**Time of Crash:**	7:50:00 PM	**Crash Reference:**	**2021320615868**

Highest Injury Severity:	Slight	**Road Number:**	A1	**Number of Casualties:**	2
Highway Authority:	Lincolnshire			**Number of Vehicles:**	2
Local Authority:	South Kesteven District			**OS Grid Reference:**	488706 339720
Weather Description:	Fine without high winds				
Road Surface Description:	Wet or Damp				
Speed Limit:	70				
Light Conditions:	Darkness: no street lighting				
Carriageway Hazards:	None				
Junction Detail:	Slip road				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Dual carriageway				
Junction Control:	Give way or uncontrolled				



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Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	9	Female	56 - 65	Vehicle proceeding normally along the carriageway, not on a bend	Front	Commuting to/from work	None	None
2	Car (excluding private hire)	1	Female	66 - 75	Vehicle proceeding normally along the carriageway, not on a bend	Back	Unknown	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Female	56 - 65	Unknown or other	Unknown or other
2	2	Slight	Driver or rider	Female	66 - 75	Unknown or other	Unknown or other

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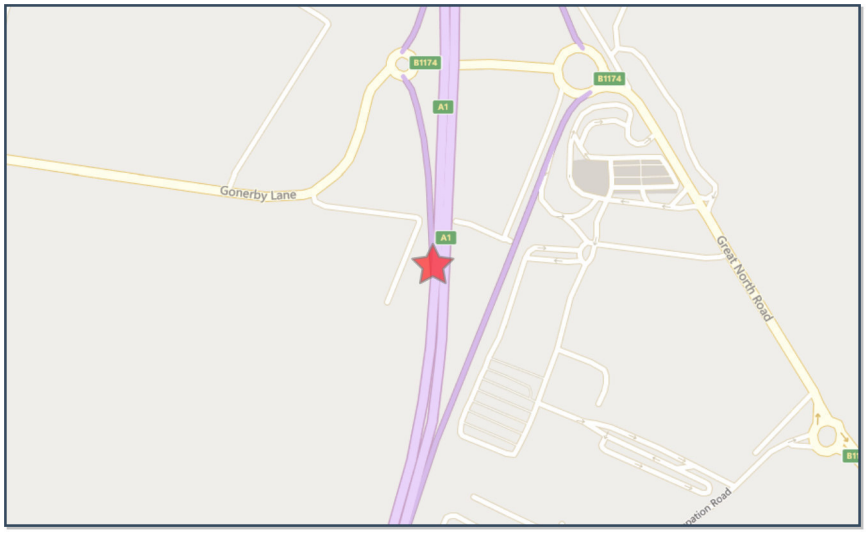
Validated Data

Crash Date:	Thursday, July 21, 2022	**Time of Crash:**	2:00:00 PM	**Crash Reference:**	**2022320421331**

Highest Injury Severity:	Slight	**Road Number:**	A1	**Number of Casualties:**	1
Highway Authority:	Lincolnshire			**Number of Vehicles:**	2
Local Authority:	South Kesteven District			**OS Grid Reference:**	488600 339702
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	70				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Slip road				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Dual carriageway				
Junction Control:	Give way or uncontrolled				



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Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	1	Female	Over 75	Vehicle is slowing down or stopping	Back	Unknown	None	None
2	Car (excluding private hire)	8	Male	66 - 75	Vehicle proceeding normally along the carriageway, not on a bend	Front	Unknown	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Female	Over 75	Unknown or other	Unknown or other

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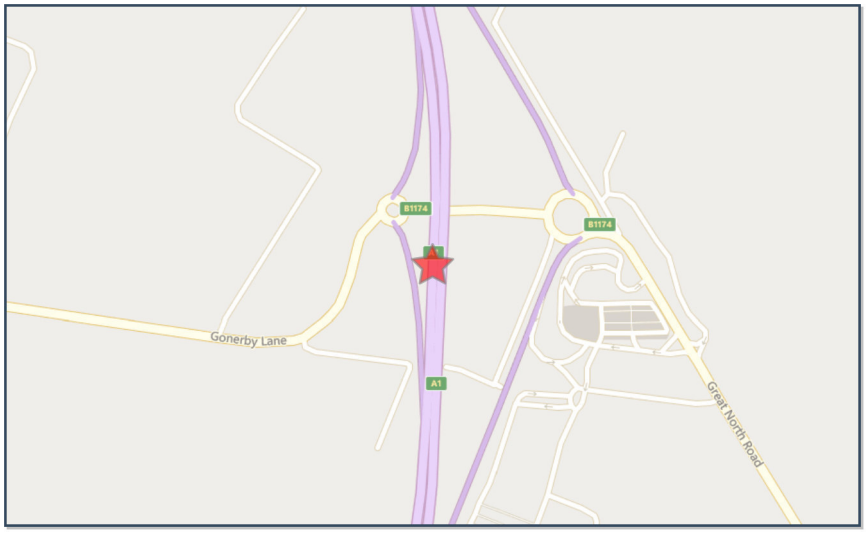
Validated Data

Crash Date:	Monday, August 29, 2022	**Time of Crash:**	9:40:00 AM	**Crash Reference:**	**2022320502701**

Highest Injury Severity:	Slight	**Road Number:**	A1	**Number of Casualties:**	1
Highway Authority:	Lincolnshire			**Number of Vehicles:**	2
Local Authority:	South Kesteven District			**OS Grid Reference:**	488610 339926
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	70				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Dual carriageway				
Junction Control:	Not Applicable				



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Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	6	Female	66 - 75	Vehicle proceeding normally along the carriageway, not on a bend	Front	Unknown	None	None
2	Goods vehicle over 3.5 tonnes and under 7.5 tonnes mgw	7	Male	36 - 45	Vehicle proceeding normally along the carriageway, not on a bend	Back	Journey as part of work	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Female	66 - 75	Unknown or other	Unknown or other

APPENDIX D

TRAFFIC COUNT DATA

Gonerby Moor, Thursday 23rd November 2023

Traffic Information Consultancy

Junction: 1 Western dumbell roundabout
Approach: A1 North

	Left to B1174								Ahead to A1 (S)								Right to Gonerby Lane							
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
07:00 - 07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 - 07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 - 08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:00 - 08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 - 08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 - 09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
09:00 - 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 - 09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 - 09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30 - 18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45 - 19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Gonerby Moor, Thursday 23rd November 2023

Traffic Information Consultancy

Junction: 1 Western dumbell roundabout
Approach: B1174

	Left to A1 (S)								Ahead to Gonerby Lane								Right to A1 (N)								U-Turn							
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
07:00 - 07:15	0	0	0	0	0	0	0	0	0	2	12	1	0	0	0	15	0	0	36	11	3	4	0	54	0	0	0	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0	0	0	0	0	0	8	6	0	0	0	14	0	1	55	13	0	2	1	72	0	0	0	0	0	0	0	0
07:30 - 07:45	0	0	0	0	0	0	0	0	0	0	17	4	0	0	2	23	0	0	48	12	1	4	0	65	0	0	0	0	0	0	0	0
07:45 - 08:00	0	0	0	0	0	0	0	0	0	0	8	2	0	0	1	11	0	0	45	10	3	1	0	59	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**45**	**13**	**0**	**0**	**3**	**63**	**0**	**1**	**184**	**46**	**7**	**11**	**1**	**250**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:00 - 08:15	0	0	0	0	0	0	0	0	0	0	13	2	0	0	1	16	0	0	38	6	3	3	0	50	0	0	0	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0	0	0	0	0	0	21	4	0	0	1	26	0	0	36	8	1	0	0	45	0	0	0	0	0	0	0	0
08:30 - 08:45	0	0	0	0	0	0	0	0	0	0	21	3	0	0	0	24	0	0	50	4	1	8	0	63	0	0	0	0	0	0	0	0
08:45 - 09:00	0	0	0	0	0	0	0	0	0	0	29	3	0	0	0	32	0	0	49	9	4	4	0	66	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**84**	**12**	**0**	**0**	**2**	**98**	**0**	**0**	**173**	**27**	**9**	**15**	**0**	**224**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
09:00 - 09:15	0	0	0	0	0	0	0	0	0	0	22	1	0	0	0	23	0	0	44	7	3	4	1	59	0	0	0	0	0	0	0	0
09:15 - 09:30	0	0	0	0	0	0	0	0	0	0	14	3	0	0	0	17	0	0	32	13	1	10	0	56	0	0	1	0	0	0	0	1
09:30 - 09:45	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	11	0	0	40	9	5	3	0	57	0	0	0	0	0	0	0	0
09:45 - 10:00	0	0	0	0	0	0	0	0	0	0	7	3	1	0	0	11	0	0	35	3	2	6	0	46	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**7**	**1**	**0**	**0**	**62**	**0**	**0**	**151**	**32**	**11**	**23**	**1**	**218**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**183**	**32**	**1**	**0**	**5**	**223**	**0**	**1**	**508**	**105**	**27**	**49**	**2**	**692**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	23	4	0	0	1	28	0	0	80	10	0	3	1	94	0	0	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	24	6	0	0	0	30	0	0	59	12	1	1	4	77	0	0	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	14	7	0	0	0	21	0	0	58	10	1	2	0	71	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	22	3	0	0	0	25	0	0	75	12	0	1	1	89	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**83**	**20**	**0**	**0**	**1**	**104**	**0**	**0**	**272**	**44**	**2**	**7**	**6**	**331**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	14	1	0	0	1	16	0	1	74	5	0	1	1	82	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	24	0	1	71	10	1	1	1	85	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	8	2	0	0	0	10	0	0	52	4	1	2	0	59	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	11	1	0	0	0	12	0	0	40	3	2	1	0	46	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**57**	**4**	**0**	**0**	**1**	**62**	**0**	**2**	**237**	**22**	**4**	**5**	**2**	**272**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	17	0	0	34	1	0	1	0	36	0	0	0	0	0	0	0	0
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	18	1	0	0	0	19	0	0	33	1	0	2	1	37	0	0	0	0	0	0	0	0
18:30 - 18:45	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	12	0	0	35	3	0	2	0	40	0	0	0	0	0	0	0	0
18:45 - 19:00	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	31	4	0	4	0	39	0	0	1	0	0	0	0	1
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**1**	**0**	**0**	**0**	**53**	**0**	**0**	**133**	**9**	**0**	**9**	**1**	**152**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**192**	**25**	**0**	**0**	**2**	**219**	**0**	**2**	**642**	**75**	**6**	**21**	**9**	**755**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

Gonerby Moor, Thursday 23rd November 2023

Traffic Information Consultancy

Junction: 1
Approach: A1 South Western dumbell roundabout

	Left to Gonerby Lane								Ahead to A1 (N)								Right to B1174							
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
07:00 - 07:15	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	11	3	0	7	0	21
07:15 - 07:30	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	16	3	0	4	0	23
07:30 - 07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	3	0	6	0	23
07:45 - 08:00	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	33	4	3	6	0	46
Hourly Total	**0**	**0**	**3**	**1**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**74**	**13**	**3**	**23**	**0**	**113**
08:00 - 08:15	0	0	4	0	1	0	0	5	0	0	0	0	0	0	0	0	0	0	33	5	3	5	0	46
08:15 - 08:30	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	47	6	0	8	0	61
08:30 - 08:45	0	0	5	2	0	0	0	7	0	0	0	0	0	0	0	0	0	0	71	6	1	5	0	83
08:45 - 09:00	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	46	5	2	5	0	58
Hourly Total	**0**	**0**	**22**	**2**	**1**	**0**	**0**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**197**	**22**	**6**	**23**	**0**	**248**
09:00 - 09:15	0	0	3	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	27	4	0	2	0	33
09:15 - 09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	5	0	7	0	34
09:30 - 09:45	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	21	4	2	8	0	35
09:45 - 10:00	0	0	1	3	0	1	0	5	0	0	1	0	0	0	0	1	0	0	21	7	0	7	0	35
Hourly Total	**0**	**0**	**7**	**4**	**0**	**1**	**0**	**12**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**91**	**20**	**2**	**24**	**0**	**137**
TOTAL	**0**	**0**	**32**	**7**	**1**	**2**	**0**	**42**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**362**	**55**	**11**	**70**	**0**	**498**
16:00 - 16:15	0	0	4	0	0	0	0	4	0	0	3	0	0	0	0	3	0	0	37	8	2	3	0	50
16:15 - 16:30	0	0	5	0	0	0	0	5	0	0	1	0	0	0	0	1	0	0	30	7	0	2	0	39
16:30 - 16:45	0	0	2	1	0	0	0	3	0	0	0	1	0	0	0	1	0	0	29	9	0	5	0	43
16:45 - 17:00	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	37	7	1	3	1	49
Hourly Total	**0**	**0**	**13**	**1**	**0**	**0**	**0**	**14**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**6**	**0**	**0**	**133**	**31**	**3**	**13**	**1**	**181**
17:00 - 17:15	0	0	3	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	42	6	0	4	0	52
17:15 - 17:30	0	0	4	0	0	0	0	4	0	0	0	1	0	1	0	2	0	0	37	5	1	4	1	48
17:30 - 17:45	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	30	2	0	5	0	37
17:45 - 18:00	0	0	4	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	32	4	1	4	0	41
Hourly Total	**0**	**0**	**15**	**2**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**2**	**0**	**0**	**141**	**17**	**2**	**17**	**1**	**178**
18:00 - 18:15	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	21	3	0	6	0	30
18:15 - 18:30	0	0	3	0	0	0	0	3	0	0	1	0	0	0	0	1	0	0	18	1	0	3	0	22
18:30 - 18:45	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	18	0	0	2	0	20
18:45 - 19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	1	0	2	0	17
Hourly Total	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**71**	**5**	**0**	**13**	**0**	**89**
TOTAL	**0**	**0**	**35**	**3**	**0**	**0**	**0**	**38**	**0**	**0**	**6**	**2**	**0**	**1**	**0**	**9**	**0**	**0**	**345**	**53**	**5**	**43**	**2**	**448**

Gonerby Moor, Thursday 23rd November 2023

Traffic Information Consultancy

Junction: 1
Approach: Gonerby Lane Western dumbell roundabout

	Left to A1 (N)								Ahead to B1174								Right to A1 (S)							
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
07:00 - 07:15	0	0	2	0	0	0	0	2	0	0	7	1	0	0	0	8	0	0	0	0	0	0	0	0
07:15 - 07:30	0	0	1	0	0	0	0	1	0	0	15	0	0	0	0	15	0	0	0	0	0	0	0	0
07:30 - 07:45	0	0	0	0	0	0	0	0	1	0	20	3	0	0	0	24	0	0	0	0	0	0	0	0
07:45 - 08:00	0	0	1	0	0	0	0	1	0	0	27	3	0	1	0	31	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**1**	**0**	**69**	**7**	**0**	**1**	**0**	**78**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:00 - 08:15	0	0	1	0	0	0	0	1	0	0	21	3	0	0	0	24	0	0	0	0	0	0	0	0
08:15 - 08:30	0	0	1	0	0	0	0	1	0	0	22	1	0	0	0	23	0	0	0	0	0	0	0	0
08:30 - 08:45	0	0	1	0	0	0	0	1	0	0	25	1	0	0	0	26	0	0	0	0	0	0	0	0
08:45 - 09:00	0	0	3	0	0	0	0	3	0	0	23	1	1	0	0	25	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**91**	**6**	**1**	**0**	**0**	**98**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
09:00 - 09:15	0	0	2	0	1	0	0	3	0	0	24	2	0	1	0	27	0	0	0	0	0	0	0	0
09:15 - 09:30	0	0	1	0	0	0	0	1	0	0	17	4	0	1	0	22	0	0	0	0	0	0	0	0
09:30 - 09:45	0	0	3	0	0	0	0	3	0	0	12	2	0	0	1	15	0	0	0	0	0	0	0	0
09:45 - 10:00	0	0	0	0	0	0	0	0	0	0	17	2	0	0	0	19	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**6**	**0**	**1**	**0**	**0**	**7**	**0**	**0**	**70**	**10**	**0**	**2**	**1**	**83**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**0**	**0**	**16**	**0**	**1**	**0**	**0**	**17**	**1**	**0**	**230**	**23**	**1**	**3**	**1**	**259**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
16:00 - 16:15	0	0	1	0	0	0	0	1	0	0	9	4	0	0	0	13	0	0	0	0	0	0	0	0
16:15 - 16:30	0	0	1	1	0	0	0	2	0	0	22	6	0	0	0	28	0	0	0	0	0	0	0	0
16:30 - 16:45	0	0	1	0	0	0	0	1	0	0	35	3	0	0	0	38	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	3	0	0	0	0	3	0	1	25	5	0	0	0	31	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**7**	**0**	**1**	**91**	**18**	**0**	**0**	**0**	**110**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:00 - 17:15	0	0	3	0	0	0	0	3	0	0	31	4	0	0	0	35	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	1	0	0	0	0	1	0	0	15	3	0	0	0	18	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	1	0	0	0	0	1	0	0	12	3	0	0	0	15	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	2	0	0	0	0	2	0	0	14	2	0	0	0	16	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**72**	**12**	**0**	**0**	**0**	**84**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	9	2	0	0	0	11	0	0	0	0	0	0	0	0
18:15 - 18:30	0	0	2	0	0	0	0	2	0	0	8	0	0	0	0	8	0	0	0	0	0	0	0	0
18:30 - 18:45	0	0	1	1	0	0	0	2	0	0	7	3	0	0	0	10	0	0	0	0	0	0	0	0
18:45 - 19:00	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**34**	**5**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**0**	**0**	**16**	**2**	**0**	**0**	**0**	**18**	**0**	**1**	**197**	**35**	**0**	**0**	**0**	**233**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Gonerby Moor, Thursday 23rd November 2023

Junction: 2 Eastern Dumbbell roundabout
Approach: A1 North

	Left to B1174 Great North Road								Ahead to A1 (S)								Right to B1174							
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
07:00 - 07:15	0	0	26	10	2	1	0	**39**	0	0	1	0	1	3	0	**5**	0	1	2	2	1	0	0	**6**
07:15 - 07:30	0	0	48	10	0	2	2	**62**	0	0	6	0	0	4	1	**11**	0	0	3	2	0	1	1	**7**
07:30 - 07:45	0	0	63	16	1	2	0	**82**	0	0	2	1	0	3	0	**6**	0	0	7	3	0	3	1	**14**
07:45 - 08:00	0	0	67	13	1	3	2	**86**	0	0	2	0	0	1	0	**3**	0	0	5	2	0	0	0	**7**
Hourly Total	**0**	**0**	**204**	**49**	**4**	**8**	**4**	**269**	**0**	**0**	**11**	**1**	**1**	**11**	**1**	**25**	**0**	**1**	**17**	**9**	**1**	**4**	**2**	**34**
08:00 - 08:15	0	0	71	10	3	3	5	**92**	0	0	2	0	1	2	1	**6**	0	0	8	1	0	1	1	**11**
08:15 - 08:30	0	0	63	5	0	6	0	**74**	0	0	3	0	0	1	0	**4**	0	0	7	3	0	0	0	**10**
08:30 - 08:45	0	0	45	8	0	4	0	**57**	0	0	9	1	1	1	0	**12**	0	0	12	1	1	0	0	**14**
08:45 - 09:00	0	0	52	7	3	1	0	**63**	0	0	5	2	0	0	0	**7**	0	0	11	3	0	0	0	**14**
Hourly Total	**0**	**0**	**231**	**30**	**6**	**14**	**5**	**286**	**0**	**0**	**19**	**3**	**2**	**4**	**1**	**29**	**0**	**0**	**38**	**8**	**1**	**1**	**1**	**49**
09:00 - 09:15	0	0	45	4	1	2	0	**52**	0	0	5	0	0	2	0	**7**	0	0	13	1	2	2	0	**18**
09:15 - 09:30	0	0	38	14	0	3	0	**55**	0	0	3	0	1	1	0	**5**	0	0	11	3	0	2	0	**16**
09:30 - 09:45	0	0	54	9	0	0	0	**63**	0	0	3	0	1	1	0	**5**	0	0	9	0	1	1	0	**11**
09:45 - 10:00	0	0	49	15	2	4	0	**70**	0	0	4	1	0	2	0	**7**	0	0	6	1	0	2	0	**9**
Hourly Total	**0**	**0**	**186**	**42**	**3**	**9**	**0**	**240**	**0**	**0**	**15**	**1**	**2**	**6**	**0**	**24**	**0**	**0**	**39**	**5**	**3**	**7**	**0**	**54**
TOTAL	**0**	**0**	**621**	**121**	**13**	**31**	**9**	**795**	**0**	**0**	**45**	**5**	**5**	**21**	**2**	**78**	**0**	**1**	**94**	**22**	**5**	**12**	**3**	**137**
16:00 - 16:15	0	0	43	11	1	3	0	**58**	0	0	6	1	0	2	0	**9**	0	0	8	2	0	1	0	**11**
16:15 - 16:30	0	0	44	10	0	0	0	**54**	0	0	6	0	1	2	0	**9**	0	0	5	4	0	0	0	**9**
16:30 - 16:45	0	0	74	7	1	0	0	**82**	0	0	4	2	0	2	0	**8**	0	0	7	4	0	1	0	**12**
16:45 - 17:00	0	0	53	7	0	0	0	**60**	0	0	2	1	0	1	0	**4**	0	0	20	2	1	0	0	**23**
Hourly Total	**0**	**0**	**214**	**35**	**2**	**3**	**0**	**254**	**0**	**0**	**18**	**4**	**1**	**7**	**0**	**30**	**0**	**0**	**40**	**12**	**1**	**2**	**0**	**55**
17:00 - 17:15	0	1	72	11	0	1	0	**85**	0	0	6	0	0	1	0	**7**	0	0	11	1	0	0	0	**12**
17:15 - 17:30	0	0	57	5	0	0	0	**62**	0	0	5	0	0	0	0	**5**	0	0	12	3	0	1	1	**17**
17:30 - 17:45	0	0	55	7	0	3	0	**65**	0	0	3	0	0	2	0	**5**	0	0	6	1	0	0	0	**7**
17:45 - 18:00	0	0	54	8	1	2	0	**65**	0	0	5	0	0	2	0	**7**	0	0	3	2	1	1	0	**7**
Hourly Total	**0**	**1**	**238**	**31**	**1**	**6**	**0**	**277**	**0**	**0**	**19**	**0**	**0**	**5**	**0**	**24**	**0**	**0**	**32**	**7**	**1**	**2**	**1**	**43**
18:00 - 18:15	0	0	55	3	0	2	0	**60**	0	0	6	0	0	2	0	**8**	0	0	5	0	0	0	0	**5**
18:15 - 18:30	0	0	35	6	0	0	0	**41**	0	0	2	1	0	1	0	**4**	0	0	8	0	0	3	0	**11**
18:30 - 18:45	0	0	45	4	0	0	0	**49**	0	0	2	1	0	2	0	**5**	0	0	8	0	0	0	0	**8**
18:45 - 19:00	0	0	34	0	1	1	0	**36**	0	0	4	0	0	1	0	**5**	0	0	5	0	0	0	0	**5**
Hourly Total	**0**	**0**	**169**	**13**	**1**	**3**	**0**	**186**	**0**	**0**	**14**	**2**	**0**	**6**	**0**	**22**	**0**	**0**	**26**	**0**	**0**	**3**	**0**	**29**
TOTAL	**0**	**1**	**621**	**79**	**4**	**12**	**0**	**717**	**0**	**0**	**51**	**6**	**1**	**18**	**0**	**76**	**0**	**0**	**98**	**19**	**2**	**7**	**1**	**127**

Gonerby Moor, Thursday 23rd November 2023

Traffic Information Consultancy

Junction: 2 Eastern Dumbbell roundabout

Approach: B1174 Great North Road

	Left to A1 (S)								Ahead to B1174								Right to A1 (N)							
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
07:00 - 07:15	0	0	16	2	2	5	0	**25**	0	1	45	10	2	4	0	**62**	0	0	0	0	0	0	0	**0**
07:15 - 07:30	0	0	18	8	1	8	0	**35**	0	1	61	16	0	1	0	**79**	0	0	0	0	0	0	0	**0**
07:30 - 07:45	0	0	18	6	1	9	1	**35**	0	0	57	13	1	1	1	**73**	0	0	0	0	0	0	0	**0**
07:45 - 08:00	0	0	26	4	1	9	0	**40**	0	0	49	11	3	1	1	**65**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**78**	**20**	**5**	**31**	**1**	**135**	**0**	**2**	**212**	**50**	**6**	**7**	**2**	**279**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:00 - 08:15	0	0	24	4	2	8	0	**38**	0	0	42	7	3	2	0	**54**	0	0	0	0	0	0	0	**0**
08:15 - 08:30	0	0	38	6	0	8	0	**52**	0	0	50	9	1	0	1	**61**	0	0	0	0	0	0	0	**0**
08:30 - 08:45	0	0	47	3	0	7	0	**57**	0	0	59	6	1	8	0	**74**	0	0	0	0	0	0	0	**0**
08:45 - 09:00	0	0	60	5	3	5	2	**75**	0	0	66	9	3	4	0	**82**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**169**	**18**	**5**	**28**	**2**	**222**	**0**	**0**	**217**	**31**	**8**	**14**	**1**	**271**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
09:00 - 09:15	0	0	24	5	2	4	0	**35**	0	0	55	7	1	2	1	**66**	0	0	0	0	0	0	0	**0**
09:15 - 09:30	0	0	10	2	2	4	0	**18**	0	0	38	13	1	8	0	**60**	0	0	0	0	0	0	0	**0**
09:30 - 09:45	0	0	13	7	2	10	0	**32**	0	0	42	9	4	2	0	**57**	0	0	0	0	0	0	0	**0**
09:45 - 10:00	0	0	7	5	0	6	0	**18**	0	0	34	5	3	4	0	**46**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**54**	**19**	**6**	**24**	**0**	**103**	**0**	**0**	**169**	**34**	**9**	**16**	**1**	**229**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**0**	**0**	**301**	**57**	**16**	**83**	**3**	**460**	**0**	**2**	**598**	**115**	**23**	**37**	**4**	**779**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
16:00 - 16:15	0	0	52	5	0	3	0	**60**	0	0	97	13	0	2	3	**115**	0	0	0	0	0	0	0	**0**
16:15 - 16:30	0	0	46	4	2	1	0	**53**	0	0	78	13	1	1	3	**96**	0	0	0	0	0	0	0	**0**
16:30 - 16:45	0	0	46	5	1	4	0	**56**	0	0	65	13	1	1	0	**80**	0	0	0	0	0	0	0	**0**
16:45 - 17:00	0	0	49	6	1	4	0	**60**	0	0	75	13	0	1	1	**90**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**193**	**20**	**4**	**12**	**0**	**229**	**0**	**0**	**315**	**52**	**2**	**5**	**7**	**381**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:00 - 17:15	0	0	41	2	0	4	0	**47**	0	1	77	5	0	1	2	**86**	0	0	0	0	0	0	0	**0**
17:15 - 17:30	0	0	40	1	0	2	0	**43**	0	1	81	7	0	0	0	**89**	0	0	0	0	0	0	0	**0**
17:30 - 17:45	0	0	39	2	2	3	0	**46**	0	0	54	4	1	2	0	**61**	0	0	0	0	0	0	0	**0**
17:45 - 18:00	0	0	32	1	0	1	0	**34**	0	0	50	3	1	0	0	**54**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**152**	**6**	**2**	**10**	**0**	**170**	**0**	**2**	**262**	**19**	**2**	**3**	**2**	**290**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:00 - 18:15	0	0	20	1	0	1	0	**22**	0	0	47	1	0	1	0	**49**	0	0	0	0	0	0	0	**0**
18:15 - 18:30	0	0	23	0	0	8	0	**31**	0	0	43	1	0	0	1	**45**	0	0	0	0	0	0	0	**0**
18:30 - 18:45	0	0	20	1	0	1	0	**22**	0	0	39	4	0	1	0	**44**	0	0	0	0	0	0	0	**0**
18:45 - 19:00	0	0	12	0	0	2	0	**14**	0	0	32	4	0	4	0	**40**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**75**	**2**	**0**	**12**	**0**	**89**	**0**	**0**	**161**	**10**	**0**	**6**	**1**	**178**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**0**	**0**	**420**	**28**	**6**	**34**	**0**	**488**	**0**	**2**	**738**	**81**	**4**	**14**	**10**	**849**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Gonerby Moor, Thursday 23rd November 2023

Traffic Information Consultancy

Junction: 2 Eastern Dumbbell roundabout
Approach: A1 South

	Left to B1174								Ahead to A1 (N)								Right to B1174 Great North Road							
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
07:00 - 07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 - 07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 - 08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:00 - 08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 - 08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 - 09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
09:00 - 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 - 09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 - 09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30 - 18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45 - 19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Gonerby Moor, Thursday 23rd November 2023

Traffic Information Consultancy

Junction: 2 Eastern Dumbbell roundabout
Approach: B1174

	Left to A1 (N)								Ahead to B1174 Great North Road								Right to A1 (S)							
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
07:00 - 07:15	0	0	0	0	0	0	0	**0**	0	0	14	1	0	3	0	**18**	0	0	4	2	0	3	0	**9**
07:15 - 07:30	0	0	0	0	0	0	0	**0**	0	0	22	4	0	4	0	**30**	0	0	9	0	0	1	0	**10**
07:30 - 07:45	0	0	0	0	0	0	0	**0**	1	0	30	4	0	2	0	**37**	0	0	5	2	0	4	0	**11**
07:45 - 08:00	0	0	0	0	0	0	0	**0**	0	0	51	6	2	3	0	**62**	0	0	8	1	1	4	0	**14**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**117**	**15**	**2**	**12**	**0**	**147**	**0**	**0**	**26**	**5**	**1**	**12**	**0**	**44**
08:00 - 08:15	0	0	0	0	0	0	0	**0**	0	0	47	8	0	2	0	**57**	0	0	6	0	3	3	0	**12**
08:15 - 08:30	0	0	0	0	0	0	0	**0**	0	0	66	6	0	3	0	**75**	0	0	5	1	0	4	0	**10**
08:30 - 08:45	0	0	0	0	0	0	0	**0**	0	0	72	4	0	4	0	**80**	0	0	23	3	1	2	0	**29**
08:45 - 09:00	0	0	0	0	0	0	0	**0**	0	0	51	6	1	4	0	**62**	0	0	17	0	2	1	0	**20**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**236**	**24**	**1**	**13**	**0**	**274**	**0**	**0**	**51**	**4**	**6**	**10**	**0**	**71**
09:00 - 09:15	0	0	0	0	0	0	0	**0**	0	0	35	6	0	1	0	**42**	0	0	16	0	0	3	0	**19**
09:15 - 09:30	0	0	0	0	0	0	0	**0**	0	0	27	3	0	4	0	**34**	0	0	12	6	0	3	0	**21**
09:30 - 09:45	0	0	0	0	0	0	0	**0**	0	0	24	6	2	3	0	**35**	0	0	11	0	0	6	1	**18**
09:45 - 10:00	0	0	0	0	0	0	0	**0**	0	0	27	8	0	2	0	**37**	0	0	10	1	0	4	0	**15**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**113**	**23**	**2**	**10**	**0**	**148**	**0**	**0**	**49**	**7**	**0**	**16**	**1**	**73**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**466**	**62**	**5**	**35**	**0**	**569**	**0**	**0**	**126**	**16**	**7**	**38**	**1**	**188**
16:00 - 16:15	0	0	0	0	0	0	0	**0**	0	0	39	7	1	1	0	**48**	0	0	8	2	1	2	0	**13**
16:15 - 16:30	0	0	0	0	0	0	0	**0**	0	0	44	13	0	1	0	**58**	0	0	7	2	0	1	0	**10**
16:30 - 16:45	0	0	0	0	0	0	0	**0**	0	1	48	11	0	1	0	**61**	0	0	15	1	0	4	0	**20**
16:45 - 17:00	0	0	0	0	0	0	0	**0**	0	0	44	13	1	2	0	**60**	0	0	18	0	0	1	1	**20**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**175**	**44**	**2**	**5**	**0**	**227**	**0**	**0**	**48**	**5**	**1**	**8**	**1**	**63**
17:00 - 17:15	0	0	0	0	0	0	0	**0**	0	0	52	10	0	3	0	**65**	0	0	21	0	0	1	0	**22**
17:15 - 17:30	0	0	0	0	0	0	0	**0**	0	0	33	5	1	2	0	**41**	0	0	20	2	0	1	1	**24**
17:30 - 17:45	0	0	0	0	0	0	0	**0**	0	0	35	3	0	3	0	**41**	0	0	8	1	0	3	0	**12**
17:45 - 18:00	0	0	0	0	0	0	0	**0**	0	0	40	8	1	2	0	**51**	0	0	5	0	0	2	0	**7**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**160**	**26**	**2**	**10**	**0**	**198**	**0**	**0**	**54**	**3**	**0**	**7**	**1**	**65**
18:00 - 18:15	0	0	0	0	0	0	0	**0**	0	0	22	3	0	2	0	**27**	0	0	7	2	0	4	0	**13**
18:15 - 18:30	0	0	0	0	0	0	0	**0**	0	0	21	1	0	1	0	**23**	0	0	5	0	0	2	0	**7**
18:30 - 18:45	0	0	0	0	0	0	0	**0**	0	0	19	3	0	2	0	**24**	0	0	6	0	0	0	0	**6**
18:45 - 19:00	0	0	0	0	0	0	0	**0**	0	0	13	0	0	0	0	**13**	0	0	12	1	0	2	0	**15**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**75**	**7**	**0**	**5**	**0**	**87**	**0**	**0**	**30**	**3**	**0**	**8**	**0**	**41**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**410**	**77**	**4**	**20**	**0**	**512**	**0**	**0**	**132**	**11**	**1**	**23**	**2**	**169**

APPENDIX E

TRICS REPORTS

Calculation Reference: AUDIT-855401-231128-1106

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE

TOTAL VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	EX	ESSEX	1 days
03	**SOUTH WEST**		
	NS	NORTH SOMERSET	1 days
	SD	SWINDON	1 days
	SM	SOMERSET	1 days
04	**EAST ANGLIA**		
	NF	NORFOLK	1 days
05	**EAST MIDLANDS**		
	LN	LINCOLNSHIRE	1 days
06	**WEST MIDLANDS**		
	WK	WARWICKSHIRE	4 days
	WO	WORCESTERSHIRE	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	AL	CALDERDALE	1 days
	KS	KIRKLEES	1 days
	NY	NORTH YORKSHIRE	1 days

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

Primary 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:	Gross floor area
Actual Range:	10000 to 150564 (units: sqm)
Range Selected by User:	10000 to 167416 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/15 to 15/09/22

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	5 days
Thursday	5 days
Friday	2 days

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

Selected survey types:

Manual count	14 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 undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	12
Free Standing (PPS6 Out of Town)	1

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:

Industrial Zone	7
Residential Zone	1
Out of Town	3
No Sub Category	3

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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	4 days - Selected
Servicing vehicles Excluded	15 days - Selected

Secondary Filtering selection:

Use Class:

n/a	1 days
Not Known	13 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	2 days
50,001 to 75,000	2 days
75,001 to 100,000	3 days
100,001 to 125,000	1 days
125,001 to 250,000	5 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	4 days
1.1 to 1.5	10 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	14 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	14 days

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

LIST OF SITES relevant to selection parameters

1 **AL-02-D-01** **INDUSTRIAL ESTATE** **CALDERDALE**
MILL LANE
HALIFAX

Edge of Town
No Sub Category
Total Gross floor area: 11305 sqm
Survey date: WEDNESDAY *17/10/18* *Survey Type: MANUAL*

2 **EX-02-D-04** **INDUSTRIAL ESTATE** **ESSEX**
PASTURE ROAD
WITHAM

Edge of Town
Industrial Zone
Total Gross floor area: 37130 sqm
Survey date: THURSDAY *10/05/18* *Survey Type: MANUAL*

3 **KS-02-D-02** **INDUSTRIAL ESTATE** **KIRKLEES**
LAW STREET
CLECKHEATON

Edge of Town
Industrial Zone
Total Gross floor area: 23226 sqm
Survey date: THURSDAY *15/09/16* *Survey Type: MANUAL*

4 **LN-02-D-03** **INDUSTRIAL ESTATE** **LINCOLNSHIRE**
DEACON ROAD
LINCOLN

Edge of Town
Industrial Zone
Total Gross floor area: 11265 sqm
Survey date: FRIDAY *28/06/19* *Survey Type: MANUAL*

5 **NF-02-D-04** **INDUSTRIAL ESTATE** **NORFOLK**
DRAYTON HIGH ROAD
NORWICH

Edge of Town
No Sub Category
Total Gross floor area: 10673 sqm
Survey date: WEDNESDAY *14/09/22* *Survey Type: MANUAL*

6 **NS-02-D-01** **INDUSTRIAL ESTATE** **NORTH SOMERSET**
WINTERSTOKE ROAD
WESTON-SUPER-MARE
OLDMIXON
Edge of Town
Industrial Zone
Total Gross floor area: 27000 sqm
Survey date: THURSDAY *15/09/22* *Survey Type: MANUAL*

7 **NY-02-D-03** **INDUSTRIAL ESTATE** **NORTH YORKSHIRE**
RACECOURSE ROAD
RICHMOND

Edge of Town
Out of Town
Total Gross floor area: 35183 sqm
Survey date: THURSDAY *05/05/22* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8 **SD-02-D-01** **INDUSTRIAL ESTATE** **SWINDON**
HEADLANDS GROVE
SWINDON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 10000 sqm
Survey date: TUESDAY *20/09/16* *Survey Type: MANUAL*

9 **SM-02-D-01** **INDUSTRIAL ESTATE** **SOMERSET**
A359
YEOVIL
SPARKFORD
Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 12000 sqm
Survey date: WEDNESDAY *03/04/19* *Survey Type: MANUAL*

10 **WK-02-D-01** **INDUSTRIAL ESTATE** **WARWICKSHIRE**
CASTLE MOUND WAY
RUGBY

Edge of Town
Industrial Zone
Total Gross floor area: 150564 sqm
Survey date: WEDNESDAY *27/06/18* *Survey Type: MANUAL*

11 **WK-02-D-02** **INDUSTRIAL ESTATE** **WARWICKSHIRE**
OVERVIEW WAY
RUGBY

Edge of Town
Industrial Zone
Total Gross floor area: 90535 sqm
Survey date: WEDNESDAY *27/06/18* *Survey Type: MANUAL*

12 **WK-02-D-03** **INDUSTRIAL ESTATE** **WARWICKSHIRE**
EASTBORO WAY
NUNEATON

Edge of Town
Industrial Zone
Total Gross floor area: 20860 sqm
Survey date: THURSDAY *26/09/19* *Survey Type: MANUAL*

13 **WK-02-D-04** **INDUSTRIAL ESTATE** **WARWICKSHIRE**
ABELES WAY
ATHERSTONE

Edge of Town
No Sub Category
Total Gross floor area: 17500 sqm
Survey date: FRIDAY *27/09/19* *Survey Type: MANUAL*

14 **WO-02-D-03** **INDUSTRIAL ESTATE** **WORCESTERSHIRE**
MILLENNIUM WAY
EVESHAM

Edge of Town
Out of Town
Total Gross floor area: 84575 sqm
Survey date: TUESDAY *26/06/18* *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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
NM-02-D-01	Covid restrictions
TV-02-D-03	Covid restrictions

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	5	22243	0.068	5	22243	0.023	5	22243	0.091
06:00 - 07:00	6	20414	0.126	6	20414	0.046	6	20414	0.172
07:00 - 08:00	14	38701	0.284	14	38701	0.079	14	38701	0.363
08:00 - 09:00	**14**	**38701**	**0.371**	14	38701	0.127	**14**	**38701**	**0.498**
09:00 - 10:00	14	38701	0.262	14	38701	0.162	14	38701	0.424
10:00 - 11:00	14	38701	0.207	14	38701	0.169	14	38701	0.376
11:00 - 12:00	14	38701	0.201	14	38701	0.182	14	38701	0.383
12:00 - 13:00	14	38701	0.200	14	38701	0.237	14	38701	0.437
13:00 - 14:00	14	38701	0.244	14	38701	0.217	14	38701	0.461
14:00 - 15:00	14	38701	0.185	14	38701	0.252	14	38701	0.437
15:00 - 16:00	14	38701	0.156	14	38701	0.238	14	38701	0.394
16:00 - 17:00	14	38701	0.163	14	38701	0.292	14	38701	0.455
17:00 - 18:00	14	38701	0.110	**14**	**38701**	**0.355**	14	38701	0.465
18:00 - 19:00	14	38701	0.077	14	38701	0.142	14	38701	0.219
19:00 - 20:00	6	20414	0.091	6	20414	0.110	6	20414	0.201
20:00 - 21:00	6	20414	0.024	6	20414	0.051	6	20414	0.075
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.769			2.682			5.451

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.*

Parameter summary

Trip rate parameter range selected:	10000 - 150564 (units: sqm)
Survey date date range:	01/01/15 - 15/09/22
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	2

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 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

OGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	5	22243	0.002	5	22243	0.003	5	22243	0.005
06:00 - 07:00	6	20414	0.006	6	20414	0.008	6	20414	0.014
07:00 - 08:00	14	38701	0.017	14	38701	0.013	14	38701	0.030
08:00 - 09:00	14	38701	0.025	14	38701	0.021	14	38701	0.046
09:00 - 10:00	**14**	**38701**	**0.032**	14	38701	0.025	**14**	**38701**	**0.057**
10:00 - 11:00	14	38701	0.029	14	38701	0.026	14	38701	0.055
11:00 - 12:00	14	38701	0.025	14	38701	0.024	14	38701	0.049
12:00 - 13:00	14	38701	0.029	14	38701	0.027	14	38701	0.056
13:00 - 14:00	14	38701	0.025	**14**	**38701**	**0.028**	14	38701	0.053
14:00 - 15:00	14	38701	0.026	14	38701	0.025	14	38701	0.051
15:00 - 16:00	14	38701	0.023	14	38701	0.027	14	38701	0.050
16:00 - 17:00	14	38701	0.017	14	38701	0.020	14	38701	0.037
17:00 - 18:00	14	38701	0.013	14	38701	0.011	14	38701	0.024
18:00 - 19:00	14	38701	0.010	14	38701	0.011	14	38701	0.021
19:00 - 20:00	6	20414	0.002	6	20414	0.002	6	20414	0.004
20:00 - 21:00	6	20414	0.002	6	20414	0.001	6	20414	0.003
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.283			0.272			0.555

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.*

Calculation Reference: AUDIT-855401-231128-1156

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : F - WAREHOUSING (COMMERCIAL)

TOTAL VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	HF	HERTFORDSHIRE	1 days
03	**SOUTH WEST**		
	DV	DEVON	1 days
04	**EAST ANGLIA**		
	SF	SUFFOLK	1 days
05	**EAST MIDLANDS**		
	LN	LINCOLNSHIRE	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	DR	DONCASTER	1 days
09	**NORTH**		
	TV	TEES VALLEY	1 days
	TW	TYNE & WEAR	1 days

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

Primary 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:	Gross floor area
Actual Range:	22270 to 80100 (units: sqm)
Range Selected by User:	15000 to 80100 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/08 to 22/11/21

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:

Monday	2 days
Tuesday	2 days
Thursday	2 days
Friday	1 days

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

Selected survey types:

Manual count	7 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 undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2
Edge of Town	4
Free Standing (PPS6 Out of Town)	1

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:

Industrial Zone	4
Commercial Zone	1
Out of Town	1
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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	2 days - Selected
Servicing vehicles Excluded	5 days - Selected

Secondary Filtering selection:

Use Class:

B8	7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	4 days
10,001 to 15,000	2 days
25,001 to 50,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	2 days
250,001 to 500,000	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	2 days
1.1 to 1.5	5 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:

Yes	1 days
No	6 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	7 days

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

LIST OF SITES relevant to selection parameters

1 **DR-02-F-01** **TESCO DISTRIBUTION CENTRE** **DONCASTER**
MIDDLE BANK
DONCASTER

Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 80100 sqm
Survey date: TUESDAY *21/09/21* *Survey Type: MANUAL*

2 **DV-02-F-03** **LIDL DISTRIBUTION CENTRE** **DEVON**
CHILLPARK BRAKE
NEAR EXETER
CLYST HONITON
Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 49081 sqm
Survey date: MONDAY *22/11/21* *Survey Type: MANUAL*

3 **HF-02-F-03** **DISTRIBUTION CEN.** **HERTFORDSHIRE**

HATFIELD
HATFIELD BUSINESS CEN.
Edge of Town
Commercial Zone
Total Gross floor area: 80000 sqm
Survey date: THURSDAY *10/07/08* *Survey Type: MANUAL*

4 **LN-02-F-01** **BOOK SERVICE** **LINCOLNSHIRE**
TRENT ROAD
GRANTHAM

Edge of Town
No Sub Category
Total Gross floor area: 32300 sqm
Survey date: MONDAY *29/11/10* *Survey Type: MANUAL*

5 **SF-02-F-02** **WAREHOUSING** **SUFFOLK**
WALTON ROAD
FELIXSTOWE

Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 22270 sqm
Survey date: THURSDAY *11/07/13* *Survey Type: MANUAL*

6 **TV-02-F-02** **ARGOS WAREHOUSE** **TEES VALLEY**
ROUNDHOUSE ROAD
DARLINGTON
FAVERDALE
Edge of Town
Industrial Zone
Total Gross floor area: 80066 sqm
Survey date: TUESDAY *07/10/08* *Survey Type: MANUAL*

7 **TW-02-F-01** **ASDA DISTRIBUTION CENTRE** **TYNE & WEAR**
MANDARIN WAY
WASHINGTON
PATTISON IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 31000 sqm
Survey date: FRIDAY *13/11/15* *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 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	**3**	**50484**	**0.124**	3	50484	0.039	3	50484	0.163
06:00 - 07:00	3	50484	0.054	3	50484	0.093	3	50484	0.147
07:00 - 08:00	7	53545	0.065	7	53545	0.043	7	53545	0.108
08:00 - 09:00	7	53545	0.063	7	53545	0.037	7	53545	0.100
09:00 - 10:00	7	53545	0.062	7	53545	0.047	7	53545	0.109
10:00 - 11:00	7	53545	0.055	7	53545	0.054	7	53545	0.109
11:00 - 12:00	7	53545	0.049	7	53545	0.047	7	53545	0.096
12:00 - 13:00	7	53545	0.056	7	53545	0.067	7	53545	0.123
13:00 - 14:00	7	53545	0.088	7	53545	0.073	7	53545	0.161
14:00 - 15:00	7	53545	0.063	**7**	**53545**	**0.101**	**7**	**53545**	**0.164**
15:00 - 16:00	7	53545	0.063	7	53545	0.074	7	53545	0.137
16:00 - 17:00	7	53545	0.047	7	53545	0.065	7	53545	0.112
17:00 - 18:00	7	53545	0.037	7	53545	0.059	7	53545	0.096
18:00 - 19:00	7	53545	0.021	7	53545	0.047	7	53545	0.068
19:00 - 20:00	3	50484	0.032	3	50484	0.037	3	50484	0.069
20:00 - 21:00	3	50484	0.033	3	50484	0.038	3	50484	0.071
21:00 - 22:00	1	22270	0.031	1	22270	0.018	1	22270	0.049
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.943			0.939			1.882

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.*

Parameter summary

Trip rate parameter range selected:	22270 - 80100 (units: sqm)
Survey date date range:	01/01/08 - 22/11/21
Number of weekdays (Monday-Friday):	7
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 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

OGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	3	50484	0.015	3	50484	0.013	3	50484	0.028
06:00 - 07:00	3	50484	0.022	3	50484	0.020	3	50484	0.042
07:00 - 08:00	7	53545	0.021	7	53545	0.016	7	53545	0.037
08:00 - 09:00	7	53545	0.019	7	53545	0.016	7	53545	0.035
09:00 - 10:00	7	53545	0.026	7	53545	0.022	7	53545	0.048
10:00 - 11:00	**7**	**53545**	**0.027**	**7**	**53545**	**0.028**	**7**	**53545**	**0.055**
11:00 - 12:00	7	53545	0.019	7	53545	0.018	7	53545	0.037
12:00 - 13:00	7	53545	0.019	7	53545	0.023	7	53545	0.042
13:00 - 14:00	7	53545	0.017	7	53545	0.019	7	53545	0.036
14:00 - 15:00	7	53545	0.020	7	53545	0.019	7	53545	0.039
15:00 - 16:00	7	53545	0.022	7	53545	0.018	7	53545	0.040
16:00 - 17:00	7	53545	0.018	7	53545	0.012	7	53545	0.030
17:00 - 18:00	7	53545	0.018	7	53545	0.015	7	53545	0.033
18:00 - 19:00	7	53545	0.009	7	53545	0.017	7	53545	0.026
19:00 - 20:00	3	50484	0.014	3	50484	0.022	3	50484	0.036
20:00 - 21:00	3	50484	0.015	3	50484	0.020	3	50484	0.035
21:00 - 22:00	1	22270	0.027	1	22270	0.004	1	22270	0.031
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.328			0.302			0.630

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 F

CENSUS DISTRIBUTION DATA

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
place of work	E02005477 : South Kesteven 002 (2011 super output area - middle layer)

usual residence	Driving a car or van	A	B	C	D
Newark and Sherwood	326			326	
E02005477 : South Kesteven 002	271		68	136	68
E02005481 : South Kesteven 006	173	87	87		
E02005479 : South Kesteven 004	170	85	85		
North Kesteven	156	78		78	
E02005482 : South Kesteven 007	124	62	62		
E02005478 : South Kesteven 003	113	113			
E02005480 : South Kesteven 005	110		110		
E02005476 : South Kesteven 001	94	47		47	
Melton	67		67		
E02005484 : South Kesteven 009	56		28		28
Rushcliffe	47		24		24
Lincoln	44			44	
Nottingham	31		16		16
West Lindsey	26			26	
Mansfield	19			19	
South Holland	18	9	9		
Gedling	17		4	9	4
E02005483 : South Kesteven 008	16	8	8		
Bassetlaw	13			13	
East Lindsey	12	6		6	
E02005488 : South Kesteven 013	11		11		
Derby	10		5		5
Broxtowe	10		5		5
E02005490 : South Kesteven 015	8		8		
Ashfield	8			4	4
Peterborough	7		7		
Rutland	6		6		
E02005487 : South Kesteven 012	5		5		
E02005486 : South Kesteven 011	5	3	3		
Doncaster	5			5	
Boston	5	5			
Stoke-on-Trent	4		2		2
North West Leicestershire	4		2		2
E02005485 : South Kesteven 010	4		4		
Erewash	4		2		2
South Derbyshire	4		2		2
Hinckley and Bosworth	4		2		2
Bolsover	4			4	
E02005491 : South Kesteven 016	3		3		
Warrington	3		1	2	1
North Lincolnshire	3			3	
Rotherham	3			3	
Leicester	3		2		2
Huntingdonshire	3		3		
Staffordshire Moorlands	2		1	1	1
E02005489 : South Kesteven 014	2		2		
Rossendale	2			2	
North East Lincolnshire	2			2	
Hambleton	2		2		
Harrogate	2			2	
Sheffield	2			2	
Leeds	2			2	
Wakefield	2			2	
Amber Valley	2		1	1	1
Harborough	2		2		
Northampton	2		2		
Broadland	2	1	1		
TOTALS	2,055	503	649	737	167
% using each route		24%	32%	36%	8%

APPENDIX G

ARCADY REPORT. SITE ACCESS ROUNDABOUT

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 231128 Site Access Roundabout.j9
Path: C:\Users\ADC\ADC Infrastructure Dropbox\ADC Projects\ADC3032 Gonerby Moor\Calculations\Junction Modelling
Report generation date: 29/11/2023 09:46:43

»Traffic - 2041 With Development, AM
»Traffic - 2041 With Development, PM

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Traffic - 2041 With Development					
Arm 1	0.7	3.80	0.41	0.3	3.32	0.24
Arm 2	0.1	3.48	0.12	0.3	3.18	0.22
Arm 3	0.1	2.81	0.12	0.1	2.84	0.13
Arm 4	0.1	3.26	0.07	0.2	3.24	0.15

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Site access
Location	Grantham
Site number	
Date	27/11/2023
Version	v 1
Status	preliminary
Identifier	
Client	Harworth
Jobnumber	ADC3032
Enumerator	ADC-TOSHIBA-AIO\ADC
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2041 With Development	AM	ONE HOUR	08:00	09:30	15	✓
D2	2041 With Development	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Traffic	✓	100.000	100.000

Traffic - 2041 With Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site access	Standard Roundabout		1, 2, 3, 4	3.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Gonerby Lane East	
2	Caddick site access	
3	Gonerby Lane West	
4	Site access	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.65	7.09	12.8	20.0	50.0	22.5	
2	3.65	7.27	12.9	20.0	50.0	17.5	
3	3.65	7.19	12.6	20.0	50.0	22.5	
4	3.65	7.28	12.8	20.0	50.0	17.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.618	1710
2	0.632	1757
3	0.619	1715
4	0.631	1755

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2041 With Development	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		ONE HOUR	✓	607	100.000
2		ONE HOUR	✓	127	100.000
3		ONE HOUR	✓	165	100.000
4		ONE HOUR	✓	77	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	277	162	168
	2	120	0	7	0
	3	128	23	0	14
	4	73	0	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	6	1	6
	2	31	0	0	0
	3	2	0	0	0
	4	31	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.41	3.80	0.7	A	557	835
2	0.12	3.48	0.1	A	117	175
3	0.12	2.81	0.1	A	151	227
4	0.07	3.26	0.1	A	71	106

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	457	114	20	1622	0.282	455	241	0.0	0.4	3.083	A
2	96	24	251	1232	0.078	95	225	0.0	0.1	3.166	A
3	124	31	216	1535	0.081	124	130	0.0	0.1	2.550	A
4	58	14	203	1242	0.047	58	137	0.0	0.0	3.039	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	546	136	24	1619	0.337	545	288	0.4	0.5	3.349	A
2	114	29	300	1207	0.095	114	269	0.1	0.1	3.292	A
3	148	37	259	1505	0.099	148	155	0.1	0.1	2.652	A
4	69	17	243	1220	0.057	69	163	0.0	0.1	3.128	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	668	167	30	1616	0.414	668	353	0.5	0.7	3.791	A
2	140	35	367	1173	0.119	140	330	0.1	0.1	3.483	A
3	182	45	317	1464	0.124	182	190	0.1	0.1	2.806	A
4	85	21	298	1189	0.071	85	200	0.1	0.1	3.258	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	668	167	30	1616	0.414	668	353	0.7	0.7	3.797	A
2	140	35	368	1173	0.119	140	330	0.1	0.1	3.483	A
3	182	45	317	1464	0.124	182	190	0.1	0.1	2.807	A
4	85	21	298	1189	0.071	85	200	0.1	0.1	3.259	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	546	136	24	1619	0.337	546	289	0.7	0.5	3.359	A
2	114	29	301	1207	0.095	114	270	0.1	0.1	3.294	A
3	148	37	259	1505	0.099	148	156	0.1	0.1	2.656	A
4	69	17	244	1220	0.057	69	164	0.1	0.1	3.129	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	457	114	20	1622	0.282	457	242	0.5	0.4	3.095	A
2	96	24	252	1232	0.078	96	226	0.1	0.1	3.168	A
3	124	31	217	1535	0.081	124	130	0.1	0.1	2.554	A
4	58	14	204	1242	0.047	58	137	0.1	0.0	3.043	A

Traffic - 2041 With Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site access	Standard Roundabout		1, 2, 3, 4	3.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2041 With Development	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		ONE HOUR	✓	313	100.000
2		ONE HOUR	✓	284	100.000
3		ONE HOUR	✓	169	100.000
4		ONE HOUR	✓	173	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	111	134	68
	2	264	0	20	0
	3	158	7	0	4
	4	161	0	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	32	1	32
	2	11	0	0	0
	3	0	0	0	0
	4	11	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.24	3.32	0.3	A	287	431
2	0.22	3.18	0.3	A	261	391
3	0.13	2.84	0.1	A	155	233
4	0.15	3.24	0.2	A	159	238

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	236	59	14	1433	0.164	235	438	0.0	0.2	3.004	A
2	214	53	161	1492	0.143	213	89	0.0	0.2	2.813	A
3	127	32	249	1537	0.083	127	125	0.0	0.1	2.553	A
4	130	33	322	1395	0.093	130	54	0.0	0.1	2.846	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	281	70	17	1431	0.197	281	524	0.2	0.2	3.130	A
2	255	64	192	1472	0.173	255	106	0.2	0.2	2.958	A
3	152	38	298	1502	0.101	152	149	0.1	0.1	2.665	A
4	156	39	385	1356	0.115	155	65	0.1	0.1	2.998	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	345	86	21	1429	0.241	344	641	0.2	0.3	3.318	A
2	313	78	235	1444	0.216	312	130	0.2	0.3	3.180	A
3	186	47	365	1454	0.128	186	183	0.1	0.1	2.838	A
4	190	48	472	1303	0.146	190	79	0.1	0.2	3.235	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	345	86	21	1429	0.241	345	642	0.3	0.3	3.318	A
2	313	78	236	1444	0.217	313	130	0.3	0.3	3.180	A
3	186	47	366	1454	0.128	186	183	0.1	0.1	2.838	A
4	190	48	472	1303	0.146	190	79	0.2	0.2	3.235	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	281	70	17	1431	0.197	282	525	0.3	0.2	3.131	A
2	255	64	193	1472	0.173	256	106	0.3	0.2	2.962	A
3	152	38	299	1502	0.101	152	149	0.1	0.1	2.667	A
4	156	39	386	1356	0.115	156	65	0.2	0.1	3.002	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	236	59	14	1433	0.164	236	439	0.2	0.2	3.007	A
2	214	53	161	1492	0.143	214	89	0.2	0.2	2.819	A
3	127	32	250	1536	0.083	127	125	0.1	0.1	2.554	A
4	130	33	323	1394	0.093	130	54	0.1	0.1	2.848	A

APPENDIX H

ARCADY REPORT. A1 INTERCHANGE WESTERN ROUNDABOUT

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 231128 Western Dumbell Roundabout.j9
Path: C:\Users\ADC\ADC Infrastructure Dropbox\ADC Projects\ADC3032 Gonerby Moor\Calculations\Junction Modelling
Report generation date: 29/11/2023 09:45:49

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
Traffic - 2023 Observed						
Arm A	0.4	3.96	0.29	0.5	4.02	0.34
Arm B	0.4	5.05	0.29	0.3	4.93	0.24
Arm C	0.1	4.24	0.12	0.2	4.32	0.15
Traffic - 2041 Background						
Arm A	0.5	4.29	0.35	0.9	5.02	0.47
Arm B	1.0	7.32	0.50	0.7	7.11	0.43
Arm C	0.2	5.38	0.19	0.3	5.71	0.22
Traffic - 2041 With Development						
Arm A	1.4	6.66	0.59	1.4	6.56	0.58
Arm B	4.6	25.78	0.83	1.5	11.68	0.60
Arm C	1.0	10.43	0.51	5.5	33.00	0.86

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Gonerby Moor Interchange/Gonerby Lane
Location	Grantham
Site number	
Date	10/11/2023
Version	v 1
Status	preliminary
Identifier	
Client	Harworth
Jobnumber	ADC3032
Enumerator	ADC-TOSHIBA-AIO\ADC
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2023 Observed	AM	ONE HOUR	08:00	09:30	15
D2	2023 Observed	PM	ONE HOUR	15:45	17:15	15
D3	2041 Background	AM	ONE HOUR	08:00	09:30	15
D4	2041 Background	PM	ONE HOUR	15:45	17:15	15
D5	2041 With Development	AM	ONE HOUR	08:00	09:30	15
D6	2041 With Development	PM	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Traffic	100.000

Traffic - 2023 Observed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Gonerby Moor Interchange Small Roundabout	Standard Roundabout		A, B, C, D	4.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A1 Overbridge	
B	A1 Off slip	
C	B1174 Gonerby Lane	
D	A1 On slip	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	3.73	5.15	5.7	18.4	45.0	26.0	
B	3.75	5.43	1.6	19.6	45.0	15.3	
C	3.20	4.56	11.9	25.7	45.0	23.0	
D							✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.569	1383
B	0.568	1317
C	0.563	1316
D		

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2023 Observed	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	338	100.000
B		✓	259	100.000
C		✓	109	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	0	105	233
	B	235	0	24	0
	C	101	0	0	8
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	11
	B	10	0	0	0
	C	2	0	0	13
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.29	3.96	0.4	A
B	0.29	5.05	0.4	A
C	0.12	4.24	0.1	A
D				

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	254	0	1282	0.199	253	0.2	3.498	A
B	195	253	1065	0.183	194	0.2	4.129	A
C	82	351	1068	0.077	82	0.1	3.650	A
D		252						

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	304	0	1282	0.237	304	0.3	3.681	A
B	233	304	1037	0.225	233	0.3	4.475	A
C	98	420	1026	0.096	98	0.1	3.878	A
D		302						

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	372	0	1282	0.290	372	0.4	3.955	A
B	285	372	999	0.286	285	0.4	5.039	A
C	120	515	969	0.124	120	0.1	4.240	A
D		369						

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	372	0	1282	0.290	372	0.4	3.958	A
B	285	372	998	0.286	285	0.4	5.046	A
C	120	515	969	0.124	120	0.1	4.242	A
D		370						

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	304	0	1282	0.237	304	0.3	3.686	A
B	233	304	1037	0.225	233	0.3	4.485	A
C	98	421	1025	0.096	98	0.1	3.882	A
D		303						

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	254	0	1282	0.199	255	0.2	3.505	A
B	195	255	1064	0.183	195	0.2	4.143	A
C	82	353	1067	0.077	82	0.1	3.655	A
D		253						

Traffic - 2023 Observed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Gonerby Moor Interchange Small Roundabout	Standard Roundabout		A, B, C, D	4.34	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2023 Observed	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	411	100.000
B		✓	209	100.000
C		✓	129	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	0	86	325
	B	192	0	13	4
	C	121	0	0	8
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	3
	B	10	0	0	25
	C	0	0	0	0
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.34	4.02	0.5	A
B	0.24	4.93	0.3	A
C	0.15	4.32	0.2	A
D				

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	309	0	1348	0.230	308	0.3	3.460	A
B	157	308	1037	0.152	157	0.2	4.084	A
C	97	391	1084	0.090	97	0.1	3.644	A
D		235						

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	369	0	1348	0.274	369	0.4	3.678	A
B	188	369	1005	0.187	188	0.2	4.404	A
C	116	468	1038	0.112	116	0.1	3.905	A
D		281						

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	453	0	1348	0.336	452	0.5	4.016	A
B	230	452	961	0.240	230	0.3	4.922	A
C	142	573	975	0.146	142	0.2	4.318	A
D		344						

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	453	0	1348	0.336	453	0.5	4.020	A
B	230	453	961	0.240	230	0.3	4.928	A
C	142	574	975	0.146	142	0.2	4.322	A
D		345						

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	369	0	1348	0.274	370	0.4	3.681	A
B	188	370	1004	0.187	188	0.2	4.412	A
C	116	469	1037	0.112	116	0.1	3.911	A
D		282						

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	309	0	1348	0.230	310	0.3	3.470	A
B	157	310	1036	0.152	158	0.2	4.097	A
C	97	393	1083	0.090	97	0.1	3.656	A
D		236						

Traffic - 2041 Background, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Gonerby Moor Interchange Small Roundabout	Standard Roundabout		A, B, C, D	5.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2041 Background	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	409	100.000
B		✓	450	100.000
C		✓	139	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	0	123	286
	B	423	0	27	0
	C	130	0	0	9
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	10
	B	6	0	0	0
	C	2	0	0	11
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.35	4.29	0.5	A
B	0.50	7.32	1.0	A
C	0.19	5.38	0.2	A
D				

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	308	0	1289	0.239	307	0.3	3.660	A
B	339	307	1070	0.317	337	0.5	4.901	A
C	105	531	969	0.108	104	0.1	4.159	A
D		414						

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	368	0	1289	0.285	367	0.4	3.906	A
B	405	367	1035	0.391	404	0.6	5.700	A
C	125	636	907	0.138	125	0.2	4.599	A
D		496						

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	450	0	1289	0.349	450	0.5	4.288	A
B	495	450	987	0.502	494	1.0	7.278	A
C	153	779	823	0.186	153	0.2	5.368	A
D		607						

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	450	0	1289	0.349	450	0.5	4.293	A
B	495	450	987	0.502	495	1.0	7.323	A
C	153	781	822	0.186	153	0.2	5.380	A
D		609						

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	368	0	1289	0.285	368	0.4	3.912	A
B	405	368	1034	0.391	406	0.6	5.743	A
C	125	639	906	0.138	125	0.2	4.615	A
D		499						

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	308	0	1289	0.239	308	0.3	3.671	A
B	339	308	1069	0.317	340	0.5	4.942	A
C	105	535	967	0.108	105	0.1	4.175	A
D		417						

Traffic - 2041 Background, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Gonerby Moor Interchange Small Roundabout	Standard Roundabout		A, B, C, D	5.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2041 Background	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	583	100.000
B		✓	344	100.000
C		✓	158	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	0	119	464
	B	325	0	15	4
	C	149	0	0	9
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	2
	B	7	0	0	25
	C	0	0	0	0
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.47	5.02	0.9	A
B	0.43	7.11	0.7	A
C	0.22	5.71	0.3	A
D				

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	439	0	1358	0.323	437	0.5	3.899	A
B	259	437	996	0.260	258	0.3	4.869	A
C	119	594	968	0.123	118	0.1	4.235	A
D		355						

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	524	0	1358	0.386	524	0.6	4.309	A
B	309	524	949	0.326	309	0.5	5.619	A
C	142	712	899	0.158	142	0.2	4.755	A
D		425						

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	642	0	1358	0.473	641	0.9	5.010	A
B	379	641	885	0.428	378	0.7	7.076	A
C	174	871	805	0.216	174	0.3	5.697	A
D		521						

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	642	0	1358	0.473	642	0.9	5.024	A
B	379	642	885	0.428	379	0.7	7.112	A
C	174	873	804	0.216	174	0.3	5.711	A
D		522						

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	524	0	1358	0.386	525	0.6	4.327	A
B	309	525	948	0.326	310	0.5	5.655	A
C	142	715	897	0.158	142	0.2	4.771	A
D		427						

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	439	0	1358	0.323	440	0.5	3.921	A
B	259	440	994	0.260	260	0.4	4.904	A
C	119	598	966	0.123	119	0.1	4.255	A
D		358						

Traffic - 2041 With Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Gonerby Moor Interchange Small Roundabout	Standard Roundabout		A, B, C, D	14.46	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2041 With Development	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	695	100.000
B		✓	609	100.000
C		✓	332	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	0	409	286
	B	423	0	186	0
	C	241	0	0	91
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	3	10
	B	6	0	7	0
	C	13	0	0	34
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.59	6.66	1.4	A
B	0.83	25.78	4.6	D
C	0.51	10.43	1.0	B
D				

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	523	0	1306	0.401	521	0.7	4.568	A
B	458	521	944	0.485	455	0.9	7.301	A
C	250	530	838	0.298	248	0.4	6.088	A
D		496						

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	625	0	1306	0.478	624	0.9	5.270	A
B	547	624	886	0.618	545	1.6	10.472	B
C	298	635	784	0.381	298	0.6	7.388	A
D		595						

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	765	0	1306	0.586	763	1.4	6.609	A
B	671	763	807	0.831	660	4.3	22.905	C
C	366	772	714	0.512	364	1.0	10.224	B
D		722						

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	765	0	1306	0.586	765	1.4	6.656	A
B	671	765	806	0.832	669	4.6	25.785	D
C	366	780	710	0.514	365	1.0	10.429	B
D		730						

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	625	0	1306	0.478	627	0.9	5.314	A
B	547	627	884	0.619	559	1.7	11.432	B
C	298	646	779	0.383	300	0.6	7.546	A
D		606						

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	523	0	1306	0.401	524	0.7	4.610	A
B	458	524	942	0.487	461	1.0	7.529	A
C	250	536	835	0.299	251	0.4	6.170	A
D		502						

Traffic - 2041 With Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Gonerby Moor Interchange Small Roundabout	Standard Roundabout		A, B, C, D	16.98	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2041 With Development	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	691	100.000
B		✓	415	100.000
C		✓	582	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	0	227	464
	B	325	0	86	4
	C	402	0	0	180
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	13	2
	B	7	0	33	25
	C	6	0	0	13
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.58	6.56	1.4	A
B	0.60	11.68	1.5	B
C	0.86	33.00	5.5	D
D				

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	520	0	1309	0.397	518	0.7	4.533	A
B	312	518	894	0.349	310	0.5	6.143	A
C	438	594	895	0.490	434	0.9	7.753	A
D		543						

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	621	0	1309	0.474	620	0.9	5.217	A
B	373	620	840	0.444	372	0.8	7.684	A
C	523	711	831	0.629	520	1.6	11.479	B
D		651						

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	761	0	1309	0.581	759	1.4	6.519	A
B	457	759	766	0.597	454	1.4	11.468	B
C	641	870	745	0.860	627	5.0	27.822	D
D		789						

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	761	0	1309	0.581	761	1.4	6.563	A
B	457	761	765	0.598	457	1.5	11.683	B
C	641	873	744	0.862	639	5.5	33.000	D
D		799						

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	621	0	1309	0.474	623	0.9	5.261	A
B	373	623	838	0.445	376	0.8	7.827	A
C	523	716	829	0.631	538	1.8	12.994	B
D		666						

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	520	0	1309	0.397	521	0.7	4.575	A
B	312	521	892	0.350	314	0.5	6.233	A
C	438	599	892	0.491	441	1.0	8.035	A
D		550						

APPENDIX I

ARCADY REPORT. A1 INTERCHANGE EASTERN ROUNDABOUT

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: 231128 Eastern Dumbell Roundabout.j9
Path: C:\Users\ADC\ADC Infrastructure Dropbox\ADC Projects\ADC3032 Gonerby Moor\Calculations\Junction Modelling
Report generation date: 29/11/2023 09:47:23

Summary of junction performance

	AM		
	Queue (Veh)	Delay (s)	RFC
	2023 Observed AM - 2023 Observed		
Arm A	0.3	2.23	0.25
Arm C	0.2	1.95	0.17
Arm D	0.2	2.11	0.19

	PM		
	Queue (Veh)	Delay (s)	RFC
	2023 Observed PM - 2023 Observed		
Arm A	0.4	2.16	0.27
Arm C	0.2	1.84	0.15
Arm D	0.2	1.91	0.18

	AM		
	Queue (Veh)	Delay (s)	RFC
	2041 Background AM - 2041 Background		
Arm A	0.5	2.66	0.34
Arm C	0.4	2.17	0.27
Arm D	0.4	2.66	0.28

	PM		
	Queue (Veh)	Delay (s)	RFC
	2041 Background PM - 2041 Background		
Arm A	0.9	3.12	0.48
Arm C	0.3	2.00	0.23
Arm D	0.3	2.26	0.24

	AM		
	Queue (Veh)	Delay (s)	RFC
	2041 With Development AM - 2041 With Development		
Arm A	0.9	3.82	0.46
Arm C	0.5	2.46	0.34
Arm D	0.7	3.58	0.42

	PM		
	Queue (Veh)	Delay (s)	RFC
	2041 With Development PM - 2041 With Development		
Arm A	1.4	4.53	0.58
Arm C	0.5	2.43	0.35
Arm D	0.5	3.26	0.35

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	A1/B1174 Gonerby Moor Interchange/Great North Road
Location	Grantham
Site number	
Date	22/11/2023
Version	v 1
Status	preliminary
Identifier	
Client	Harworth
Jobnumber	ADC3032
Enumerator	ADC-TOSHIBA-AIO\ADC
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023 Observed	AM	ONE HOUR	07:45	09:15	15	✓
D2	2023 Observed	PM	ONE HOUR	16:00	17:30	15	✓
D3	2041 Background	AM	ONE HOUR	07:45	09:15	15	✓
D4	2041 Background	PM	ONE HOUR	16:00	17:30	15	✓
D5	2041 With Development	AM	ONE HOUR	07:45	09:15	15	✓
D6	2041 With Development	PM	ONE HOUR	16:00	17:30	15	✓

2023 Observed AM - 2023 Observed , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm B - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2023 Observed AM	✓	✓	D1	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		A, B, C, D	2.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	B1174 Great North Road	
B	A1 SB On Slip	
C	A1 Overbridge	
D	A1 SB Off Slip	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.00	6.40	28.4	20.0	80.0	27.0	
B							✓
C	4.30	6.00	9.0	12.0	80.0	26.0	
D	6.00	6.00	0.0	43.7	80.0	26.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	75	23.00
B	0	0.00
C	0	20.00
D	0	0.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.034	2604
B		
C	0.968	2418
D	1.090	2760

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023 Observed	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	493	100.000
B					
C		ONE HOUR	✓	345	100.000
D		ONE HOUR	✓	364	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	222	271	0
	B	0	0	0	0
	C	274	71	0	0
	D	286	29	49	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	16	8	0
	B	0	0	0	0
	C	5	23	0	0
	D	9	24	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.25	2.23	0.3	A	452	679
B						
C	0.17	1.95	0.2	A	317	475
D	0.19	2.11	0.2	A	334	501

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	371	93	112	2212	0.168	370	421	0.0	0.2	1.954	A
B			240				242				
C	260	65	0	2224	0.117	259	240	0.0	0.1	1.831	A
D	274	69	259	2234	0.123	273	0	0.0	0.1	1.835	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	443	111	134	2188	0.203	443	503	0.2	0.3	2.063	A
B			288				289				
C	310	78	0	2224	0.139	310	288	0.1	0.2	1.879	A
D	327	82	310	2179	0.150	327	0	0.1	0.2	1.943	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	543	136	164	2155	0.252	542	616	0.3	0.3	2.232	A
B			352				354				
C	380	95	0	2224	0.171	380	352	0.2	0.2	1.951	A
D	401	100	380	2104	0.190	401	0	0.2	0.2	2.113	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	543	136	164	2155	0.252	543	617	0.3	0.3	2.232	A
B			352				355				
C	380	95	0	2224	0.171	380	352	0.2	0.2	1.951	A
D	401	100	380	2104	0.190	401	0	0.2	0.2	2.113	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	443	111	134	2187	0.203	444	504	0.3	0.3	2.065	A
B			288				290				
C	310	78	0	2224	0.139	310	288	0.2	0.2	1.880	A
D	327	82	310	2179	0.150	327	0	0.2	0.2	1.945	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	371	93	112	2211	0.168	371	422	0.3	0.2	1.958	A
B			241				243				
C	260	65	0	2224	0.117	260	241	0.2	0.1	1.834	A
D	274	69	260	2233	0.123	274	0	0.2	0.1	1.836	A

2023 Observed PM - 2023 Observed , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm B - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	2023 Observed PM	✓	✓	D2	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		A, B, C, D	2.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	B1174 Great North Road	
B	A1 SB On Slip	
C	A1 Overbridge	
D	A1 SB Off Slip	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.00	6.40	28.4	20.0	80.0	27.0	
B							✓
C	4.30	6.00	9.0	12.0	80.0	26.0	
D	6.00	6.00	0.0	43.7	80.0	26.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	78	23.00
B	0	0.00
C	0	20.00
D	0	0.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.033	2603
B		
C	0.968	2418
D	1.090	2760

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2023 Observed	PM	ONE HOUR	16:00	17:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	567	100.000
B					
C		ONE HOUR	✓	315	100.000
D		ONE HOUR	✓	364	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	216	351	0
	B	0	0	0	0
	C	243	72	0	0
	D	280	28	56	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	8	3	0
	B	0	0	0	0
	C	3	11	0	0
	D	1	25	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.27	2.16	0.4	A	520	780
B						
C	0.15	1.84	0.2	A	289	434
D	0.18	1.91	0.2	A	334	501

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	427	107	117	2354	0.181	426	393	0.0	0.2	1.867	A
B			306				237				
C	237	59	0	2306	0.103	237	306	0.0	0.1	1.738	A
D	274	69	237	2410	0.114	274	0	0.0	0.1	1.684	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	510	127	140	2328	0.219	509	470	0.2	0.3	1.979	A
B			366				284				
C	283	71	0	2306	0.123	283	366	0.1	0.1	1.778	A
D	327	82	283	2359	0.139	327	0	0.1	0.2	1.771	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	624	156	172	2294	0.272	624	576	0.3	0.4	2.155	A
B			448				348				
C	347	87	0	2306	0.150	347	448	0.1	0.2	1.836	A
D	401	100	347	2288	0.175	401	0	0.2	0.2	1.906	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	624	156	172	2294	0.272	624	576	0.4	0.4	2.155	A
B			448				348				
C	347	87	0	2306	0.150	347	448	0.2	0.2	1.836	A
D	401	100	347	2288	0.175	401	0	0.2	0.2	1.906	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	510	127	140	2328	0.219	510	470	0.4	0.3	1.980	A
B			366				284				
C	283	71	0	2306	0.123	283	366	0.2	0.1	1.781	A
D	327	82	283	2358	0.139	327	0	0.2	0.2	1.774	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	427	107	117	2353	0.181	427	394	0.3	0.2	1.868	A
B			307				238				
C	237	59	0	2306	0.103	237	307	0.1	0.1	1.739	A
D	274	69	237	2409	0.114	274	0	0.2	0.1	1.688	A

2041 Background AM - 2041 Background, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm B - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A3	2041 Background AM	✓	✓	D3	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		A, B, C, D	2.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	B1174 Great North Road	
B	A1 SB On Slip	
C	A1 Overbridge	
D	A1 SB Off Slip	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.00	6.40	28.4	20.0	80.0	27.0	
B							✓
C	4.30	6.00	9.0	12.0	80.0	26.0	
D	6.00	6.00	0.0	43.7	80.0	26.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	133	23.00
B	0	0.00
C	0	20.00
D	0	0.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.023	2591
B		
C	0.968	2418
D	1.090	2760

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2041 Background	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	632	100.000
B					
C		ONE HOUR	✓	563	100.000
D		ONE HOUR	✓	483	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	298	334	0
	B	0	0	0	0
	C	414	149	0	0
	D	366	62	55	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	13	8	0
	B	0	0	0	0
	C	4	12	0	0
	D	8	13	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.34	2.66	0.5	A	580	870
B						
C	0.27	2.17	0.4	A	517	775
D	0.28	2.66	0.4	A	443	665

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	476	119	200	2142	0.222	475	586	0.0	0.3	2.158	A
B			292				382				
C	424	106	0	2278	0.186	423	292	0.0	0.2	1.939	A
D	364	91	423	2097	0.173	363	0	0.0	0.2	2.075	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	568	142	239	2102	0.270	568	701	0.3	0.4	2.346	A
B			349				457				
C	506	127	0	2278	0.222	506	349	0.2	0.3	2.031	A
D	434	109	506	2008	0.216	434	0	0.2	0.3	2.286	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	696	174	293	2047	0.340	695	858	0.4	0.5	2.661	A
B			428				560				
C	620	155	0	2278	0.272	620	428	0.3	0.4	2.170	A
D	532	133	620	1887	0.282	531	0	0.3	0.4	2.656	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	696	174	293	2047	0.340	696	859	0.5	0.5	2.664	A
B			428				560				
C	620	155	0	2278	0.272	620	428	0.4	0.4	2.170	A
D	532	133	620	1886	0.282	532	0	0.4	0.4	2.656	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	568	142	239	2102	0.270	569	702	0.5	0.4	2.350	A
B			350				458				
C	506	127	0	2278	0.222	506	350	0.4	0.3	2.033	A
D	434	109	506	2008	0.216	435	0	0.4	0.3	2.289	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	476	119	200	2142	0.222	476	588	0.4	0.3	2.163	A
B			293				383				
C	424	106	0	2278	0.186	424	293	0.3	0.2	1.941	A
D	364	91	424	2096	0.174	364	0	0.3	0.2	2.080	A

2041 Background PM - 2041 Background, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm B - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A4	2041 Background PM	✓	✓	D4	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		A, B, C, D	2.63	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	B1174 Great North Road	
B	A1 SB On Slip	
C	A1 Overbridge	
D	A1 SB Off Slip	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.00	6.40	28.4	20.0	80.0	27.0	
B							✓
C	4.30	6.00	9.0	12.0	80.0	26.0	
D	6.00	6.00	0.0	43.7	80.0	26.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	125	23.00
B	0	0.00
C	0	20.00
D	0	0.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.024	2593
B		
C	0.968	2418
D	1.090	2760

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2041 Background	PM	ONE HOUR	16:00	17:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	961	100.000
B					
C		ONE HOUR	✓	476	100.000
D		ONE HOUR	✓	464	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	444	517	0
	B	0	0	0	0
	C	344	132	0	0
	D	346	55	63	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	4	3	0
	B	0	0	0	0
	C	3	7	0	0
	D	1	15	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.48	3.12	0.9	A	882	1323
B						
C	0.23	2.00	0.3	A	437	655
D	0.24	2.26	0.3	A	426	639

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	723	181	188	2305	0.314	722	518	0.0	0.5	2.271	A
B			436				474				
C	358	90	0	2322	0.154	358	436	0.0	0.2	1.832	A
D	349	87	358	2287	0.153	349	0	0.0	0.2	1.856	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	864	216	225	2266	0.381	863	620	0.5	0.6	2.564	A
B			521				567				
C	428	107	0	2322	0.184	428	521	0.2	0.2	1.899	A
D	417	104	428	2210	0.189	417	0	0.2	0.2	2.007	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1058	265	275	2212	0.478	1057	759	0.6	0.9	3.113	A
B			638				694				
C	524	131	0	2322	0.226	524	638	0.2	0.3	2.001	A
D	511	128	524	2104	0.243	511	0	0.2	0.3	2.259	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1058	265	275	2212	0.478	1058	760	0.9	0.9	3.118	A
B			639				695				
C	524	131	0	2322	0.226	524	639	0.3	0.3	2.001	A
D	511	128	524	2104	0.243	511	0	0.3	0.3	2.259	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	864	216	225	2266	0.381	865	621	0.9	0.6	2.571	A
B			522				568				
C	428	107	0	2322	0.184	428	522	0.3	0.2	1.902	A
D	417	104	428	2209	0.189	417	0	0.3	0.2	2.010	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	723	181	188	2305	0.314	724	520	0.6	0.5	2.279	A
B			437				475				
C	358	90	0	2322	0.154	359	437	0.2	0.2	1.835	A
D	349	87	359	2286	0.153	350	0	0.2	0.2	1.861	A

2041 With Development AM - 2041 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm B - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A5	2041 With Development AM	✓	✓	D5	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		A, B, C, D	3.30	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	B1174 Great North Road	
B	A1 SB On Slip	
C	A1 Overbridge	
D	A1 SB Off Slip	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.00	6.40	28.4	20.0	80.0	27.0	
B							✓
C	4.30	6.00	9.0	12.0	80.0	26.0	
D	6.00	6.00	0.0	43.7	80.0	26.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	260	23.00
B	0	0.00
C	0	20.00
D	0	0.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.999	2561
B		
C	0.968	2418
D	1.090	2760

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2041 With Development	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	741	100.000
B					
C		ONE HOUR	✓	674	100.000
D		ONE HOUR	✓	660	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	298	443	0
	B	0	0	0	0
	C	449	225	0	0
	D	366	62	232	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	13	6	0
	B	0	0	0	0
	C	4	21	0	0
	D	8	13	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.46	3.82	0.9	A	680	1020
B						
C	0.34	2.46	0.5	A	618	928
D	0.42	3.58	0.7	A	606	908

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	558	139	390	1947	0.287	556	612	0.0	0.4	2.587	A
B			507				439				
C	507	127	0	2204	0.230	506	507	0.0	0.3	2.119	A
D	497	124	506	1993	0.249	496	0	0.0	0.3	2.401	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	666	167	466	1867	0.357	666	732	0.4	0.6	2.995	A
B			606				526				
C	606	151	0	2204	0.275	606	606	0.3	0.4	2.251	A
D	593	148	606	1883	0.315	593	0	0.3	0.5	2.788	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	816	204	571	1757	0.464	815	896	0.6	0.9	3.813	A
B			742				643				
C	742	186	0	2204	0.337	742	742	0.4	0.5	2.461	A
D	727	182	742	1733	0.419	726	0	0.5	0.7	3.571	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	816	204	571	1757	0.464	816	897	0.9	0.9	3.824	A
B			743				644				
C	742	186	0	2204	0.337	742	743	0.5	0.5	2.461	A
D	727	182	742	1732	0.419	727	0	0.7	0.7	3.578	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	666	167	467	1866	0.357	667	734	0.9	0.6	3.006	A
B			608				527				
C	606	151	0	2204	0.275	606	608	0.5	0.4	2.253	A
D	593	148	606	1882	0.315	594	0	0.7	0.5	2.796	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	558	139	391	1945	0.287	558	614	0.6	0.4	2.596	A
B			509				441				
C	507	127	0	2204	0.230	508	509	0.4	0.3	2.123	A
D	497	124	508	1991	0.250	497	0	0.5	0.3	2.410	A

2041 With Development PM - 2041 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm B - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A6	2041 With Development PM	✓	✓	D6	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		A, B, C, D	3.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	B1174 Great North Road	
B	A1 SB On Slip	
C	A1 Overbridge	
D	A1 SB Off Slip	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.00	6.40	28.4	20.0	80.0	27.0	
B							✓
C	4.30	6.00	9.0	12.0	80.0	26.0	
D	6.00	6.00	0.0	43.7	80.0	26.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	241	23.00
B	0	0.00
C	0	20.00
D	0	0.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.003	2566
B		
C	0.968	2418
D	1.090	2760

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2041 With Development	PM	ONE HOUR	16:00	17:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	993	100.000
B					
C		ONE HOUR	✓	729	100.000
D		ONE HOUR	✓	540	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	444	549	0
	B	0	0	0	0
	C	442	287	0	0
	D	346	55	139	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	4	3	0
	B	0	0	0	0
	C	2	12	0	0
	D	1	15	22	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.58	4.53	1.4	A	911	1367
B						
C	0.35	2.43	0.5	A	669	1003
D	0.35	3.26	0.5	A	496	743

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	748	187	361	2077	0.360	745	592	0.0	0.6	2.699	A
B			516				590				
C	549	137	0	2282	0.240	548	516	0.0	0.3	2.074	A
D	407	102	548	1973	0.206	406	0	0.0	0.3	2.295	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	893	223	432	1998	0.447	892	708	0.6	0.8	3.252	A
B			618				706				
C	655	164	0	2282	0.287	655	618	0.3	0.4	2.212	A
D	485	121	655	1858	0.261	485	0	0.3	0.4	2.621	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1093	273	529	1889	0.579	1091	867	0.8	1.4	4.497	A
B			756				864				
C	803	201	0	2282	0.352	802	756	0.4	0.5	2.432	A
D	595	149	802	1701	0.350	594	0	0.4	0.5	3.251	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1093	273	530	1889	0.579	1093	868	1.4	1.4	4.525	A
B			757				865				
C	803	201	0	2282	0.352	803	757	0.5	0.5	2.432	A
D	595	149	803	1700	0.350	595	0	0.5	0.5	3.255	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	893	223	433	1997	0.447	895	709	1.4	0.8	3.275	A
B			620				708				
C	655	164	0	2282	0.287	656	620	0.5	0.4	2.215	A
D	485	121	656	1857	0.261	486	0	0.5	0.4	2.628	A

17:15 - 17:30

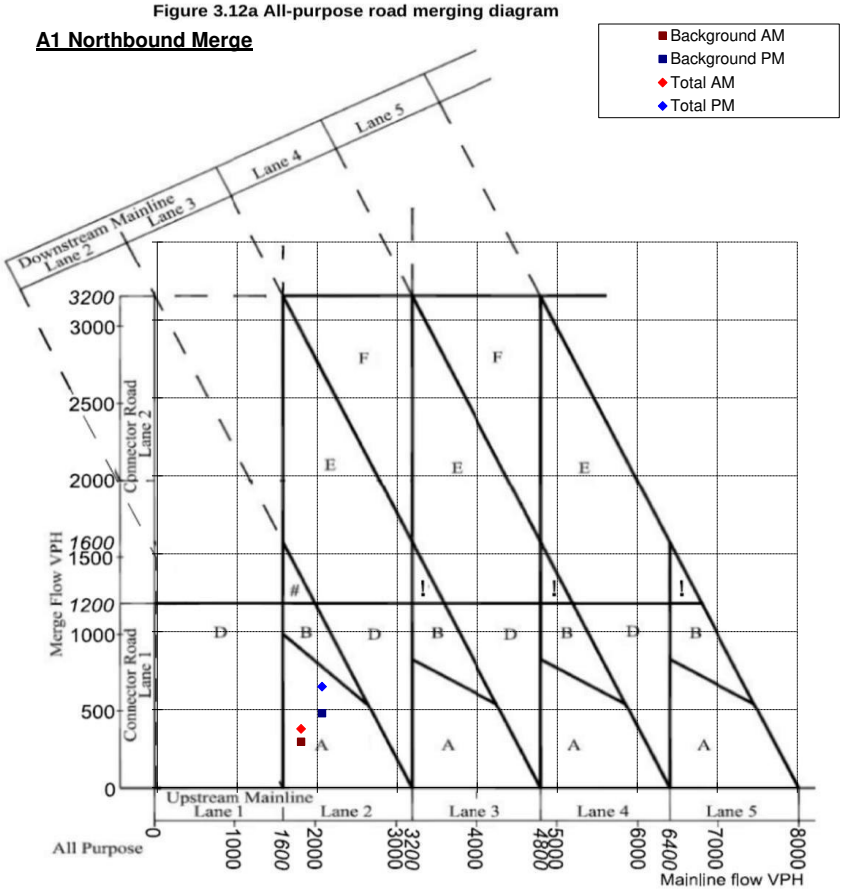
Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	748	187	362	2075	0.360	749	594	0.8	0.6	2.714	A
B			519				592				
C	549	137	0	2282	0.240	549	519	0.4	0.3	2.077	A
D	407	102	549	1972	0.206	407	0	0.4	0.3	2.301	A

APPENDIX J

A1 MERGE/DIVERGE ASSESSMENT

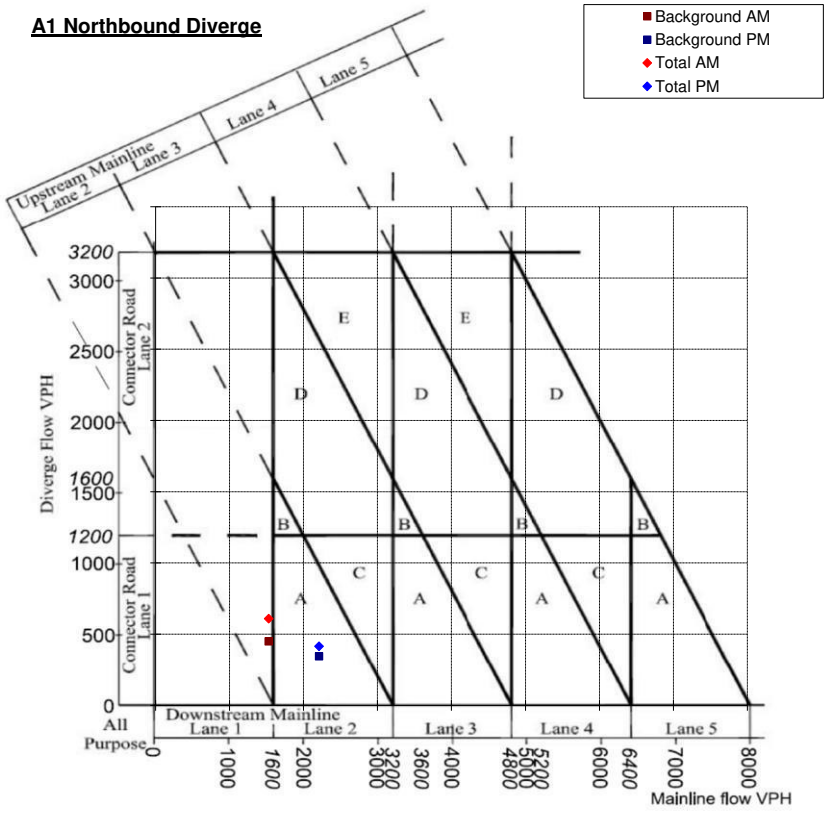
Figure 3.12a All-purpose road merging diagram

A1 Northbound Merge



	Upstream Mainline	Merging Slip
Background AM	1799	295
Background PM	2061	477
Total AM	1799	377
Total PM	2061	648

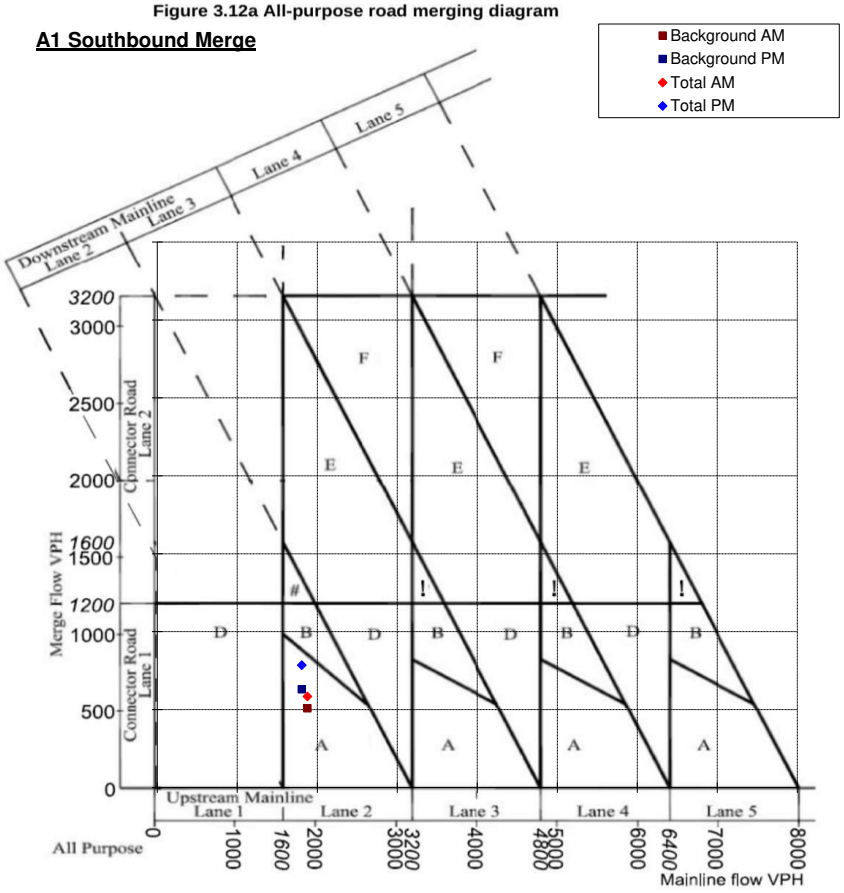
Figure 3.26a All-purpose road diverging diagram



	Downstream Mainline	Diverge Slip
Background AM	1528	450
Background PM	2209	344
Total AM	1528	609
Total PM	2209	415

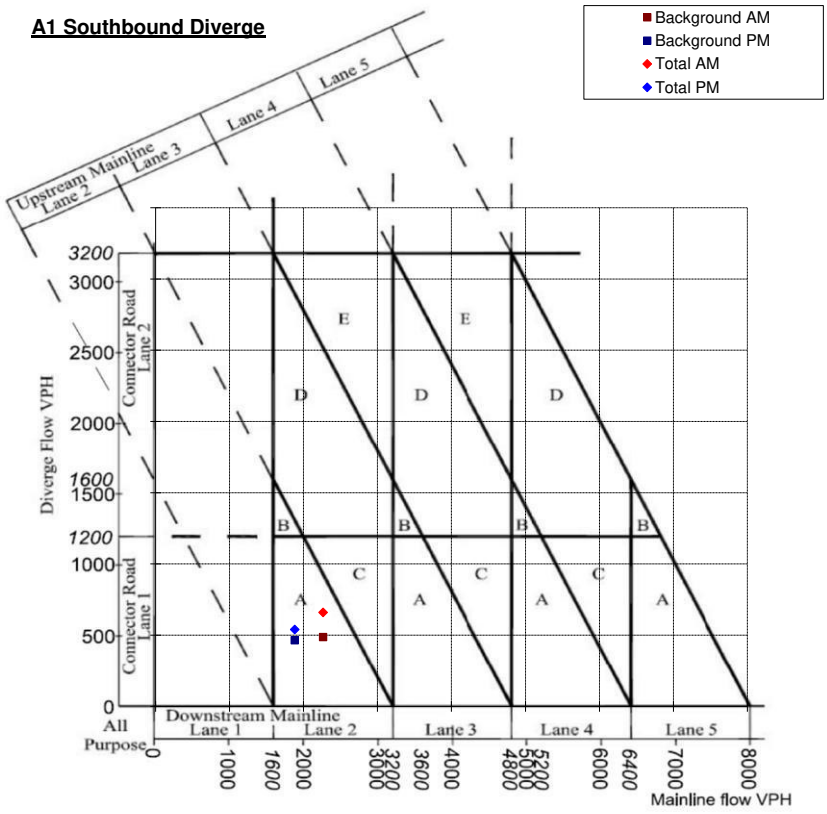
Figure 3.12a All-purpose road merging diagram

A1 Southbound Merge



	Background AM	Background PM	Total AM	Total PM
Upstream Mainline	1878	1807	1878	1807
Merging Slip	509	631	585	786

Figure 3.26a All-purpose road diverging diagram



	Downstream Mainline	Diverge Slip
Background AM	2263	486
Background PM	1879	464
Total AM	2263	660
Total PM	1879	540

25 April 2024

David Baker-Brook
Caddick Developments

Joanne Neville
Harworth

[redacted]

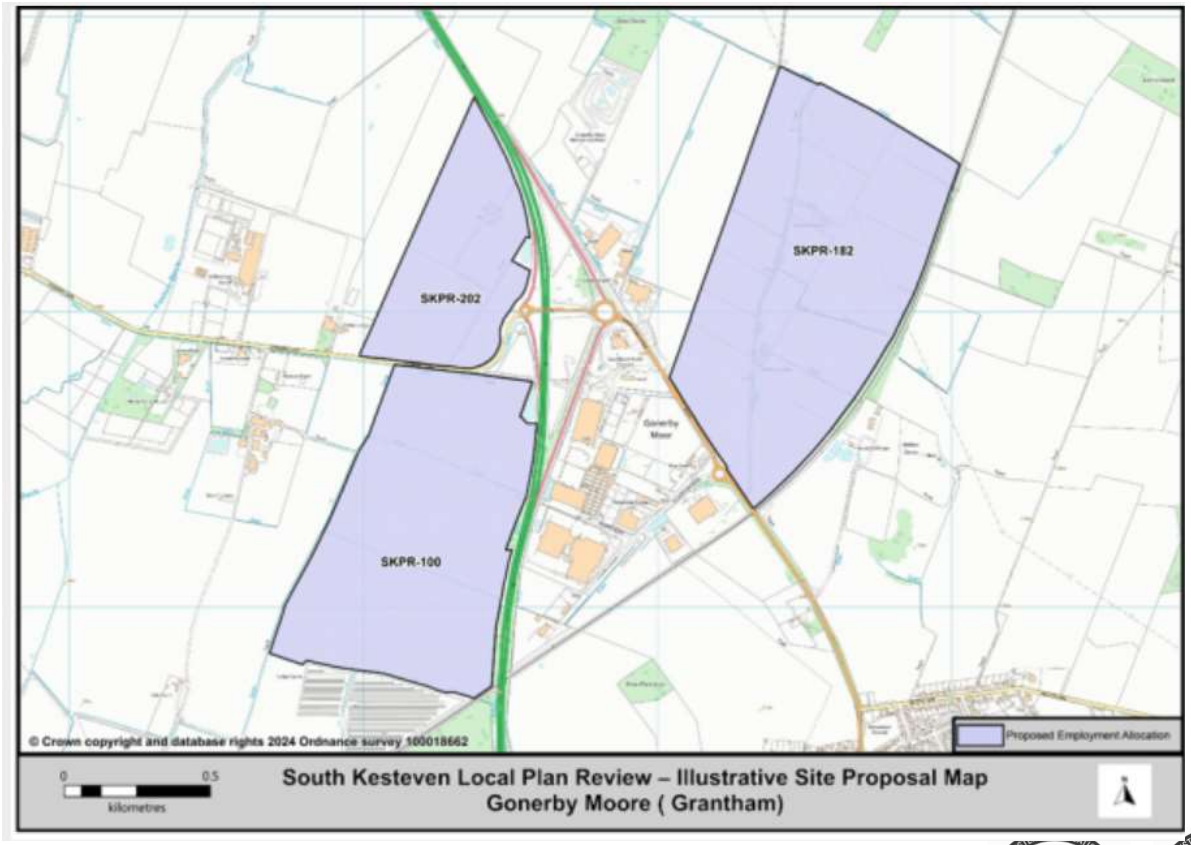
By Email Only

Dear David & Joanne,

Gonerby Moor, South Kesteven

Further to your joint instructions, I am writing to set out a summary of the market case for the allocation of your sites at Gonerby Moor for submission to the South Kesteven Regulation 18 Local Plan Review consultation. This letter should be read in conjunction with the representations prepared by your planning consultants (Boyer and Marrons).

The sites are both proposed to be allocated for B2/B8 use under draft Policy E2 of the South Kesteven Regulation 18 Local Plan (reference SKPR-202 and SKPR-100 as shown on the plan below – "the Subject Sites").



Site Description & Context

Details of the Subject Sites are as follows:

- SKPR – 202 (Land at Gonerby Lane): controlled by Harworth, this site extends to c. 29 ha and can accommodate c. 123,150 sq. m of floorspace;
- SKPR – 100 (Land South of Gonerby Lane): controlled by Caddick Development and extending to 63.7 ha, this site can accommodate c. 215,380 sq. m of floorspace

The Sites are being brought forward in a coordinated manner, with relevant technical work and masterplanning being undertaken on a joint basis which demonstrates that the sites are both viable and deliverable, being capable of accommodating a range of unit sizes and configurations to meet occupier requirements.

Collectively, the sites provide for a truly strategic scale employment opportunity, immediately adjancent to/accessible from the A1/A52 junction at Gonerby Moor Interchange.

Site Location

The Sites are located immediately adjacent to the A1 junction at Gonerby Moor Interchange to the north of Grantham and offer excellent connectivity north south along the A1 corridor as well as to Nottingham via the A52. The A1 provides links to Peterborough to th south, the A47 (to Leicester), A52 (to Nottingham) and the A14 which is the main east/west road corridor linking the East Coast Ports to the Midlands markets.

The location and connectivity of the Subject Sites will make them very attractive to occupiers seeking a highly accessible location from which to access the wider Midlands markets and customer base.

Market Position: Demand Profile

The A1 is a nationally significant movement corridor linking London to Edinburgh in Scotland and facilitating over 10,000 HGV and LGV movements per day. The A1 corridor has emerged over recent years as a key location for occupiers seeking to serve a regional and/or national catchment.

Demand from occupiers with a national or wider Midlands catchment has traditionally focussed on the core areas within the 'golden triangle' and the M1 corridor but, as land supply has become increasingly constrained in these locations, demand for locations along the A1 corridor has increased and it is now an established alternative for a range of occupiers with evidence of very strong demand when high quality sites are available.

Within the Functional Economic Market Area (FEMA), (defined as South Kesteven, Peterborough, Rutland and South Holland within the South Kesteven evidence base), this strategic scale demand has predominantly been focussed on Peterborough to date. This focus of demand has been the result of the availability of well-located (highly accessible) sites which have been delivered by experienced developers and have been of sufficient scale to meet a range of occupier requirements.

Take up at Gateway Peterborough (84 ha) which was delivered by Roxhill/Newlands is evidence of the strong demand being seen from both logistics and manufacturing occupiers when high quality and unconstrained sites are available. Take up averaged c. 55,901 sq. m per annum over the eight year life of the development (2014-2022) increasing to c. 69,700 sq. m per annum (c. 12-13 ha per annum) over the last five years of the development. Examples of occupiers that have taken units at Gateway Peterborough include:

- Amazon (B8 delivery depot) – 146,700 sq. ft (2022)
- Oatly (B2 – food processing) – 385,000 sq. ft (2021)
- McCormick & Co (B2 – food processing) – 636,340 sq. ft (2020)
- AM Fresh (B8) – 240,000 sq. ft (2019);

- Urban Outfitters (B8) – 432,000 sq. ft (2019);
- Lidl Regional Distribution Centre (B8) – 754,000 sq. ft (2017)

Whilst footloose logistics (B8) occupiers have made up the majority of demand, there has also been significant demand from the food manufacturing and processing sector. This demand profile is reflective of the type of occupier demand that would be seen at the Subject Sites.

As will be considered below, there is now very little supply within Peterborough and therefore it is particularly important that South Kesteven ensures a sufficient supply of strategic scale, well-located and deliverable land to meet occupier demand within the FEMA.

The allocation of the Subject Sites will enable South Kesteven to participate in this regional and national market through provision of high quality, deliverable sites of strategic scale, immediately accessible to the A1 corridor, and therefore offering occupiers the ability to serve a significant customer base.

Supply of Strategic Scale Sites

As demonstrated above, occupier requirements are for increasingly large units (across both the manufacturing and logistics sectors). In order to maximise demand and capture footloose occupier requirements, it is necessary for sites to be of sufficient scale to allow flexibility over scale and configuration of buildings, and to ensure continuity of supply over a period of years. Sites of 25 ha plus would generally be the minimum size to be considered as 'strategic' and increasingly sites of 50 ha plus are required in reflection of the larger unit sizes and associated rate of land take up (for example, a site of 25 ha could be taken up by one or two requirements in relatively short timescales).

There are very few strategic scales sites within the FEMA. Existing allocations which would fall within this definition include Grantham Southern Gateway in South Kesteven (plot to the west of the A1) and Redbrick Farm in Peterborough (c. 32 ha net). There are significant constraints around Peterborough which make the promotion of additional large scale land in this location very challenging. Other sites across the FEMA are predominantly of a much smaller scale and suitable for smaller units, aimed at the local market.

It is therefore vitally important to ensure a continued supply of sites which can meet this strategic demand across the FEMA, and specifically in South Kesteven which benefits from accessibility to the A1. The Subject Sites collectively offer an opportunity to make an important contribution to the portfolio of pipeline land within the FEMA and within South Kesteven.

Unmet Need within the FEMA

Using Savills' modelling it is possible to estimate the level of demand across the FEMA. Savills' modelling methodology is NPPG-compliant as it builds upon historic take-up (demand), adjusting past take up trends to account for historic supply shortages. and the resultant loss in occupier take up. We refer to this as 'suppressed demand' which is added to the historic demand trends as a top-up. We also scenario test future e-commerce growth, which is a key growth driver for the sector.

The rational for accounting for suppressed demand is that when sufficient supply isn't available, demand cannot be accommodated. Take-up is often used as a surrogate for demand but that can be misleading, particularly where land supply or availability of buildings is constrained. Take-up is, in effect, the minimum manifestation of demand and supply, but take-up will be constricted in circumstances where demand (in quantitative terms) exceeds supply and (in qualitative terms) where the nature of demand (location, use, scale, quality) is not capable of being met by the actual supply of employment land and buildings available. Limited supply in a strongly performing market means that demand cannot be fully satisfied, typically resulting in strong rental growth.

An allowance for suppressed demand is therefore added to the historic net absorption trend (take up adjusted for out-movers) to account for years when the market was supply constrained, and, projecting this forward provides an estimate of the total demand.

At the national level, the market equilibrium level, where supply and demand are broadly in balance and rents are more stable, is around 8% availability. This benchmark rate is found in several prominent publications such as the GLA's Land for Industry and Transport Supplementary Planning Guidance (SPG) and the London Plan (2021). Availability in South Kesteven has been below the 8% equilibrium between 2014-2022 when we assessed the market indicators, with availability standing at just 2.7% in Q1 2022. Rents have grown well above inflation, demonstrating that occupiers have been competing with one another for available stock, pushing up rents.

Savills ran the supressed demand model in December 2022 and will be re-running in due course to provide an up-to-date and accurate estimate of FEMA level demand. Comparing estimated demand using Savills supressed demand model with supply (of buildings and land with either planning permission or an allocation), **as at December 2022, there was a significant shortfall of land across the FEMA,** considerably in excess of the proposed new dedicated employment allocations in South Kesteven (c. 179 ha).

As noted above, whilst Peterborough has been a focus for demand historically, there is likely to be limited availability of future land supply in this location (i.e sites which are not already allocated or with planning permission). It is therefore vitally important that South Kesteven is able to respond to this unmet demand at FEMA level and, as proposed, allocates a range of strategic employment sites which can address sub-regional need, maximising the District's location on the A1 corridor.

Conclusions

There is a strong need for significant additional (new) land, over and above previous carried over allocations, within the FEMA and specifically within South Kesteven. This should be of sufficient scale, and sufficiently well-located to be able to meet sub-regional and regional demand and address the critical supply shortage at FEMA level. The Subject Sites are ideally situated to maximise this opportunity, being immediately adjacent to the A1 junction and offering a combined site of significant scale which is in developer control and therefore able to respond flexibly and rapidly to occupier requirements, ensuring delivery of economic benefits, including high quality jobs across the manufacturing and logistics sectors.

Yours sincerely

[redacted]

Siân Rees
Associate Director

Cc: David Baker-Brook, Caddick Developments
Joanne Neville, Harworth

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