South Warwickshire Local Plan: Issues and Options

Representations on behalf of Hill Residential in respect of land at Hatton

March 2023

Turley

Contents

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Client
Hill Residential Limited

Our reference
THEQ3025

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1. Introduction

1.1 These representations are submitted in response to the South Warwickshire Local Plan (SWLP): Issues and Options consultation on behalf of Hill Residential Ltd (referred to hereafter as "Hill Residential") in respect of land to the east of Hatton station ("the Site / Hatton New Community").

1.2 Hill Residential welcome the two Councils' commitment to prepare a joint Local Plan in order to develop a combined strategy for south Warwickshire over the long term to 2050, and intend to take an active role in the Local Plan process. This far-sighted approach is vital to ensuring the area can plan properly for growth and the provision of the necessary infrastructure to support it.

1.3 In this context, the evolution of the estate at Hatton from a successful rural enterprise and visitor attraction into a railway-connected, technology-rich new residential community of around 4,500 homes is made possible by a single ownership amounting to 262 hectares which will continue the legacy of the Arkwright family who have owned this estate for over 200 years.

1.4 The core of facilities and social infrastructure already present at Hatton Country World, Hatton Shopping Village and Hatton Technology Park will act as the backbone for a new settlement contributing to place-making and identity from day one. The existing business will continue to thrive but provides the foundation for a unique new community.

Promotion History

1.5 The Site was promoted through the previous local plan, although at a time when the spatial strategy was focussed on urban extensions which could meet the need to 2029.

1.6 It was put forward informally to the Government's Garden Communities Programme in 2018, recognising that it was running ahead of the local plan review. This has given time to work up these proposals in more detail in readiness for the new local plan.

1.7 Representations to the SWLP Scoping and Call for Sites consultation were submitted by Turley on behalf of the Arkwright Family and Grosvenor Britain & Ireland in June 2021, in respect of the Site.

1.8 In summer 2022, Hill Residential took on the role of promoting the Site, alongside the Arkwright Family, and have been working closely with the wider project team to continue to refine the proposals for a new community at Hatton.

Structure of Representations

1.9 These representations are structured as follows:

- **Section 2:** Provides a summary of the Site and its surroundings

- **Section 3:** Demonstrates the sustainable residential development opportunity at Hatton. This should be read alongside the Vision Document enclosed at **Appendix 1**.

- **Section 4:** Provides a response to key questions raised through the Issues and Options Consultation document.

1.10 These representations are supported by a Vision Document (**Appendix 1**), a Site Location Plan (**Appendix 2**), an Internalisation and Containment Note (**Appendix 3**), and a Transport Vision Document (**Appendix 4**).

2. The Site

Hatton and the Arkwright Family

2.1 Johnnie and Arabella Arkwright come from a long tradition of landowner industrialists; their forefathers Sir Richard Arkwright and Matthew Boulton are seen as pioneers of the first industrial revolution at the end of the 18th century.

2.2 The Hatton Estate was purchased in the 1830s by the Arkwright family and originally consisted of several small farmsteads.

2.3 From the 1980s onward began a process of countryside innovation with the creation of Hatton Country World. The estate now includes Hatton Adventure World, Hatton Shopping Village and Hatton Technology Park, with a seasonal programme of events, adventure play, nursery and a swimming pool. Hatton Country World currently boasts one of the largest farm parks in the country and is one of the most popular tourist attractions in the Midlands with over 200,000 annual visitors. Johnnie and Arabella have succeeded in building a vibrant business and family community that has flourished over the past 35+ years.

The Site

2.4 The Site (as submitted to the June 2021 Call for Sites as site ref: 153) extends to 262 hectares and is located to the east of Hatton village, with its mainline railway station, north of the M40, south of the B4439 Hockley Road, and west of the Hatton Park development, Hatton Locks and Hatton Arms Public House. The Birmingham-London Marylebone railway line and Grand Union Canal run through the middle of the Site.

2.5 A Site Location Plan is enclosed at **Appendix 2**.

2.6 Within the Site are the Arkwright family businesses - Hatton Adventure World, Hatton Shopping Village and Hatton Technology Park. The Grade II listed (list ID: 1035211) Arkwright family home, Hatton House, is located just to the north and is identified as a locally important park and garden. The remainder of the Site is in agricultural use.

2.7 The majority of the Site falls within Hatton Parish, with a small parcel of land to the west being located within Shrewley Parish. The Site is not located within a Neighbourhood Plan Area.

2.8 The Site has an extensive planning history related to its use as a tourist/retail attraction and as a business location.

3. Hatton New Community: The Opportunity

3.1 Hill Residential are pleased to present a plan for an innovative and bold new community on land within the Arkwright Estate which exhibits a rare combination of existing sustainable transport infrastructure that is in perfect proximity to the towns of Warwick and Leamington Spa and already has a thriving micro-economy and community.

3.2 Hatton and its locality already has excellent existing transport infrastructure that will offer a realistic and appealing option for residents to move to. This is consistent with the SWLP Issues and Options Consultation's identification of Hatton (site ref: B1) as one of 7 broad locations for 'large scale new settlements' within the SWLP area. The excellent existing transport infrastructure includes:

- Hatton Railway Station
- Warwick Parkway Railway Station
- Towpath links to Warwick and Leamington Spa – achievable by foot or bike
- Opportunities for better bus routes to local, more immediate areas

3.3 The existence of an established rural business community and highly successful visitor destination provides a unique platform to create a vibrant new community. The Site is all in single ownership, under the stewardship of a family that lives in and is heavily invested in the area, and being promoted by one housebuilder (Hill Residential) – giving this proposal extra credibility.

3.4 Hatton New Community offers an exciting opportunity to adopt a different strategy to invigorate and empower the manner in which new homes are brought forward with identity, character, beauty and the right level of infrastructure to support the community and meet the needs of the region.

3.5 Hatton New Community could deliver up to 4,500 new homes within the landownership as shown at **Appendix 2**.

3.6 It could also provide up to 3,000 jobs (combining existing and new), making this a highly sustainable community. This places the Site at the heart of the 'innovation region' as described by the Midlands Resilience Commission, with its central location, exceptional transport links , great universities and embedded skills.

3.7 The Vision Document (enclosed at **Appendix 1**) shows how Hatton is highly accessible to a wide range of advanced manufacturing / high technology employers and research institutions and is already a digitally connected location with high speed broadband.

Why Hatton?

3.8 We have undertaken a review of all sites submitted through the June 2021 Call for Sites. Hatton is the largest new settlement proposal in a rail corridor location and

compares favourably to other options along the Stratford line. This demonstrates that Hatton New Community is a deliverable, available and achievable proposal that will be able to deliver much needed new homes in south Warwickshire.

3.9 The Issues and Options Consultation identifies five growth options, including Option 1 'Rail Corridors'. This option was the most popular from the scoping consultation exercise in 2021, which could achieve the greatest modal shift away from car use and provide a stimulus for investment and improvement of train services. The Site has one station adjacent to the Site boundary (Hatton) and a further that is commutable by foot or bike (Warwick Parkway).

3.10 Hatton Railway station is located just west of the Site and can be accessed with minutes from the western side of the Site, or within an approximate 11-minute walk or a 4-minute cycle from the centre of the Site via either the canal towpath or station road. Warwick Parkway station is located to the east of the Site, on the outer area of Warwick town centre, approximately a 3km distance, a 36-minute walk or 12-minute cycle via Birmingham road or the canal towpath.

3.11 Further, both stations allow direct trains to Birmingham, Leamington and London which will allow future residents to change at these stations and make connections to Birmingham Airport and HS2 stations (in Birmingham and Solihull) for employment and recreational opportunities. This level of rail connectivity, alongside significant road connectivity (via the A46 and the M40), makes Hatton New Community a truly sustainable location.

3.12 The reality is that the plan will contain a mix of growth options to deliver the most sustainable forms of development across the two districts. However, we believe there is a strong case for a new community along the rail corridor, with the preferable location being at Hatton. This approach will provide an additional approach to the potential expansions of existing settlements within Warwick District.

3.13 The SWLP provides New Settlement Criteria, stating at page 48 that:

"it is imperative to establish the minimum number of homes necessary to deliver and sustain new infrastructure and ensure a viable development, from both a financial and community perspective. Discussions with infrastructure and service providers are ongoing but initial feedback has provided the following thresholds for three key facilities as set out in Table 3. Other facilities and services would be provided onsite. These figures are minimum figures, and the likeliness is that there will need to be a greater number of homes to ensure that new settlements are viable and can sustain new infrastructure."

3.14 The Infrastructure thresholds set out at SWLP table 3 sets out the following:

- Primary School – 1,000 to 2,000 homes
- Secondary School – 4,000 to 5,000 homes
- Railway Station – 6,000 homes

3.15 As set out above, the Site has the unique advantage of being located adjacent to Hatton railway station and within commutable distance (walking, cycling and public transport) of Warwick Parkway railway station. The Site therefore has one of the key ingredients necessary of a new community from day one of delivery – without needing to deliver a minimum of 6,000 homes.

3.16 Our initial work on educational demands suggests that a new community of 4,500 homes in this location, would generate the need for a 6 form entry (FE) secondary school. This would include 932 secondary pupils and 186 sixth form pupils from Hatton New Community. Further, taking into account the need from the surrounding catchment area, would demonstrate that 4,500 in this location would be sufficient to support a new secondary school.

3.17 In terms of other facilities, infrastructure and services that are needed to ensure a new settlement is viable and can sustain new infrastructure:

- The existing Hatton Country World, Hatton Shopping Village and Hatton Technology Park would be located at the heart of the new community and already provide a wide range of facilities, enabling the formation of a local centre and community from day one.

- The proximity to the existing canal network provides an opportunity to significantly enhance recreation and pedestrian / cycle routes along the corridor into Warwick and beyond.

3.18 The Site already has many of the key ingredients to create a new community from day one, without the need for significant infrastructure. The provision of new homes, a secondary school, primary schools and open spaces will build on this sense of community and place.

3.19 Hatton therefore should be the first option when considering a location for a new settlement within the SWLP.

What will Hatton deliver?

3.20 The Vision Document and the accompanying Illustrative Masterplan (enclosed at **Appendix 1**) have been prepared to align with the five pillars of the SWLP which aim to create a South Warwickshire which is: climate resilient; healthy, safe and inclusive; well-connected; well-designed and beautiful; and, Biodiverse and environmentally resilient.

3.21 The Vision Document and Illustrative Masterplan demonstrates how a new community at Hatton could deliver up to 4,500 new homes and up to 3,000 jobs (new and existing) along with the following:

- **Movement and Connectivity:**

  – Internalisation and localisation of trips and therefore carbon reduction by establishing internalisation behaviours early.

  - Active Travel as the primary movement network which will be achieved through sustainable (and public) transport improvements including secure cycle storage at stations, access to the cycle network, real-time-travel information, increased bus movement, wayfinding and the provision of enhanced local facilities.

- **Technology Park:**
  - Over 17,000 sqft of existing floorspace
  - 15 existing tenants and approximately 250 staff with employers from IT solutions to Automotive PR
  - Potential increase in scale by over 1ha / 30,000 sqft
  - Focus on automotive, design and wellness
- **Environmental enhancement and landscape management:**
  - Habitat preservation/creation – Woodlands and wet grassland
  - Encouraging ecological diversity, green corridors and connectivity
  - Minimum provision of 10% Bio-diversity Net Gain (BNG)
  - Long term stewardship model, management and funding strategy
- **Leveraging existing assets at Hatton Shopping Village + Country World head start in community development, with:**
  - 17 independent shops
  - Ambition for a farm shop
  - An established garden centre
  - Nursery for 100 children
  - Swimming pool & soft play centre
  - Escape rooms
  - Extensive grounds with farm animals & activities
- **Hatton Locks & Hatton Arms:**
  - Major tourist attraction
  - Excellent pub and restaurant to meet and catch-up
  - Opportunity to improve experience

- **Education:**
  - Phasing primary provision as need arises
  - Secondary on site 6FE (initially 4FE)
  - Potential for through school
- **Public Open Space, Health and Wellbeing:**
  - Sports pitches and community greenspace/village green
  - A new linear park with canal-side recreation areas, linking through to Hatton Locks and on into Warwick town centre
  - A network of pedestrian and cycle ways

Hill Residential and Arkwright Partnership

3.22 The Hill Residential and Arkwright Family partnership will provide the availability of land alongside the expertise and capacity to deliver a new community at this scale. There will be an early focus on community creation, health and well-being. Both parties are committed to delivering carbon net zero and BNG. There is also a strong joint focus on ensuring that the Arkwright Family legacy at Hatton is retained and that there is an appropriate long-term stewardship model for all future residents.

3.23 Hill Residential's vision is to be the UK's leading, most trusted housebuilder, creating exceptional homes and sustainable communities. The potential at Hatton reflects their ambition, and the exceptional growth they have seen since Hill was formed. It also reflects what Hill Residential actually deliver and will use their past experience to inform their approach to delivering the Hatton New Community. Hill Residential build fantastic homes, but also give people what they need to lead rich and fulfilling lives, in a way that is sustainable – both for the planet and for the local area.

4. Representations to Issues and Options

4.1 This section provides Hill Residential's responses to the relevant issues and options set out in the consultation, with a focus on Hatton New Community.

Chapter 3: Vision and Strategic Objectives – South Warwickshire in 2050

Question V3.1: Do you agree that the Vision and Strategic Objectives are appropriate?

4.2 Yes, Hill Residential support the overall Vision and Strategic Objectives for the SWLP.

4.3 In order to meet the ambitious Vision, it will be important to ensure growth is located in the most sustainable locations and align with the Vision as closely as possible. It is likely that these locations will be located within the Green Belt, specifically is those locations identified along rail corridors – such as Hatton.

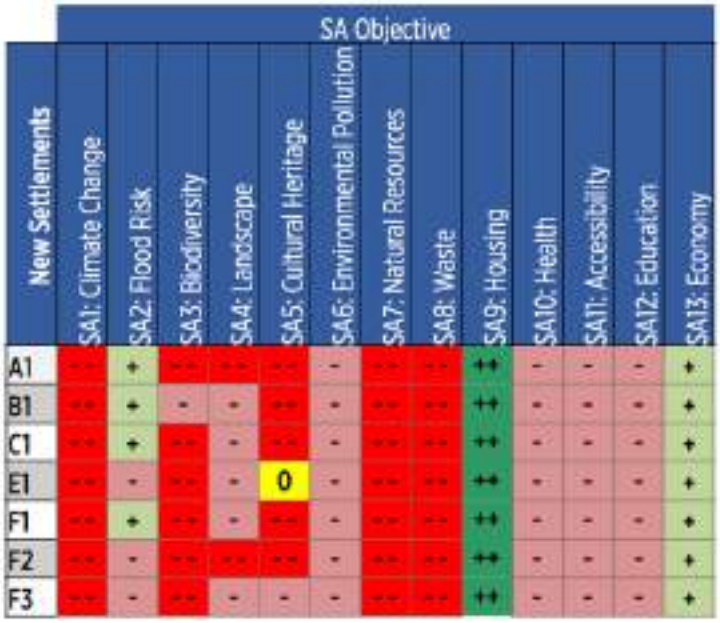
Chapter 4: Meeting South Warwickshire's Sustainable Development Needs

Question I1: Please add any comments you wish to make about the Sustainability Appraisal, indicating clearly which element of the appraisal you are commenting on

4.4 The South Warwickshire authorities state that "*at this stage is it is difficult to identify stand out best performing options because they all perform best for different SA Objectives and rarely does one option emerge as a best overall option*". It should however be noted, that at this stage the assessment does not consider any mitigation which could have the effect of minimising any adverse impacts.

Potential New Settlement Locations

4.5 Figure 1[1], below, sets out how each of the potential new settlement locations performed within the Sustainability Appraisal (SA). The reference for Hatton is B1.



[1] Table 6.1: Summary SA assessments for the New Settlement Locations, SWLP Sustainability Appraisal, Volume 2 of 3 – Main Report (November 2022)

4.6 Paragraph 6.16.1 of the SA provides a summary of findings for the potential new settlement locations and states that "*the assessment of each indicator cannot be 'added' to create an overall score as this would be give a misleading indication of the level of impacts and the potential for mitigation. The summary table illustrates the worst performing indicator under each Objective*."

4.7 Whilst Hill Residential support the overall approach to the SA, it is considered that the area of search identified in grey at section D.3 for Hatton is relatively small and should be increased in order to assess the correct scale of development required for a new settlement – this in turn would incorporate all land being promoted at Hatton New Community.

4.8 We note that the mitigation potential for Hatton for the majority of the objectives and subsequent receptors state that mitigation is possible (M) or not required (-). The exception to this is 'SA Objective 7: Natural Resources' where the mitigation potential has been identified as "mitigate(M)/not possible (X)". The proposed mitigation within the full assessment for Hatton for SA Objective 7 is generally supported and it is considered that any proposed locations for growth would score the same in relation to Agricultural Land and Mineral Safeguarding areas.

4.9 Further work is now required to fully consider the potential mitigation for each of the new settlement locations and re-run the assessments. This will allow for further decisions to be made regarding the most appropriate location for a new settlement. This stage of works should be underpinned by suitable evidence-based documents and should be completed ahead of the Preferred Options consultation.

Question S5.1: Please provide any comments you have on the emissions estimation modelling for the seven potential new settlement options

4.10 The estimation modelling has assumed that each of the new settlement option would deliver 6,000 homes and 30 hectares of employment. Whilst this assists in providing like for like conclusions, it does not provide a true picture of actual potential emissions arising from each location. The overall scale and potential to deliver key infrastructure will significantly impact the overall assessments for emissions.

4.11 It is noted that some internalisation of trips have been considered as part of the 20-minute neighbourhood considerations. However it is considered that significant further analysis is required in order to fully understand how each of the options performs. Hatton New Community will be designed to keep people within the Site for purposes such as work, education, retail, leisure and socialising, rather than residents having to leave the new community– therefore reducing the number of external trips.

4.12 An Internalisation and Containment Note has been prepared by Vectos (part of SLR) and is enclosed at **Appendix 3**. The Internalisation Note demonstrates the potential to deliver a successful and thriving new community at Hatton. Large-scale development prospers when designed in a coordinated manner, with the key placemaking and mobility features providing for truly socially inclusive communities that prosper and retain trips within the Site.

4.13 In the case of Hatton New Community, local living is placed as the highest priority, followed by a movement hierarchy with convenience of single occupancy vehicular

travel at the bottom. This creates an environment wherein local trips are encouraged and the effect of the development on the local highway network is minimised in terms of traffic impact.

4.14 Development at Hatton New Community will enhance the existing range of shops and services and leisure facilities, and provide additional employment space, primary and secondary education along with mobility hubs, including open space. These all contribute to the internalisation of trips.

4.15 The following will be provided to encourage internalisation:

- Local Employment & Office space;
- Home working facilities including broadband and local shops / cafés for lunches;
- Co-working Hub providing access to hot-desks, Wi-Fi, and other office equipment.
- Education including two primary schools, a secondary school and a Day Care;
- Shopping (physical & online);
- Supermarkets/Convenience Stores including home delivery;
- Health: An on-site pharmacy and surgery;
- Leisure: an array of leisure facilities ensuring that the first choice for the majority of recreation and sports activities will be within the village itself.
- Greenspaces: parklands, attractive footpaths, jogging routes and places for dog walking;
- Pub: A new local pub will be a focal point for socialising, food and entertainment;
- Community Hubs / Recreational activities;
- Allotments: For residents to grow their own flowers, fruit and vegetables.

4.16 The south Warwickshire authorities are encouraged to progress the Emissions Estimations further prior to developing the Preferred Options consultation document for the SWLP.

Question S5.2: Do you think new settlements should be part of the overall strategy?

4.17 New Settlements will play an important role in the overall strategy for the SWLP. New Settlements are an effective and sustainable way of meeting the challenges of delivering significant housing growth.

4.18 Creating a new community can deliver significant benefits in relation to infrastructure, open space and homes for the residents of south Warwickshire. Section 3 of these representations (and the Vision Document enclosed at **Appendix 1**) sets out the unique

opportunity of Hatton New Community, which will be able to provide benefits to future residents from day one.

Question S5.3: In response to the climate change emergencies, we are looking at rail corridors as a preferred approach to identifying potential locations. Do you agree?

4.19 Hill Residential support the approach of considering Rail Corridors as a preferred approach to identifying potential new settlement locations. Building on the existing infrastructure is a logical approach and ensures that there is a sustainable mode of transport for residents from day one.

4.20 As set out in our responses relating to the SA and Emissions Estimations, it is important to ensure that when considering Rail Corridors as a growth option, any assessment should be mindful that any development would be a large scale new settlement. This approach will ensure that all factors are assessed 'in the round'.

Question S7.1: Please provide any comments you have on the emissions estimation modelling for the five growth options

4.21 With regards to transport, 'Rail Corridors' was assessed as equal best for the reduction in car trips and equal on EV uptake. 'Rail Corridors' scored lower on the uptake of 20-minute neighbourhoods. Given that most of the new settlement options are located along 'Rail Corridors' it is not clear whether this has been correctly assessed. New settlements have a greater potential to deliver on site infrastructure and therefore 20-minutes neighbourhoods because of their scale.

4.22 The South Warwickshire authorities are encouraged to progress the emissions estimations further prior to developing the Preferred Options consultation document for the SWLP.

Question S7.2: For each growth option, please indicate whether you feel it is an appropriate strategy for South Warwickshire:

- **Option 1: Rail Corridors**
- **Option 2: Sustainable Travel**
- **Option 3: Economy**
- **Option 4: Sustainable Travel and Economy**
- **Option 5: Dispersed**

4.23 It is recognised that the eventual spatial strategy in the Preferred Options Local Plan is likely to be a blend of growth options, but the exercise to consider a range of thematic options at this stage is valuable as it draws out the pros and cons of each.

4.24 Rail Corridor growth has the advantage that it capitalises on the capacity of the successful rail network, in which there has been significant recent investment (for instance in the re-opening of Kenilworth station) and future potential once HS2 dramatically improves capacity on the West Coast Mainline which will free up capacity elsewhere on the network. The Chiltern Line is a successful inter-city and commuter

service, within the well-used West Midlands network linking Leamington into Solihull and Birmingham, and by connection into Coventry and Stratford.

4.25 Both stations allow direct trains to Birmingham, Leamington and London which will allow future residents to change at these stations and make connections to Birmingham Airport and HS2 stations (in Birmingham and Solihull) for employment and recreational opportunities. This level of rail connectivity, alongside significant road connectivity (via the A46 and the M40), makes Hatton New Community a truly sustainable location.

4.26 Hatton is one of the best-located under-used stations on this line and we have shown above and through the Vision Document (enclosed at **Appendix 3**) that there is potential for a new settlement of around 4,500 homes which can also support up to 3,000 jobs (including existing and potential jobs). By locating growth along the Birmingham-Leamington-London rail corridor, this significantly increases the potential to capitalise on accessibility to higher order centres that will bring direct economic benefit to south Warwickshire.

Question S10: Please add any comments you wish to make about the development distribution strategy for South Warwickshire

4.27 Hill Residential support the development distribution strategy for South Warwickshire.

4.28 The SWLP is looking to develop a strategy to 2050, this would result in a significant housing requirement for the south Warwickshire authorities of over 48,000 homes[2]. In order to deliver this scale of new development, it is important that the SWLP has a dynamic and forward looking distribution strategy. This strategy should include the allocation of at least one new settlement, in a sustainable location such as Hatton.

Chapter 5: Delivering South Warwickshire's Economic Needs

Question E11: Please add any comments you wish to make about delivering South Warwickshire's economic needs

4.29 It is agreed that boosting and diversifying the economy should be a strategic aim of the SWLP which should be underpinned by the Economic Needs Assessment and Strategic Housing and Employment Land Availability Assessment.

4.30 A key component is ensuring that the right infrastructure is in place to facilitate this and that enough housing is provided in the right location to support businesses, as set out in NPPF paragraph 20.

4.31 Hatton could provide up 3,000 jobs (new and existing) in a range of technology-based businesses, assisting the SWLP with meeting their overall ambitions to strengthen and diversify the economy.

[2] Based on trend-based housing projections set out at Table 15.1 of the Coventry and Warwickshire HEDNA (November 2022) and a plan period of 2021 to 2050

4.32 Hatton New Community is at the heart of the 'Innovation Region' with great accessibility to the key centres of Warwick/Leamington, Coventry and Birmingham/Solihull.

4.33 The pandemic has shown that, as well as supporting town centres, local authorities should be flexible to accommodate home-working and remote working from 'third' spaces so that we can reduce the need to travel unnecessarily for work. There will be times when access to higher order centres is needed, hence the adjacent Hatton station provides direct rail links to Warwick, Leamington, Birmingham and London. However, the Hatton New Community can provide workspaces and high speed broadband to enable home- and remote working to support healthy lifestyles and provide choice and flexibility.

Chapter 6: Delivering homes that meet the needs of all our communities

Question H1.1: The HEDNA is proposing that we move away from an approach where future household needs are based on the 2014-based household projections towards a trend-based approach. Do you think that the HEDNA evidence provides a reasonable basis for identifying future levels of housing need across South Warwickshire? Yes | No | Don't Know

4.34 Hill Residential generally support the proposed trend-based approach using the 2021 census data, which has resulted in an increase of 440 homes per year in comparison with the 2014-based projections.

4.35 It will be important that the CWHMA authorities provide the adequate evidence and justification to support deviating from the current, and potentially future, standard method for calculating local housing need.

Question H2.1: What is the best way to significantly increase the supply of affordable housing across South Warwickshire?

4.36 Hill Residential considers that there is an opportunity to increase the overall housing requirement for the plan period to help deliver a higher amount of affordable housing.

4.37 Table 8.45 of the HEDNA states that WDC and SDC have a combined affordable annual need of 1,386 dwellings per year, this is a significant need and would justify a higher overall housing requirement to ensure that sufficient affordable homes are being provided throughout the plan period.

4.38 Further, Warwick continues to suffer from poor housing affordability with a ratio of house price to earnings of 10.7[3], placing it in an area of very high demand as defined by the Letwin Review. Its affordability ratio has worsened by 42.6% since 2013, with recent delivery of 27.1%[4] affordable housing against a 40% policy requirement.

4.39 It is also relevant to note that constraints on the release of land for residential development, and in turn the provision of houses on that land (for sale or as affordable provision), can lead to increased house prices in an area. The Plan should therefore be focused on creating a policy environment that does not place undue constraints on

[3] Housing affordability in England and Wales: 2021, Office for National Statistics (published: 23 March 2022)
[4] Authority Monitoring Report 2020/2021, Warwick District Council (December 2021)

sites that are allocated, thereby maintaining a supply that will in turn address issues of affordability.

4.40 Affordable provision should be spread throughout any new settlement, with opportunities to deliver custom and self-build housing, and innovative methods of delivery such as community-led development.

Question H2.2: Please select the option which is most appropriate for South Warwickshire:

- **Option H2-2a: A single South Warwickshire wide affordable housing requirement**
- **Option H2-2b: Separate affordable housing requirements for Stratford-on-Avon and Warwick Districts**
- **Option H2-2c: A more localised approach with separate affordable housing requirements for different localities across South Warwickshire**

4.41 Whilst a single affordable housing policy for the SWLP should be considered as the most straightforward and universal approach, as set out at Option H2-2a, any policy requirement must allow for suitable viability testing on a site-by-site basis.

Question H4.2: Please add any comments you wish to make about the scale of the shortfall from the Birmingham and Black Country HMA that South Warwickshire should accommodate within the South Warwickshire Local Plan

4.42 Hill Residential welcomes that there is acknowledgement that the SWLP may need to meet the shortfalls of neighbouring authorities in addition to the existing commitments to 2029 (CWHMA) and 2031 (GBBCHMA). The Councils should take positive steps to include provisions in the SWLP that will meet a contribution to the identified shortfalls to ensure that development can, wherever possible, take place in accordance with the spatial strategy that has been set out.

4.43 The Greater Birmingham and Black Country Housing Market Area (GBBCHMA) Housing Need and Housing Land Supply Position Statement (December 2021) stated that circa 6,000 homes of the Birmingham City Council's (BCC) shortfall (identified in the 2017 Birmingham Development Plan up to 2031) remain unaccounted for. BCC are now progressing their Local Plan Review, based the latest Housing and Economic Land Availability Assessment (HELAA) there is a potential significant shortfall of 78,415 homes during the plan period (up to 2042).

4.44 Whilst the Black Country Plan has now been abandoned, the most recent version of that plan established a shortfall of circa 28,000 homes up to 2039, this shortfall is robustly evidenced through the four councils' Urban Capacity Study Update (December 2019) and tested through the WMCA Brownfield Land Study.

4.45 Coventry City Council are also preparing their Local Plan Review. The scale of any shortfall is unknown at present, however the HEDNA (November 2022) identifies a significant annual housing requirement of 1,964 (based upon the 2021 trend-based projection).

4.46 Both Birmingham and Coventry have significant constraints on growth within their administrative boundaries. They both have tightly drawn boundaries with limited non-Green Belt options for growth.

4.47 WDC and SDC should accommodate an appropriate proportion of the emerging GBBCHMA housing shortfall to 2042 and, once established, also accommodate an appropriate proportion of the emerging CWHMA housing shortfall.

4.48 It is considered that the HMA authorities should determine their respective shortfalls and agree an approach to distributing the shortfall across the HMA area as soon as possible. The approach to the BCC shortfall should be avoided, as set out above there is still a remaining circa 6,000 homes arising from the 2017 shortfall that is unaccounted for. The lack of apportionment of shortfall across the GBBCHMA has resulted in significant delays in plan making across the region, with North Warwickshire being the only authority to adopt their plan following the adoption of the Birmingham Development Plan in 2017.

4.49 Hill Residential consider that the CWHMA approach to a Memorandum of Understanding (MoU) in 2017 proved to be a successful approach to dealing with the shortfall and enabling authorities to progress with Plan Making – with the last local plan being adopted in June 2019. It is recommended that the south Warwickshire authorities push for such a proactive approach through this next round of shortfall discussions.

Question H4.3: If we are required to meet housing shortfalls from outside of South Warwickshire, how best and where should we accommodate such shortfalls?

4.50 In relation to how best to accommodate any shortfall, it would appear logical to locate any housing closest to where the shortfall is arising – in areas to the north of the South Warwickshire plan area.

Chapter 7: A climate resilient and net zero Carbon South Warwickshire

Question C10.2: Please add any comments you wish to make about Climate Change Risk Assessments in South Warwickshire

4.51 The Vision Document (enclosed at **Appendix 1)** includes a draft Sustainability Strategy which contains measures that could be delivered at Hatton New Community to ensure it is delivered as a zero-carbon settlement with exceptional levels of environmental sustainability.

4.52 Hill Residential is leading the house building industry with the adoption of low and zero carbon building models and the scale of growth at Hatton will afford Hill Residential the flexibility to improve on their own very high standards.

4.53 The 2025 Future Home Standard (FHS) will require every new home in England to produce 75% to 80% less carbon emissions (it 'will also be a 'zero carbon ready' standard, switching off fossil fuels and becoming zero carbon as the grid decarbonises) than those currently being built.

4.54 A stepping-stone to that target came into place, with homes built from June 2022 required to deliver 31% less carbon emissions than necessary under previous

regulations. In advance of these policy and regulatory changes Hill Residential, along with partners, in 2020 adopted and trialled a range of certified Passivhaus, and Active Homes project research and development schemes. Each example is achieving the 75% to 80% reductions, in low through to high density homes and apartments.

4.55 During 2022, Hill Residential developed solar form design guides and Passivhaus Playbooks. In 2023 they will further develop this knowledge into Residential Pattern Books to enable them to create the appropriate low carbon pathways, to achieve 2025-2030 transition strategies.

4.56 Currently, all Hill Residential's homes are designed to optimise water usage of 105 litres per person per day (lpppd) and they have also delivered homes in Cambridge that achieve 100lpppd.

4.57 In parallel Hill Residential are developing a better understanding of whole life carbon and circular economy strategies which will inform the homes they build at Hatton.

4.58 Hill Residential are future-proofing new schemes and homes through climate change, adaptation, and resilience strategies. This includes public realm sustainable urban drainage systems (SuDs), subterranean engineered solutions and green (brown) roofs to mitigate surface water flooding risks - in response to the predicted transitional and physical climate change risks.

4.59 Hill Residential are also committed to deploying varying forms of Modern Methods of Construction (MMC) as the progress towards the introduction of the FHS from 2025 and their voluntary net zero pathway commitments as set out within the Vision Document (**Appendix 1**).

Chapter 8: A well-designed and beautiful South Warwickshire

Question D1.1: Do you agree that this is an appropriate range of topics for a strategic design policy?

4.60 High quality design should be at the heart of new development in the SWLP, with well-designed places considering of a range of key factors, contributed to by the place and surrounding environment as a whole. This includes the built form, but also effective and valuable green infrastructure and landscaping, which should be particularly emphasised when considering sites to release from the Green Belt.

4.61 The Vision Document, enclosed at **Appendix 1**, confirms quality design that is sustainable, beautiful and appropriate for Hatton will be a key driver for Hill Residential who take pride in the fact that they build homes to suit the needs of future residents.

4.62 Hill Residential anticipate that they will collaborate with local designers, as well as a number of their existing trusted parties, to arrive at a quality of place for Hatton New Community. The design will be unique and diverse, and bring something new to the South Warwickshire landscape without resorting to a pastiche.

Question D2: Please select all options which are appropriate for South Warwickshire

- **Option D2c: Develop design guides/codes for strategic development sites/locations.**

4.63 Hill Residential support the development of a design code for development sites such as Hatton New Community.

4.64 Hatton New Community offers an exciting opportunity to adopt a different strategy to invigorate and empower the manner in which new homes are brought forward. With identity, character, beauty and the right level of infrastructure to support the community and meet the needs of the region. A design code will assist in capturing this design ethos and ensure that the place is delivered as expected.

Chapter 10: A well-connected South Warwickshire

Question T1: Please select all options which are appropriate for South Warwickshire:

- **Option T1a: Include no policy on the principles of the 20-minute neighbourhood for new development.**

- **Option T1b: Include reference to the principles of a 20-minute neighbourhood or other similar design approach (e.g. Building for a Healthy Life) within a broader overarching policy.**

- **Option T1c: Include a bespoke policy requiring the principles of 20-minute neighbourhoods to be included within development proposals.**

4.65 Hill Residential are generally supportive of the principles of the 20-minute neighbourhood for new development. It is considered that the larger the scale of development, the greater the opportunity to design the 20-minute neighbourhood principles into a place.

4.66 As set out in our response to question S5.2, the Internalisation and Containment Note enclosed at **Appendix 3** demonstrates the potential to deliver a successful and thriving new community at Hatton. Large-scale development prospers when designed in a coordinated manner, with the key placemaking and mobility features providing for truly socially inclusive communities that prosper and retain trips within the Site.

4.67 In the case of Hatton New Community, local living is placed as the highest priority, followed by a movement hierarchy with convenience of single occupancy vehicular travel at the bottom. This creates an environment wherein local trips are encouraged and the effect of the development on the local highway network is minimised in terms of traffic effect.

Q-T5: Please add any comments you wish to make about a well-connected South Warwickshire

4.68 Hill Residential support the identification of a well-connected South Warwickshire as one of the five pillars of the SWLP.

4.69 A Transport Vision Document has been prepared by Vectos (part of SLR) and is enclosed at **Appendix 4.** The Transport Vision Document sets out that Hatton New Community builds on its excellent location and the established operation 'Hatton Country World' to the west of Warwick. The design and masterplanning of the new community ensure it is permeable by active travel modes and it aims to attract a wide range of people who will have the opportunity to embrace local living and sustainable

mobility through a site design based on the hierarchy of travel and SAM Framework. As the Site comes forwards, an accompanying Travel Plan will build on the design of the Site and encourage modal shift from single car occupancy to walking, cycling public transport and car clubs, learning from already changing travel habits in society. The development will provide the means for policy compliant growth whilst also contributing to climate change and healthy living aims.

4.70 The overall Transport Strategy for Hatton New Community adopts the Vision and Validate approach and focuses on an overall access strategy based on a 15-minute community concept. In the first instance the scheme would seek to minimise the overall need to travel through virtual mobility (working from home, online deliveries etc). The next stage is to contain trips within the Site, and this will be delivered through provision of on-site services and facilities (including retail, leisure, and primary and secondary education as well as on site mobility hub and micro consolidation centre). Containment will also be facilitated through delivery of high quality and attractive active travel routes within the Site. It is accepted that the development will create demand for off-site trips and the scheme will deliver a package of off-site sustainable access measures to provide a realistic opportunity for off-site trips to be made sustainably. These includes enhancement to active travel links to Hatton and Warwick Parkway Rail Stations, Warwick Town Centre and Leamington Spa. The public transport Strategy can include provision for a Demand Responsive Transport Bus services. Car clubs will also be provided which can assist with limiting car ownership within the Site.

4.71 The Transport Vision Document sets out the access strategy to support a new community including walking, cycling, public transport and vehicles. The primary vehicle access will be from Hockley Road. Secondary access will also be provided onto Hockley Road and Station Road as well as the use of Dark Lane. The existing nature of Dark Lane will be changed to become a more pedestrian and cyclist friendly environment by adopting quiet lane principles. National and local policy supports and encourages growth which in turn is supported by a presumption in favour of sustainable development which encourages mobility, health and well-being, and economic vitality.

4.72 The highway modelling within the note demonstrates that development at Hatton New Community will result in the need for wider highway network improvements to mitigate any impact. It is considered that this position is not unique to Hatton New Community. The SWLP is seeking to accommodate over 48,000 new homes through the plan period. It is anticipated that growth at this scale will require strategic level and site-specific highways infrastructure improvements, to mitigate any impact. The Warwickshire County Council (WCC) highways modelling will need to be refined throughout the next stages of the SWLP, to ensure that a holistic approach to mitigation is considered. Hill Residential welcome the opportunity to continue to work with the SWLP authorities and WCC to develop suitable mitigation measures.

Chapter 12: Plan Content

Question P1.1: Do you agree with the proposed broad content of the Part 1 plan?

4.73 Hill Residential generally support the proposed broad content of the Part 1 plan.

4.74 The identification of Hatton for a potential new settlement is logical and wholly aligns with the aspirations of the SWLP. The Vision Document at **Appendix 1** of these representations demonstrates how Hatton New Community can be delivered to align with the five pillars of the SWLP.

4.75 Hill Residential welcomes the opportunity to continue to engage with the SWLP process to promote the sustainable, logical and unique opportunity that is presented at Hatton New Settlement.

5. Conclusion

5.1 The model of new development promoted by Hill Residential at Hatton New Community wholly aligns with the SWLP Issues and Options consultation.

5.2 The scale of available land, alongside the single land-ownership of the Site is unique in the plan context with its proximity to not one, but two rail stations (Hatton and Warwick Parkway).

5.3 The Vision Document and the accompanying Illustrative Masterplan (enclosed at **Appendix 1**) have been prepared to align with the five pillars of the SWLP which aim to create a South Warwickshire which is: climate resilient; healthy, safe and inclusive; well-connected; well-designed and beautiful; and, Biodiverse and environmentally resilient.

5.4 The Vision Document and Illustrative Masterplan demonstrates how a new community at Hatton could be deliver up to 4,500 new homes and up to 3,000 jobs (new and existing) along with the following:

- **Movement and Connectivity:**
  - Internalisation and localisation of trips and therefore carbon reduction by establishing internalisation behaviours early.
  - Active Travel as the primary movement network which will be achieved through sustainable (and public) transport improvements including secure cycle storage at stations, access to the cycle network, real-time-travel information, increased bus movement, wayfinding and the provision of enhanced local facilities.
- **Technology Park:**
  - Over 17,000 sqft of existing floorspace
  - 15 existing tenants and approximately 250 staff with employers from IT solutions to Automotive PR
  - Potential increase in scale by over 1ha / 30,000 sqft
  - Focus on automotive, design and wellness
- **Environmental enhancement and landscape management:**
  - Habitat preservation/creation – Woodlands and wet grassland
  - Encouraging ecological diversity, green corridors and connectivity
  - Minimum provision of 10% Bio-diversity Net Gain (BNG)
  - Long term stewardship model, management and funding strategy

- **Leveraging existing assets at Hatton Shopping Village + Country World head start in community development, with:**
  - 17 independent shops
  - Ambition for a farm shop
  - An established garden centre
  - Nursery for 100 children
  - Swimming pool & soft play centre
  - Escape rooms
  - Extensive grounds with farm animals & activities
- **Hatton Locks & Hatton Arms:**
  - Major tourist attraction
  - Excellent pub and restaurant to meet and catch-up
  - Opportunity to improve experience
- **Education:**
  - Phasing primary provision as need arises
  - Secondary on site 6FE (initially 4FE)
  - Potential for through school
- **Public Open Space, Health and Wellbeing:**
  - Sports pitches and community greenspace/village green
  - A new linear park with canal-side recreation areas, linking through to Hatton Locks and on into Warwick town centre
  - A network of pedestrian and cycle ways

5.5 In partnering with Hill Residential, the Arkwright family have joined forces with one of the UK's award winning house builders, itself a family business with a reputation for quality and environmental excellence as well as demonstrating a true commitment to creating community.

5.6 Hill Residential look forward to further demonstrating the environmental, engineering and place capability of Hill Residential and Hatton New Community over the continued emergence of the SWLP.

5.7 We consider that Hatton should be included as a new settlement allocation and fundamental constituent of the vision for a future south Warwickshire.

Appendix 1: Vision Document (March 2023)

Hatton

A New Community for South Warwickshire

SOUTH WARWICKSHIRE LOCAL PLAN
ISSUES AND OPTIONS SUBMISSION
DESIGNING FOR SCALE

MARCH 2023

Contents

Hatton New Community

The optimal solution for future growth

We are pleased to present a plan for an innovative and bold new community on land within the Hatton Estate which exhibits a rare combination of existing sustainable transport infrastructure, which is in perfect proximity to the towns of Warwick and Leamington Spa and which already has a thriving micro-economy and community.

Hatton New Community offers an exciting opportunity for a proper 21st Century strategy of bringing forward new homes of identity, character and beauty, with a level of infrastructure that will both support the community and enhance the potential of the region from day one.

Hatton New Community will be a **highly-sustainable, transport-hub location for growth**, offering significant improvements to the policy of allocating further 'identikit' houses on the relatively unsustainable edges of existing settlements.

Hill Residential are delighted to be working in partnership with the Arkwright Family to present our vision for a new community at Hatton and to deliver an exemplary scheme that will enhance opportunities for the South Warwickshire area and beyond.

Hill Residential's vision is to be the UK housebuilder that is most trusted to create exceptional homes and sustainable communities.

This vision is behind the extraordinary growth that we've seen since Hill was formed, and our proposals for Hatton reflect this. They also reflect what we actually deliver - fantastic homes that also give people what they need to lead rich and fulfilling lives, in a way that is sustainable – both for the planet and for their local area.

The new community at Hatton lies critically within the Warwick/Leamington Spa/A46 growth corridor which with its central location, great university and exceptional transport links is destined to be at the very forefront of the Midlands' drive to reclaim its position as "The Innovation Region", as described by the Midlands Resilience Commission last year.

Development in this location will become a catalyst for economic and social growth that will spread into the wider West Midlands. Provision of a well-connected, exemplary development at Hatton will help to expand the pool of innovators and entrepreneurs that the region needs if it is to protect the livelihoods of its communities for the next century in an increasingly competitive global environment.

The Hatton Estate offers a unique single-owner landholding of 648 acres with geo-spatial relationships with surrounding cities, towns and villages. Moreover, development here can be achieved without adversely affecting the lives of those who live nearby.

Hatton and its locality already has excellent existing transport infrastructure that will offer a realistic and appealing option for residents to move around using

- Hatton Railway Station to Warwick, Leamington Spa, Stratford and Solihull
- Either Hatton Station or Warwick Parkway to London and Birmingham
- Towpaths links to Warwick and Leamington Spa by foot or bike
- Better bus routes for local access

It also has an existing thriving employment hub at the Hatton Technology Park that has proved a successful incubator for local start-ups. Hatton Country World is widely recognised as a leisure destination with a community environment encompassing successful business and enterprise that can be nurtured and incorporated into the new community marketplace. The Hatton Arms, adjacent to the famous Hatton Locks, is a country pub providing an established and excellent culinary offering.

All this combines to indicate that Hatton New Community is the smart location for growth and innovation in the South Warwickshire Local Plan; one that will become a major District asset and desirable destination for sustainable living in the future.

Introduction to Hill & Hatton

The best opportunities for sustainable growth in the area

This planning submission is made on behalf of Hill Residential Ltd (Hill) to the South Warwickshire Local Plan (SWLP) Issues and Options Consultation for land at Hatton in South Warwickshire.

This builds on previous submissions made by the Arkwright Family, who are now working with Hill to promote this site through the local plan process, believing it to be one of the best opportunities for accommodating large-scale sustainable growth in the plan area.

Our submission is a strong fit with the five pillars of tackling climate change, designing for beauty and quality, promoting well-being, improving connectivity and increasing biodiversity.

Through considered design work and scheme development, we have increased the scale of the new community to around 4,500 dwellings which will support a secondary school on site, enhancing its sustainability and making the most of the existing facilities at Hatton Country World which will form the centre of this new place.

We have explored the potential for improved walking and cycling connectivity to the two stations, Hatton and Warwick Parkway, and onward into Warwick and Leamington, utilising the existing canal towpath network which makes this a unique opportunity to enhance facilities for local needs.

Together with the extensive range of employment and activities already taking place at Hatton Country World, Hatton Technology Park and nearby at Hatton Locks, the creation of a new community at Hatton will help to meet local housing requirements in a pattern of growth that is sustainable, beautiful and accessible and which is capable of accelerated delivery due to advanced infrastructure already being in place.

View from Hatton Arms to Hatton Site


Hatton Green
Hatton House
Hatton Arms
Hatton Park
Grand Union Canal
Hatton Locks
Hatton Station
Hatton Station Village
Hatton Shopping Village
Hatton Country World
M40
Hatton Technology Park
Aerial with site boundary

The strategic location for smart, innovative growth

Hatton fits this bill

Hatton is a strategic location that can accommodate future growth in South Warwickshire next to one of the last under-exploited railway stations on the whole length of the Birmingham to London Line, with an existing rural business community and successful visitor destination that provides a unique platform to create a vibrant new community.

The location of Hatton is consistent with the Government's approach to development around transport hubs, including the potential of stations on lines serving major conurbations, in this case the strategic Birmingham-Leamington / Chiltern Line to London Marylebone as well as the Stratford Line.

The existence of a successful visitor attraction with extensive facilities that can form a ready-made centre, all in single ownership and under the stewardship of a family that lives in and is heavily invested in the area, gives it extra credibility and genuine commitment to achieving a true legacy development.

The site was promoted through the previous Local Plan, although at a time when the spatial strategy was focussed on urban extensions. It was then put forward informally to the Government's Garden Communities Programme, recognising that it was running ahead of the Local Plan review. The current Issues and Options Consultation Stage of the South Warwickshire Local Plan (SWLP) means that the timing for promoting Hatton New Community is now apposite.

From the climate emergency to Brexit, with the backdrop of the Covid-19 pandemic, 2023 presents a new set of challenges but also many opportunities for South Warwickshire. Coventry has been a recent UK City of Culture (2021) and the Commonwealth Games was held in Birmingham in 2022. A new industrial revolution is underway with the transition to electric vehicles meaning radical change at JLR with its research bases in Coventry and Gaydon, the development of the Battery Industrialisation Centre and prospects of a Gigafactory on the Coventry Airport site.

The digital transformation has also been supercharged with a high proportion of people now having migrated to working from home requiring the necessary infrastructure to sustain superior bandwidth and IT support.

Enormous strides are being made in the technology enabling that to happen, and in a wide range of electech sectors that the Midlands can exploit. Leamington is home to 10% of the UK's computer game developers and is growing its reputation as 'Silicon Spa'.

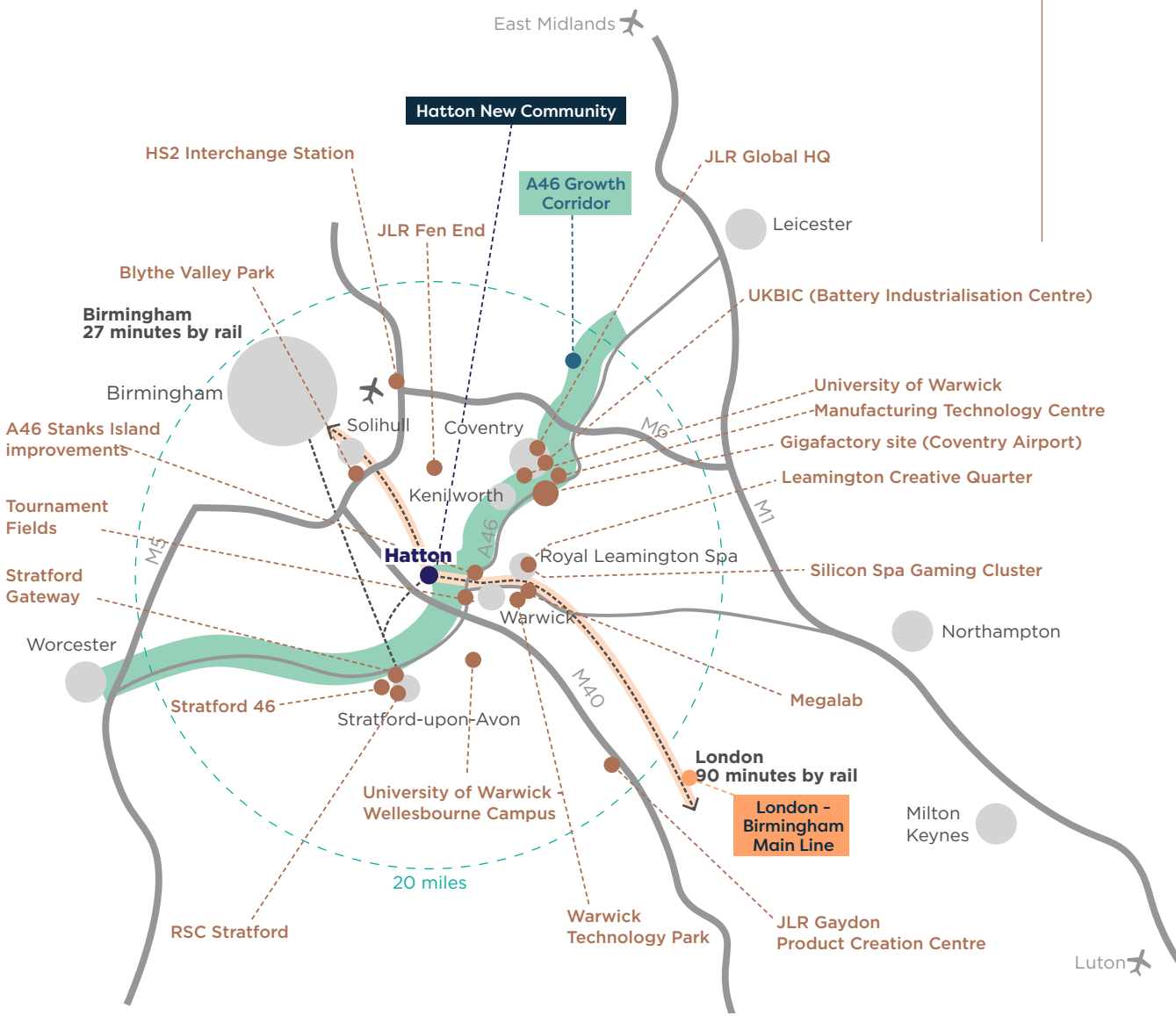
Strategic economic plans from the Midlands Engine to the Coventry and Warwickshire LEP recognise the strong road, rail and broadband connectivity the area has to offer, with a particular focus on the A46 corridor. There are two strong universities on the doorstep with relevant research specialisms which support the existing strengths of the sub-region in advanced manufacturing, engineering and digital sectors.

At the same time, Warwick continues to suffer from poor housing affordability with a ratio of house price to earnings of 10.7*, placing it in an area of very high demand as defined by the Letwin Review. Its affordability ratio has worsened by 42.6% since 2013, with recent delivery of 27.1%** affordable housing against a 40% policy requirement. This reflects the economic performance of the area, which has been significantly better than the UK average, yielding over 10 years a 19% increase in jobs, a 40% reduction in unemployment and a 13% increase in Gross Value Added (GVA).

These factors combine to support the provision of more housing choice in locally and sub-regionally accessible locations, particularly where high capacity broadband is on offer to support home working and the creation of small and medium sized enterprises.

Hatton fits this bill.

Sources for info:
*Housing affordability in England and Wales: 2021, Office for National Statistics
**Authority Monitoring Report 2020/2021, Warwick District Council



Hatton at the hub of Midlands innovation and the A46 growth corridor

A place prepared for growth

A visit to Hatton is the best way to experience the opportunity offered by this unique entrepreneurial landscape.

The Arkwright family has turned the 262-hectare Estate into a thriving success. With circa 15 tenants across 17,000 sqft of floorspace, Hatton Technology Park is the southerly anchor on the site and provides further scope for employment expansion into additional outbuildings, barns and adjoining land, all of which will benefit from high-speed internet.

Sustainable rail, retail, leisure, technology, education and employment are usually the last uses to arrive for new communities. **Not at Hatton, where these come first.**

Hatton Shopping Village and Hatton Adventure World (together Hatton Country World), Hatton Station, Hatton Locks and its Tea Rooms and the Hatton Arms (part of the Hatton Estate) add to the sustainable and active mix of businesses already operating on or around the site.

All these uses sit within a landscape of clearly defensible boundaries, shielded by the rail and canal corridor, and the M40, creating a natural canvas into which a new community can be seamlessly and sensitively integrated, judiciously maximising the value of local rail infrastructure and existing facilities, for the many.

The Hatton Estate is an attractive Warwickshire landscape, the topography of which means that most areas are not visible in a wider context. It is capable of absorbing significant growth without impacting on neighbouring settlements.

Existing facilities on the site provide a ready-framework into which new homes can be sustainably inserted, allowing the new community to develop and mature at a faster rate than new-build elsewhere.

Hatton estate's unique historical evolution

1830 → **Arkwright Family acquisition**

1982 → **Farming Diversification**

1983 → **Hatton Craft Centre**

1989 → **Hatton Technology Park**

1991 → **Hatton Adventure World**

2001

Hatton Shopping Village

2029

Hatton New Community

2030

Supporting local business growth

2035

On-site education hub

2050

A fully sustainable Place

The case for a new settlement

The SWLP Scoping Consultation 2021 indicated that the two Districts may need to find land for as many as 35,000 new homes, based on the standard method and a plan period from 2021 to 2050. The SWLP Issues and Options Consultation is supported by the Coventry and Warwickshire Housing and Economic Development Needs Assessment (HEDNA) (November 2022). The HEDNA is not based on the standard method (which uses 2014-based projections), and instead uses the initial outputs from the 2021 census, this approach would result in the two districts needing to find land for more than 48,000 homes over the same period (2021-2050).

The priority will always be to make best use of urban land within existing settlements but there is recognition of the likely need for urban extensions and potentially new settlements, which could offer a more sustainable, beautiful and logical solution.

Key features

Highly
sustainable
with established leisure facilities and employment

Strategic scale and
single ownership

Up to
4,500+
homes to support a secondary school

Accessible to
two stations

Opportunity to create
pedestrian and cycle
links to Warwick and Leamington

The Preferred Options Consultation identifies five growth options, including Option 1 'Rail Corridors'. This option was the most popular from the scoping consultation exercise in 2021; it could achieve the greatest modal shift away from car use and provide a stimulus for investment and improvement of train services. Hatton meets this criteria by providing access to not just one, but two mainline stations by foot/cycle.

The reality is that the plan will contain a mix of growth options to deliver the most sustainable forms of development across the two Districts.

We believe that there is a strong case for a new settlement along the rail corridor through Warwick District, with the volume of evidence suggesting that the preferable location is at Hatton.

In formulating the five growth options, consideration has been given to various locations across South Warwickshire, including 32 'main settlements' as well as 22 smaller settlements. In addition, consideration has also been given to 7 potential broad locations for large scale new settlements.

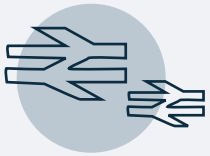
We have reviewed all Call for Sites submissions and identified Hatton as the largest site within a single and deliverable land ownership that is being promoted along the rail corridors.

We have also looked at the sites being promoted between Hatton and Warwick to consider the more local site context (see plan opposite). These would benefit from growth at Hatton to render them more sustainable, as part of a clustered approach.

Taken as a whole, these factors all indicate, conclusively, that a new settlement at Hatton is the smart choice for Warwick District and SWLP.

Local site context and other promoted sites

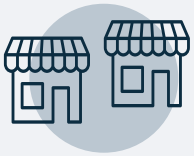
Additional features



Hatton is the largest new settlement proposal in a rail corridor location (see plan to right) and compares favourably to other options along the Stratford and Birmingham lines.

The site offers an advantageous alternative / addition to further SUEs in Warwick District, in context of the likely scale of need.

Scale of land ownership at Hatton creates an opportunity for a phased new community of 4,500 dwellings supporting a secondary and primary schools.



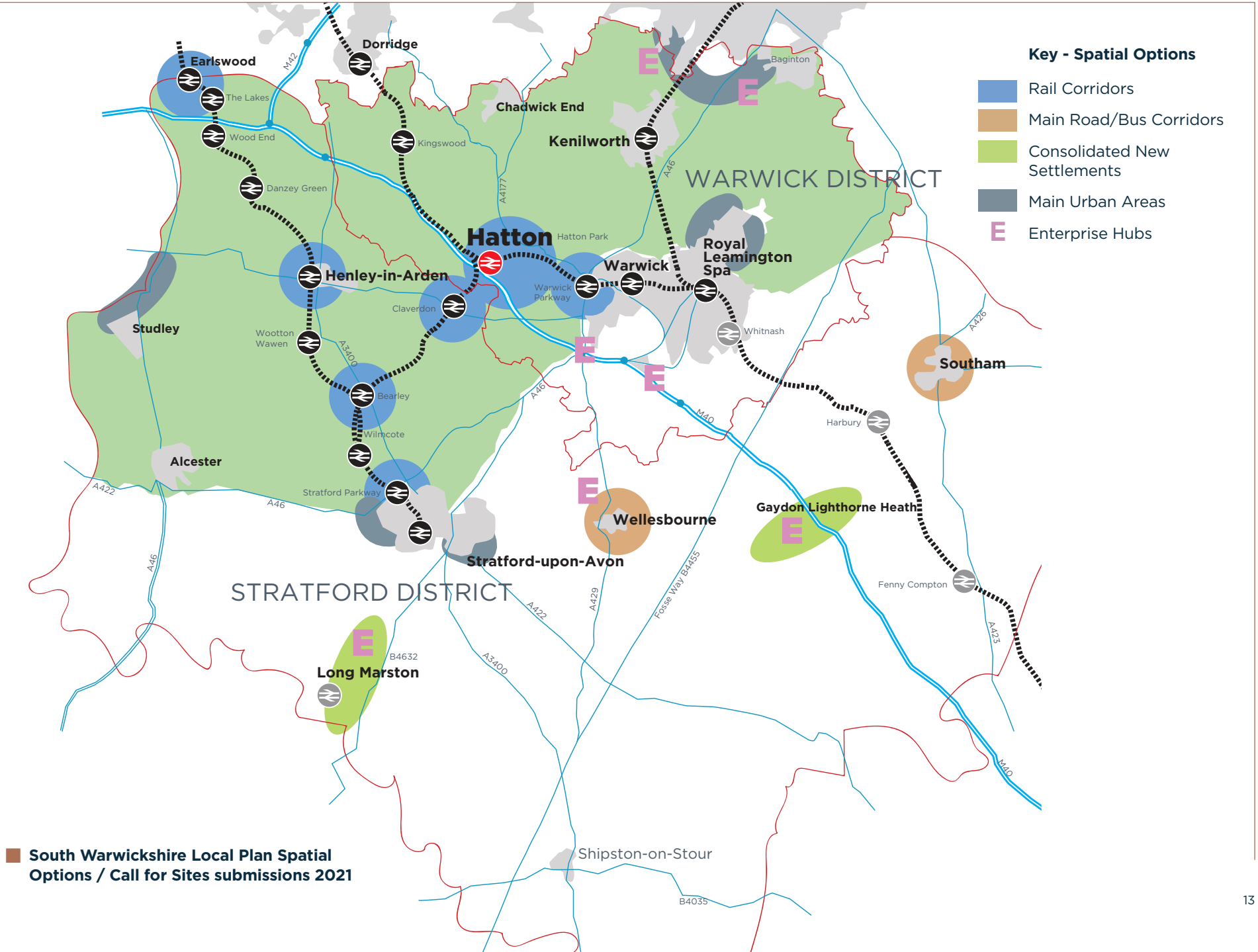
The existing Hatton Country World, Hatton Shopping Village and Technology Park provide a wide range of facilities enabling the formation of a new local centre and community from day one.

There is potential to significantly enhance canal side recreation and pedestrian/cycle routes along the corridor into Warwick and Leamington.

Biodiversity net gain and Green Belt mitigation can be achieved through compensatory improvements to environmental quality and accessibility.

Local site context shows Hatton as suitably connected in relation to adjoining settlements and existing allocations.

This is an opportunity to create a place that connects individual parts of Hatton whilst maintaining separation from Warwick, with the M40 providing a strong southern boundary to Stratford District.



South Warwickshire Local Plan Spatial Options / Call for Sites submissions 2021

The unique history of growth and evolution

New settlement criteria

The Issues and Options Consultation (at page 48) states that for a new settlement to be considered:

"it is imperative to establish the minimum number of homes necessary to deliver and sustain new infrastructure and ensure a viable development, from both a financial and community perspective. Discussions with infrastructure and service providers are ongoing but initial feedback has provided the following thresholds for three key facilities as set out in Table 3. Other facilities and services would be provided onsite. These figures are minimum figures, and the likeliness is that there will need to be a greater number of homes to ensure that new settlements are viable and can sustain new infrastructure."

SWLP Table 3 - Infrastructure Thresholds	
Primary School	*1,000 - 2,000 homes*
Secondary School	*4,000 - 5,000 homes*
Railway Station	*6,000 homes*

Our initial work on educational demand suggests that 4,500 homes would generate demand for around 900 secondary places, warranting a 6 form entry secondary school.

This scale of settlement would also generate 1,300 places at primary level, warranting three 2-form entry or two 3-form entry schools.

There would be potential for an all-through school and we have started to explore with officers different ways of delivering educational provision given the innovative approaches taken locally in both south Leamington and Kenilworth.

It is important to recognise the unique circumstances that the historic growth and evolution of the Hatton Estate has with regard to its special ability to form the location for a new settlement.

Compared to other SWLP submissions, land being promoted by Hill already contains many of the key ingredients necessary for a new settlement, and even features some items that would be more typically expected in a settlement of larger scale – such as access to two train stations.

Furthermore, in new settlements starting from scratch, the funding phasing and delivery of community infrastructure lags significantly behind housing delivery, leading to criticism of dormitory estates and soulless places.

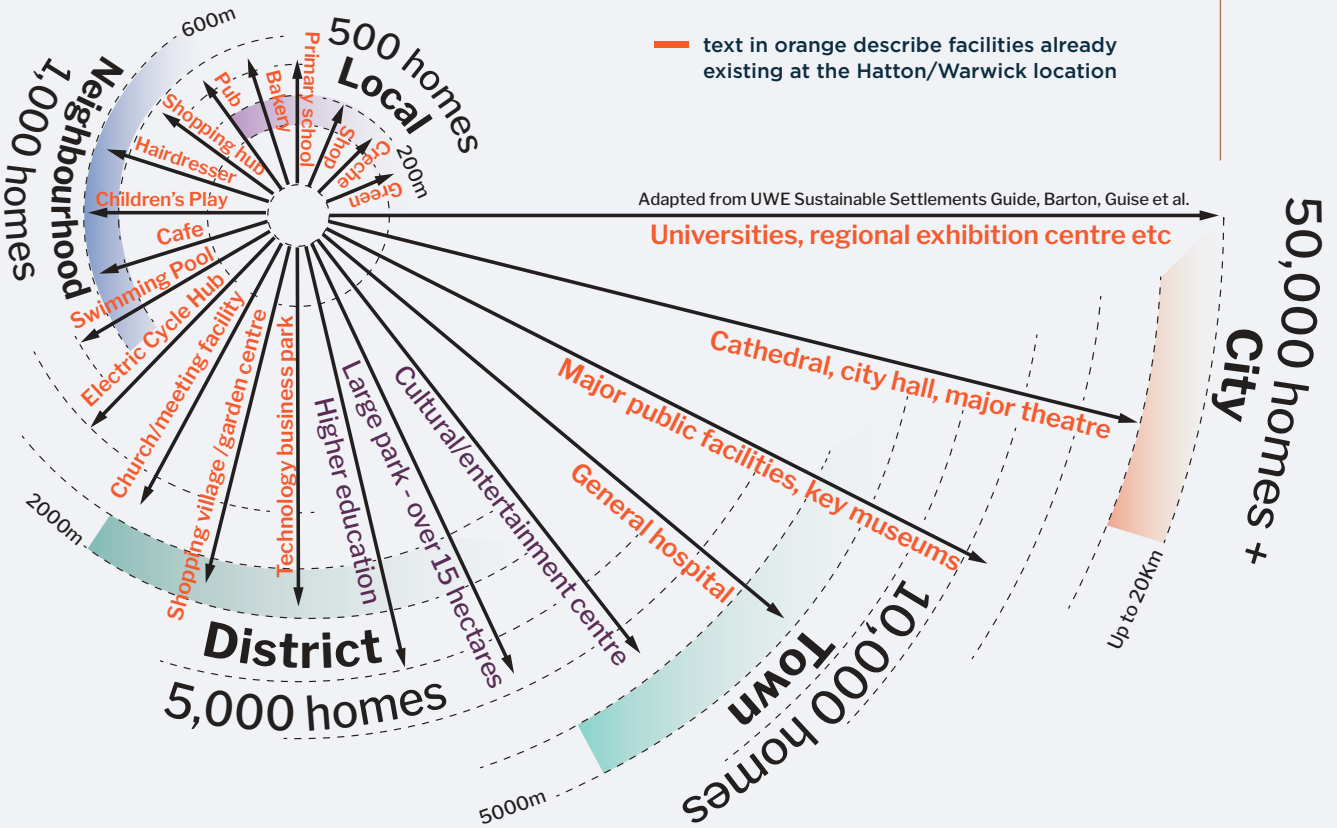
The village pub, swimming pool, children's nursery and soft play, along with the psychological draw of an established visitor destination, ensure that Hatton, along with critical railway infrastructure and landscape assets, is pre-disposed to the creation of a sustainable place, and one (with the benefit of a new secondary school), that can make a valuable contribution towards the provision of facilities of benefit to neighbouring villages.

The Hatton Estate benefits from excellent connectivity along the tow path (foot/cycle) and Birmingham Road (bus/cycle).

Development in this location will be well-contained within the landscape and once allocated, will not contribute towards coalescence with Warwick.

The emerging masterplan ensures that existing settlements at Hatton Green and Hatton Station will retain their character and individuality, whilst befitting from enhanced facilities on the doorstep.

Existing facilities on the site provide a ready-framework into which new homes can be sustainably inserted, allowing the new settlement to develop and mature at a faster rate than new- build elsewhere.



From neighbourhood to city: the basic ingredients of social life
Source: Cities for a small country, Richard Rogers and Anna Power

What Hatton will deliver

Hill is committed to ensuring deliverability and brining forward development at Hatton that meets or exceeds the sustainability requirements the Local Plan is seeking to achieve.

We believe that Hatton offers a unique and exciting development promotion and this submission sets out what makes Hatton different.

We are able to achieve growth at **scale**, at a level greater than most sites in the district and with the potential to deliver benefits to adjacent promotions in locations such as Hatton Park and Hatton Green through our on-site commitments to delivering a secondary school, employment and access to existing infrastructure and facilities, should these sites also come forward.

Hatton will create **added value** to Warwick and Leamington by facilitating potential improvements to the local cycle network, affording more people access to the countryside and improving links to Hatton and Warwick Parkway Stations.

The unique location within easy reach of two railway stations, the Grand Union Canal and Hatton Country World will afford a new standard in the **quality of living**, where clean air, open space and good schools will sit alongside modern conveniences and attractive and flexible new homes.

A single ownership of

648

acres

Growth potential for up to

4,500+

homes

Existing & new employment up to

3,000+

jobs

New facilities for

education

2 new primary schools,
secondary school and nursery

Movement and connectivity

- Internalisation and localisation of trips and carbon reduction
- Active Travel as the primary movement network which will be achieved through sustainable (and public) transport improvements including secure cycle storage at stations, access to the cycle network, real-time-travel information, increased bus movement, wayfinding and the provision of enhanced local facilities

Leveraging existing assets

Giving community development a head start with existing facilities at Hatton Shopping Village + Country World :

- 17 independent shops
- Ambition for a farm shop
- Garden centre
- Nursery for 100 children
- Swimming pool & soft play centre
- Escape Rooms
- Extensive grounds with farm animals & activities

Technology Park

- Over 17,000 sqft of existing floorspace
- 15 existing tenants and approximately 250 staff working in IT solutions to Automotive PR
- Potential increase in scale by over 1ha/ 30,000 sqft
- Focus on automotive, design and wellness

Hatton Locks & Hatton Arms

- Major leisure attraction
- Opportunity to improve experience
- Excellent pub and restaurant to meet and catch-up

Education

- Establishing internalisation behaviours early
- Phasing primary provision as need arises
- Secondary on site 6FE (initially 4FE)
- Potential for through school

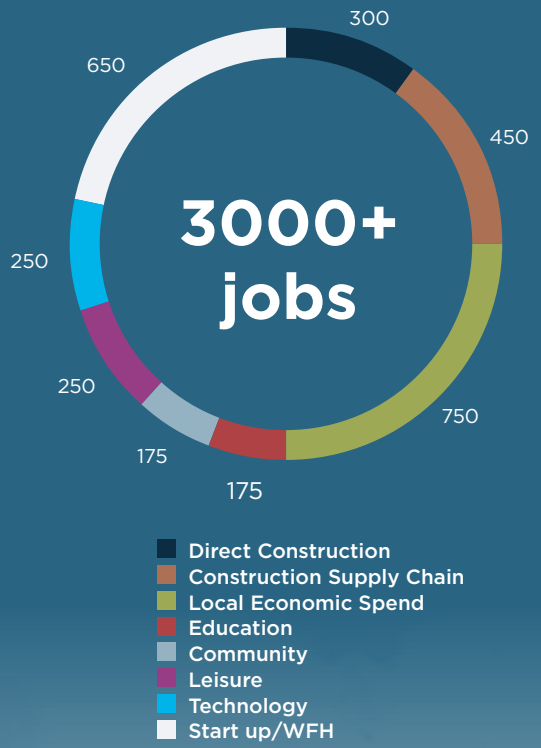
Environmental enhancement and landscape management

- Habitat preservation/creation – Woodlands and wet grassland
- Encouraging ecological diversity, green corridors and connectivity
- Long term stewardship model, management and funding strategy
- 10% Biodiversity Net Gain

Hill & Arkwright partnership

- Land, expertise and capacity to deliver at new community scale
- Focus on early community creation, health and well-being
- Committed to net zero carbon and biodiversity net gain
- Legacy delivery and appropriate long-term stewardship model

Potential Employment at Hatton by sector



Making a place at Hatton

Scaled to deliver supporting infrastructure

The five pillars of the SWLP present a strong foundation for the creation of sustainable, quality and healthy places in South Warwickshire.

As set out in the Government's Building Better, Building Beautiful Commission, these need to be located in the right places to ensure that they will be successful and lasting for the long term.

Hatton as a location, contains all the necessary ingredients for the creation of an exemplary new settlement.

Our masterplan has been created to recognise the best assets the local landscape has to offer, the fantastic linear features of the canal and green streets, and takes a respectful approach to the existing settlements at Hatton Green and Hatton Station which will be set to benefit from improved access to landscape and facilities provided by the development whilst retaining their individuality and character.

We have developed an approach around the creation of key clusters that correspond to the existing uses on the site, linking these together via a network of streets and spaces and working carefully with existing trees and hedgerows, topography and views, and ensure that the new settlement feels at home in the landscape.

To the existing clusters at HCW and the Technology Park, will be added a new community and education cluster, focused on a secondary school and providing a range of education, recreation and sporting facilities.

As set out in the section on beauty and character below, we have made reference to local typologies of built form and place, and consider that the new settlement at Hatton will feel a natural part of the Warwickshire landscape.

An individual, quality place and not a pastiche.

Education & community hub

- 6FE Secondary School
- (up to) 3FE Primary School
- Sports Pitches
- Adult Education
- Community Facilities

Technology & employment hub

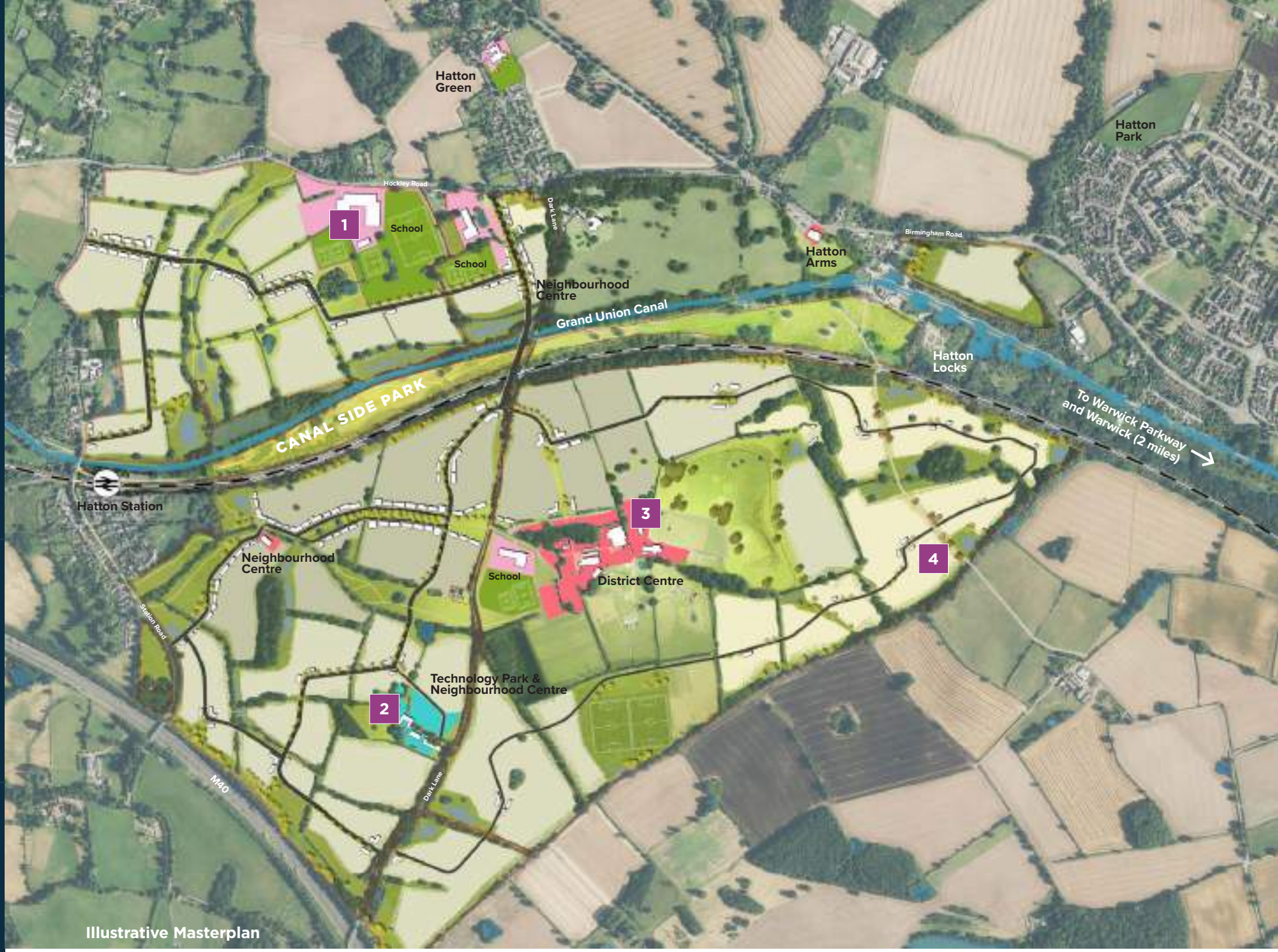
- Shared Workspace & Café
- Fibre Meet-me Room
- Community IT Support
- Incubator Development Services
- Live-work Opportunities

Established retail & leisure hub

- Community Retail
- Nursery
- Swimming Pool
- Rural Activities
- Recreation and Play
- Cycle Hub

Creating Country life

- Rural streets and lanes
- Links to Shakespeare's Way
- Strategic 'gift' of the linear park
- Continued functioning of HCW
- Self-grow, self-determine and steward



Illustrative Masterplan

- Mixed use/community
- Schools
- Employment
- Higher density residential
- Medium density residential
- Low density residential

Fit with the Local Plan

The emerging Local Plan's vision is guided by five overarching principles, themselves supported by twelve sustainability themes and 36 commitments.

Hatton will deliver on all five of the overarching principles through a combination of the site's promotion by leading home builder Hill, the legacy approach to community and land management by the Arkwright Family who have owned and operated Hatton Country World since its inception, and the location of the site, within easy reach of two railway stations, providing local and strategic connectivity.

Hill is committed to Hatton becoming a beautiful, as well as a healthy place, providing opportunities for work locally, doorstep green, education, recreation and access to nature.

This will be achieved sensitively with respect to existing communities and the environment, maximising land efficiency, sustainability and in a manner that is low or zero carbon.

The five pillars

of the vision of the South Warwickshire Local Plan

Climate resilient and net zero

Adapting to the effects of climate change and mitigating against its causes, while avoiding any further damage that might arise from development

Healthy, safe and inclusive

Enabling everyone to enjoy safe and healthy lifestyles with a good quality of life

Well-connected

Ensuring that development is physically and digitally connected, provided in accessible locations and promotes active travel

Well-designed and beautiful

Creating spaces where people want to be, which respect and reflect the existing beauty and heritage of the area

Biodiverse and environmentally resilient

Strengthening green and blue infrastructure and achieving a net increase in biodiversity across South Warwickshire

A climate resilient Hatton which will achieve net zero

Adapting to the effects of climate change and mitigating against its causes, while avoiding any further damage that might arise from development

We have included a draft sustainability strategy overleaf, that contains measures that we consider could be delivered at Hatton to ensure it comes forward as a zero-carbon community with exceptional levels of environmental sustainability.

Hill is leading the house building industry with the adoption of low and zero carbon building models and the scale of growth at Hatton will afford us the flexibility to improve on our own very high standards.

The 2025 Future Home Standard (FHS) will require every new home in England to produce 75% to 80% less carbon emissions (it 'will also be a 'zero carbon ready' standard, switching off fossil fuels and becoming zero carbon as the grid decarbonises) than those currently being built.

A steppingstone to that target came into place, with homes built from June 2022 required to deliver 31% less carbon emissions than necessary under previous regulations. In advance of these policy and regulatory changes, Hill Residential, along with partners in 2020 adopted and trialled a range of certified Passivhaus and Active Homes project research and development schemes. Each example is achieving the 75% to 80% reductions, in low through to high density homes and apartments.

During 2022, we developed solar form design guides and Passivhaus Playbooks. In 2023 we will further develop this knowledge into Residential Pattern Books to enable us to create the appropriate low carbon pathways, to achieve 2025-2030 transition strategies.

Currently, all our homes are designed to optimise water usage of 105 litres per person per day (lpppd) and we have also delivered homes in Cambridge that achieve 100lpppd.

In parallel we are developing a better understanding of whole life carbon and circular economy strategies which will inform the homes we build at Hatton.

We are future-proofing new schemes and homes through climate change, adaptation, and resilience strategies. This includes public realm sustainable urban drainage systems (SuDs), subterranean engineered solutions and green (brown) roofs to mitigate surface water flooding risks - in response to the predicted transitional and physical climate change risks.

We are also committed to deploying varying forms of Modern Methods of Construction (MMC) as we progress towards the introduction of the FHS from 2025 and our voluntary net zero pathway commitments as set out in our 2030 Roadmap.

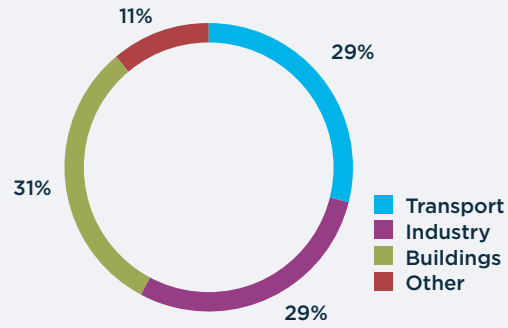
A path to net zero

The UK's target of reducing carbon emissions to net zero by 2050 means new developments are key opportunities to demonstrate the holistic and innovative approach required to achieve a net-zero development.

The development will endeavour to meet the actions set out by Warwick District Council following the Council's pledge to become carbon-neutral by 2030. To achieve this, all aspects of creating a new community will need to be considered, but there are three key areas in which development can make the most impact: buildings, transportation and construction. Collectively, these represent the three largest producers of carbon within the UK economy.

Energy Demand

New developments can make significant contributions towards achieving net zero through building design & construction & travel initiatives associated with new communities.



Source: BP, Equinor, IEA, Barclays Research. Data shown for 2019

A path to net zero

A whole-place life cycle approach to carbon reduction (including net zero operational carbon) will be adopted at Hatton, pursuing net zero for embodied carbon and a reduction in energy demand such that the needs of the development can be generated on-site.

Internalisation of trips, localisation of facilities and the provision of employment infrastructure on site will all contribute to this whole-place approach to achieving a sustainable community at Hatton.

The role landscape and green and blue infrastructure can significantly add to the success of this ambition through planting for heat reduction, trees for carbon sequestration and re-use of water on-site.

It is intended that the approach to net zero will evolve with the promotion of Hatton through the emerging SWLP policies and discussions with key stakeholders and the district councils.

Whole-place sustainability

Route to Net Zero:

Reduce embodied carbon heading towards whole life carbon from 2030

+

Reduce energy demand

+

Maximise renewable energy

+

Offset any residual emissions

= Net Zero

Key Deliverables:

Homes

- Low Energy Demand
- Energy Production
- Energy Storage
- Encouraging lifestyle change

Transport

- Reduce Travel Need
- Walking & Cycling Infrastructure
- Integrated Transport Connections
- Zero-Emission Vehicles and charging infrastructure

Construction

- Materials Charter
- Reduce Delivery Miles
- Local Labour
- Off-site Construction

Landscape

- Carbon Capture
- Water Re-use
- Heat Reduction
- Food Production
- Doorstep facilities - stay local

Proposed sustainability strategy

A. Environmental Sustainability

The environmental sustainability strategy at Hatton could comprise of the following measures (inter alia):

Natural environment

A1. Protection of existing landscape features, habitat protection and enhancement implemented through a Green Infrastructure Strategy.

A2. Creation of a 'Canal Park' including new 'productive landscape', green corridors and biodiverse habitats

A3. Provision of safe open space amenities accessible to the public such as sports, recreation and play areas.

A4. Minimising light and air pollution that can cause harm to the natural environment through a considered lighting strategy and air quality management.

Movement and Transport

A5. Creating walkable neighbourhoods with good cycling and pedestrian routes. Electric bikes and scooters could also provide sustainable modes of transport and can already be rented at HCW.

A6. Supporting effective and efficient public transport (bus and rail) and encouraging emerging alternative shared transport opportunities.

A7. All homes and facilities will be located within easy walking distance of a bus stop. Doorstep green/play facilities will be located within easy walking distance of any home.

A8. Every home will be enabled with a car charging point and all properties will be provided with easy access to communal car charging points.

A9. Improvements to wider transport network will be considered with required highways improvements at key junctions on the network.

A10. Shared parking such as car clubs and travel plans for non-residential buildings, overall ensuring everyday needs are met by easy access to public transport or shared use facilities and use of footpaths and cycle routes

Energy use within buildings

A11. Ensuring energy efficiency of new buildings through improvements to fabric insulation and air tightness as per the latest Building Regulations and evolving Future Homes standards.

A12. Masterplan and detailed design of the scheme to optimise good daylighting and natural ventilation in homes; the need for cooling buildings will be designed out and incorporated into the early stages of design.

A13. Low energy lighting and energy efficient appliances will be specified for all building types, public realm and communal spaces.

Renewable Energy

A14. We will explore a holistic model such that renewable energy for electricity and heating could be generated from on-site measures.

A15. In addition, solar hot water (SHW) panels and photovoltaics (PVs) could be integrated in the design of all new homes to contribute towards the overall energy demand.

A16. Overall the energy can be made available to the new community through a green energy supplier.

A17. All non-residential buildings will be designed to exceed excellent rating standards in alignment with BREEAM (Building Research Establishment Environmental Assessment Method).

Waste recycling

A18. On a site wide scale, a waste recycling strategy will also be considered as part of the masterplan design.

A19. Domestic measures such as recycling facilities for all households, storage of recyclable waste from commercial premises and compost bins for household gardens and community allotments will be provided.

Water efficiency and utilities

A20. The proposals at Hatton will be supported through a well considered drainage strategy that utilises surface run-off from green areas and recycled to provide non-potable water supply to existing residents. Grey water recycling can provide means for a non-potable water supply. Sewage treatment strategy will also need to be considered.

A21. Water Harvesting will also form a critical part of the water and drainage cycle. Opportunities on a site wide scale will include multi-functional sustainable drainage systems, rainwater harvesting and use of permeable paving; this will be used for maintenance of landscaped areas and public realm. Use of low water consumption modes such as low flow fittings and aerator shower heads in residential buildings along with intelligent water control systems in non-residential buildings will provide means for water harvesting and recycling.

Construction choices and materials

A22. Choice of materials will form an essential part of the strategy to responsibly use natural resources. Housebuilders will be required to consider use of local materials and suppliers as much as possible, materials with low environmental impact, use of reclaimed materials and those that are durable. Efforts will be made to maximise the use of lime based products and other carbon capturing materials.

A23. During construction, a good waste management strategy will aim to reduce the waste that construction materials generate, re-use waste materials where practical, recycle materials which can be re-used and dispose any remaining waste in a responsible manner.

A24. Through a robust Environmental and Construction Management Plan and Considerate Construction Scheme, off-site construction methods will be maximised where practical in order to reduce waste of construction materials, ensure improved quality and less impact to the natural environment. However this will be balanced alongside the carbon footprint related to transportation and effect on local skilled labour. We want to ensure that all constructions have to be validated through a carbon calculator to achieve the net zero carbon ambition of the development.

B. Social Sustainability

The social sustainability strategy could include:

Inclusive Community

B1. Development at Hatton will provide the necessary catalyst to enable the existing facilities at Hatton Country World to be better accessed and shared by many. The quantum of growth will allow improvements to the access network, and the critical delivery element of a new secondary and primary school of major benefit to the surrounding communities.

B2. A wide mix of new homes will be provided from discounted first-time-buyer market houses, subsidised second time buyers with growing families, family housing with generous gardens, special needs housing and downsizer homes. All new homes will be built to Nationally Described Space Standards (NDSS) and Building Regulations Category M4 (2) standards to ensure they are built for life and adaptable.

Affordable Housing

B3. Policy compliant affordable new homes will be provided and available to the local community and this will include rented and shared ownership homes. Appropriate integration of affordable housing within the masterplan will also be central to ensuring that the masterplan can cater to a broad spectrum of socio-economic backgrounds. We will seek to ensure all affordable homes will be built to Lifetime Homes Standard.

B4. Provision of truly affordable housing through a Self-build programme could also form a key element of the overall provision.

B5. Provision of live/work units located close to transport and network routes (e.g. Hatton Station) can provide mixed use housing typologies, where part of the building is work-space and part residential. This could be necessary with lifestyle changes following the recent pandemic. This will support agile lifestyle through reducing the need to travel, allowing more time to be spent with family, a work life balance and greater participation in community life.

B6. Provision of extra care living will ensure positive integration of the ageing population to try to better combat loneliness into the existing and new communities.

Education Provision

B7. The development will provide serviced sites for the provision of 2 primary schools and a new secondary school. This will ensure the development supports local education provision. Schools will be well connected to public transport facilities and local community and delivered as part of upfront phasing where supported by catchment and capacity.

Community Facilities

B9. The development will provide and support local facilities for the villages of Hatton Station, Hatton Green and Hatton Park, as well as the new community itself. Facilities of integrated health, well-being and fitness hubs could be provided alongside those already at HCW, providing access to healthcare at the doorstep. This will also ensure that the new community contributes to the existing community's needs.

Information technology

B10. To support a flexible lifestyle, all new homes and facilities on the development will be supplied with "full fibre/ Fibre to the Premises" (FTTP) broadband ISP or 5G network, based on availability. Wireless hotspots will also be considered in key locations as are already provided at Hatton Technology Park.

Health and well-being

B11. Physical, mental and spiritual health and well being of all will be at the heart of the social sustainability platform for Hatton.

To enable this to happen, access to green space and healthy recreation will form the main theme of the masterplan. Canal Park, central green streets, sports provision, play areas, streets and spaces will be designed to encourage social interaction. Alongside the above, doorstep green and pocket parks along with footpaths, cycle routes and health trails for all ages will foster a sense of communal health and well being and will bring residents together with the existing community along with providing biodiversity net gain.

Hatton Country World

B12. The existing Hatton Country World could include opportunities for community farming/ allotments in addition to an organic Farm Shop. HCW is located where one of the two new primary schools are proposed, the existing swimming pool and at the intersection of green corridors; this will represent the environmental, social and economic hub of Hatton.

C. Economic Sustainability

The economic sustainability strategy will encompass the measures below:

Diversify and strengthening the local economy

C1. To develop a truly sustainable community, job creation within the development and integration with the wider area is essential. Hatton will be a mixed use development.

We will work with the local community to understand the local needs and develop a flexible plan that will generate significant numbers of local jobs and apprenticeship opportunities through the lifespan of the construction of the development and further beyond.

Sustainable food provision

C2. Existing PYO activity at HCW could be expanded to provide opportunities for community allotments, community farming and an organic Farm Shop sourcing food from nearby locations which would generate a model of sustainable food provision.

Creating and sustaining value

C3. Lastly to enable Hatton as a new community to become a success, consideration will be given to the value of the development, both for those developing it and mainly for those who will occupy it.

Hatton could provide an opportunity to create an inspiring 21st century net zero carbon model community held up as best practice in Warwickshire and beyond.

Hill wishes to work with WDC to make this an exemplary award winning scheme for South Warwickshire and one that we can be proud of.

To enable this to happen, collaboration will be crucial from conception through delivery to promoting a greener lifestyle for those who live in and around Hatton. Over time this will lead to a long term market value uplift for the community and the wider area as a whole.

A healthy, safe and inclusive Hatton

Enabling everyone to enjoy safe and healthy lifestyles with a good quality of life

The masterplan for Hatton is being developed to create a place that will offer an enhanced quality of life for people and nature.

100% of our projects apply the Building Healthy Life (BHL) standard, ensuring that these embody the principles set out in the NHS Health New Town design series and result in places that are healthier to live-in, raise children and enjoy life.

Furthermore, we are committed to making the place-creation process an inclusive experience. Our partnership with Women in Construction (WiC) has been expanded beyond Cambridge to East Anglia, London, and Bristol.

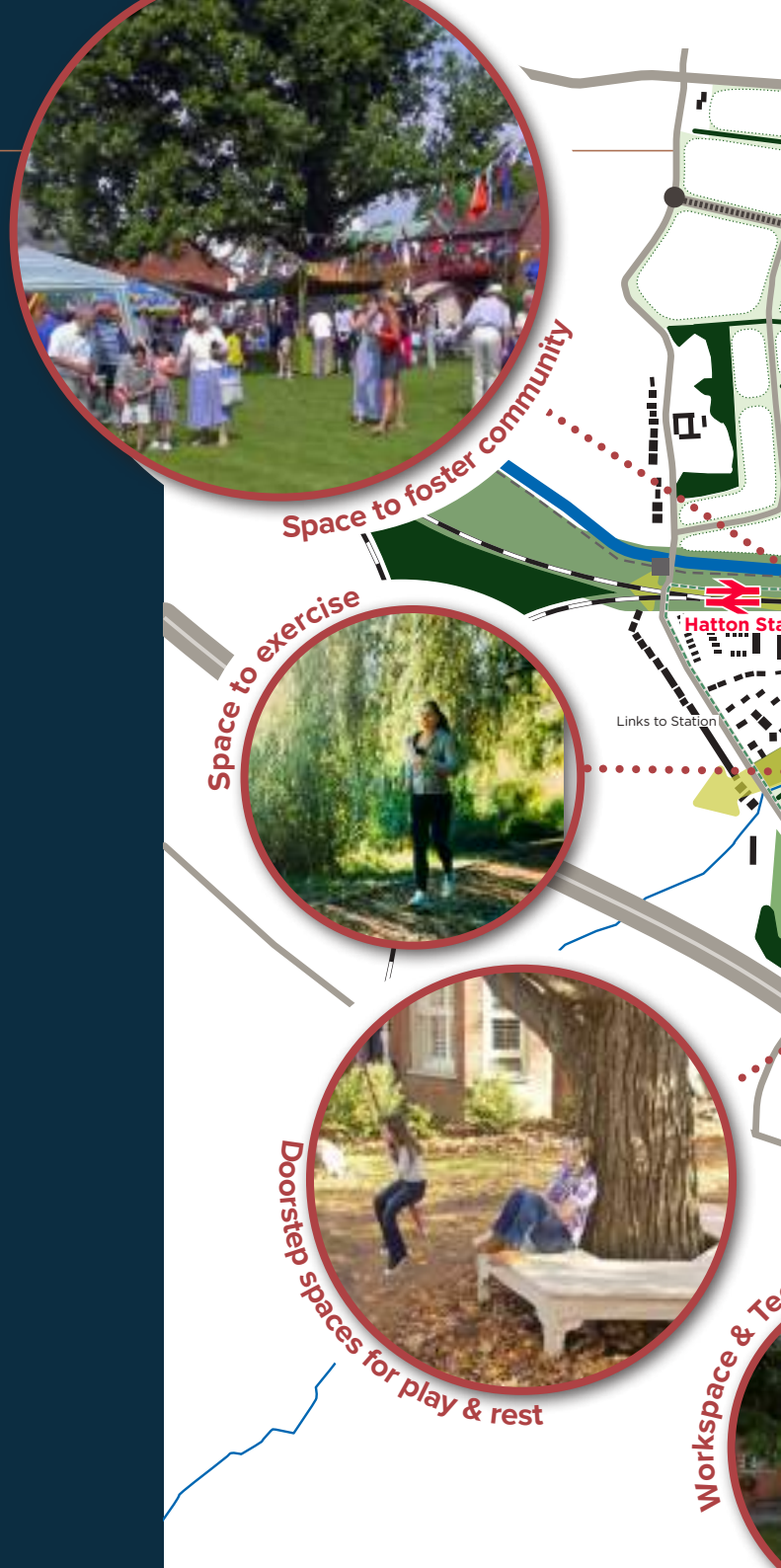
In 2022 we set up the Hill Academy which has been designed to open routes into the business for those who may not have the means or wish to achieve a degree qualification.

This encourages career changers; the long-term unemployed or ex-offenders and provides them with a platform to help creating communities.

In response to the homelessness crisis, in 2019, Hill made a Foundation200 pledge to gift £15m towards the donation of 200 Solohaus (modular homes) to people in need.

Since 2020, 52 homes have been installed free of charge in a range of locations in England. To date, 134 of the 200 homes have been allocated. During 2023, in collaboration with local authorities and charities, Solohaus homes are committed (subject to planning) in the City of Bristol, London boroughs, the Midlands and additional sites across the South of England.

We anticipate that we will be able to bring these initiatives to bear on the development of a new community at Hatton, ensuring that in addition to a range of house types, we will contribute a wide spectrum of housing tenures to the delivery of new homes for the citizens of South Warwickshire, enabling them to live healthy, affordable and successfully lives, and promoting Hatton as a community with a reputation for equal opportunity, and inclusive growth.




Secondary School
Primary School
Hatton Arms
Cafe
Links to Station
Green spine
Hatton Country World
Primary School
Shakespeare's Way
Green spine
Shakespeare's Way and railway bridge crossing linking to Hatton Locks
Pub & Restaurant
Community growing spaces
Orchard and natural greens
Retail & Leisure
Formal sports
Public Space
Space to roam
Natural Park Spaces
Natural Open Space
Growing/Allotments
Fields
Woodland & hedgerows
Hatton Country World
Education
Employment
Retail, Food, Community, Leisure
Sports
New Homes
Central Village Lane
Dark Lane Recreational Route
Connecting Neighbourhood Street
Internal Secondary Lanes
Towpath including access points to Hatton New Community
Key axis and access to station
Community Spaces

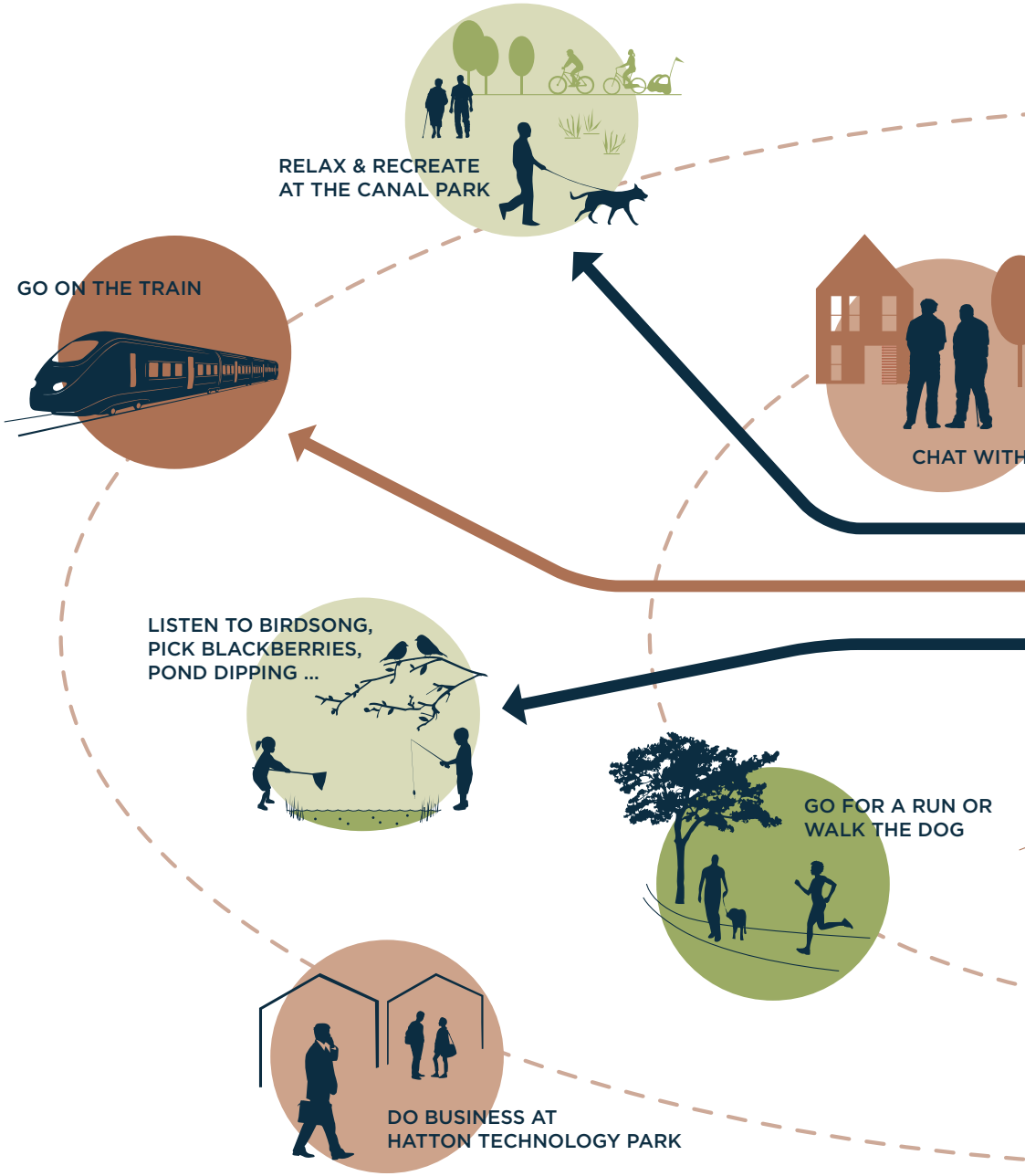
Quality of life on your doorstep

Achieving ‘doorstep green’ means maximising the ability of every new resident to enjoy the landscape from the moment they step outside their front door. This is an essential pathway to health, encouraging active travel, well being and helping to engender community spirit which can be a powerful tool in avoiding the creation of lonely places.

It also means maximising views onto countryside and access to a wider network of routes where making the sustainable choice of movement is not just common sense or environmentally ‘switched-on’, it’s also the most pleasant and rewarding choice to make.

The integration of landscape at Hatton, whether by embracing and connecting with adjacent spaces, creating places for play and exploration, or via the continuous connected routes that link sport and recreation to businesses and education, will transform perceptions of homes and housing into a new leisure and recreation focused landscape, meeting tech-adopter aspirations, and demonstrating a better way for South Warwickshire growth and living for generations.

Doorstep green at the Hill development at The Avenue, Saffron Walden, Essex



10-20 MINUTES

1-5 MINUTES

HAVE A PICNIC AT HATTON LOCKS

SIT UNDER A TREE

NEIGHBOURS

GO TO HATTON SHOPPING VILLAGE

DOORSTEP PLAY

GO FOR A COUNTRYSIDE HIKE

GROW & SOCIALISE IN THE COMMUNITY GARDENS

KICKABOUT WITH FRIENDS

Doorstep Neighbourhood

Our doorstep neighbourhood design strategy locates places for residents to commune, relax, walk, run and play all within a short stroll from every front door.

A well-connected Hatton

Ensuring that development is physically and digitally connected, provided in accessible locations and promotes active travel

We are assessing movement proposals at Hatton based on a development scale of 4,500 homes, and using the Warwick and Leamington Wide Area (WLWA) Paramics model based on the 2037 Local Plan.

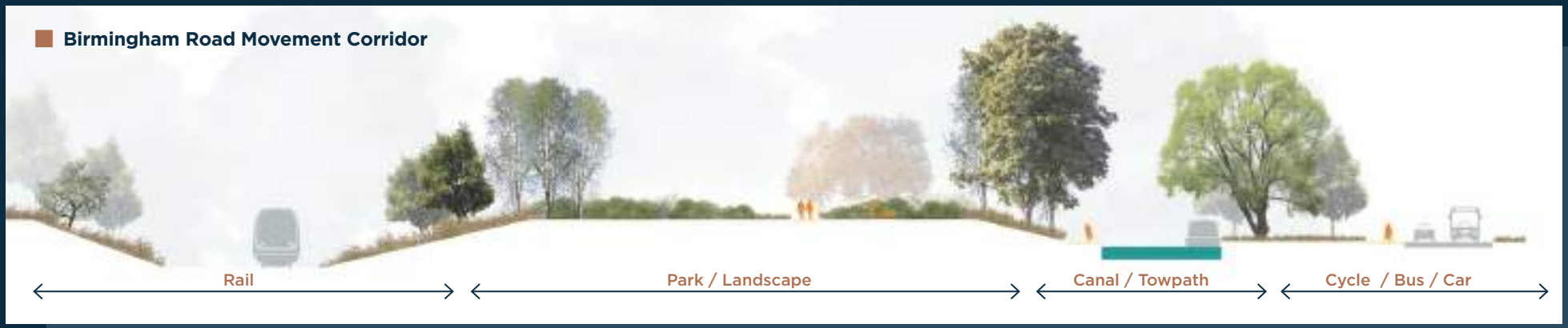
Against this benchmark we are working with Warwickshire County Council (WCC) to design a set of bespoke trips rates which take into account the internalisation of movement to account for the various land uses provided as part of the scheme. The strategy provides a mix of uses to reduce the overall need to travel off site.

This will be complemented by our emerging masterplan which is focused on creating an inviting environment including community space, public realm and active travel routes where people want to spend their time as well as accessing the local services and facilities on site.

We believe that by applying a design-led approach, we will be able to demonstrate internalising of day-to-day trips within the local community, however there will still be demand for some off site trips and measures are proposed to provide opportunities for these trips to be made by sustainable modes through:

- Excellent, accessible rail links provided by both Hatton and Warwick Parkway Stations
- The exceptional potential of the Grand Union canal towpath as an active travel corridor
- Promoting development focused on health and well-being through sustainable movement.
- Investigating opportunities for Demand Responsive Transport (DRT) benefiting surrounding settlements and reducing car trips.
- Connecting to and facilitating routes to enable travel by the higher intensity travel modes – walking and cycling, followed by shared and public transport, whilst maintaining access and movement by private vehicles.
- Accommodating commuter active travel along the local road network.

Birmingham Road Movement Corridor



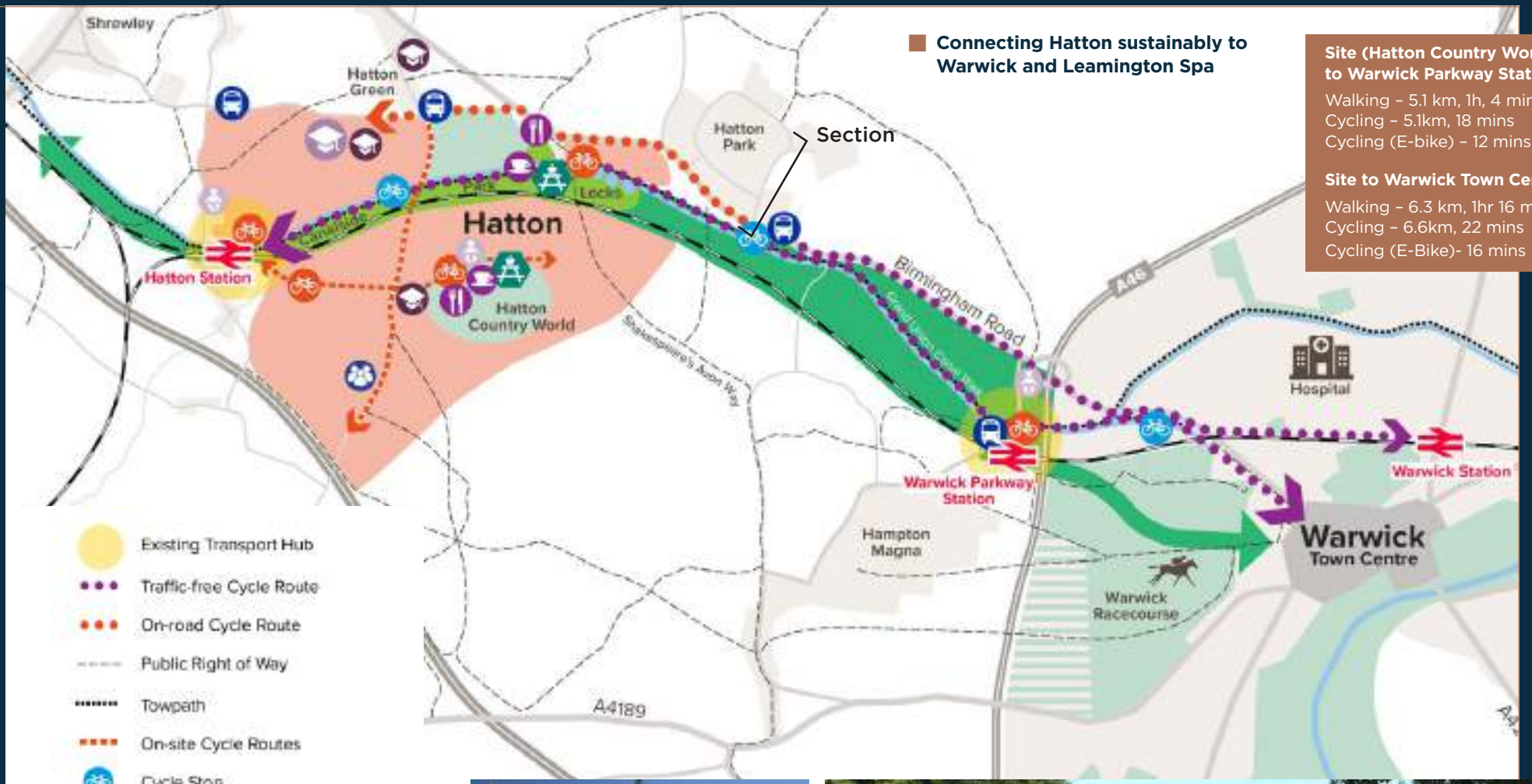
Connecting Hatton sustainably to Warwick and Leamington Spa

Site (Hatton Country World) to Warwick Parkway Station:

Walking – 5.1 km, 1h, 4 mins
Cycling – 5.1km, 18 mins
Cycling (E-bike) – 12 mins

Site to Warwick Town Centre:

Walking – 6.3 km, 1hr 16 mins
Cycling – 6.6km, 22 mins
Cycling (E-Bike)- 16 mins



Internalisation of movements

Internalisation refers to:

The trips generated within Hatton New Community that will both begin and end within the development boundary

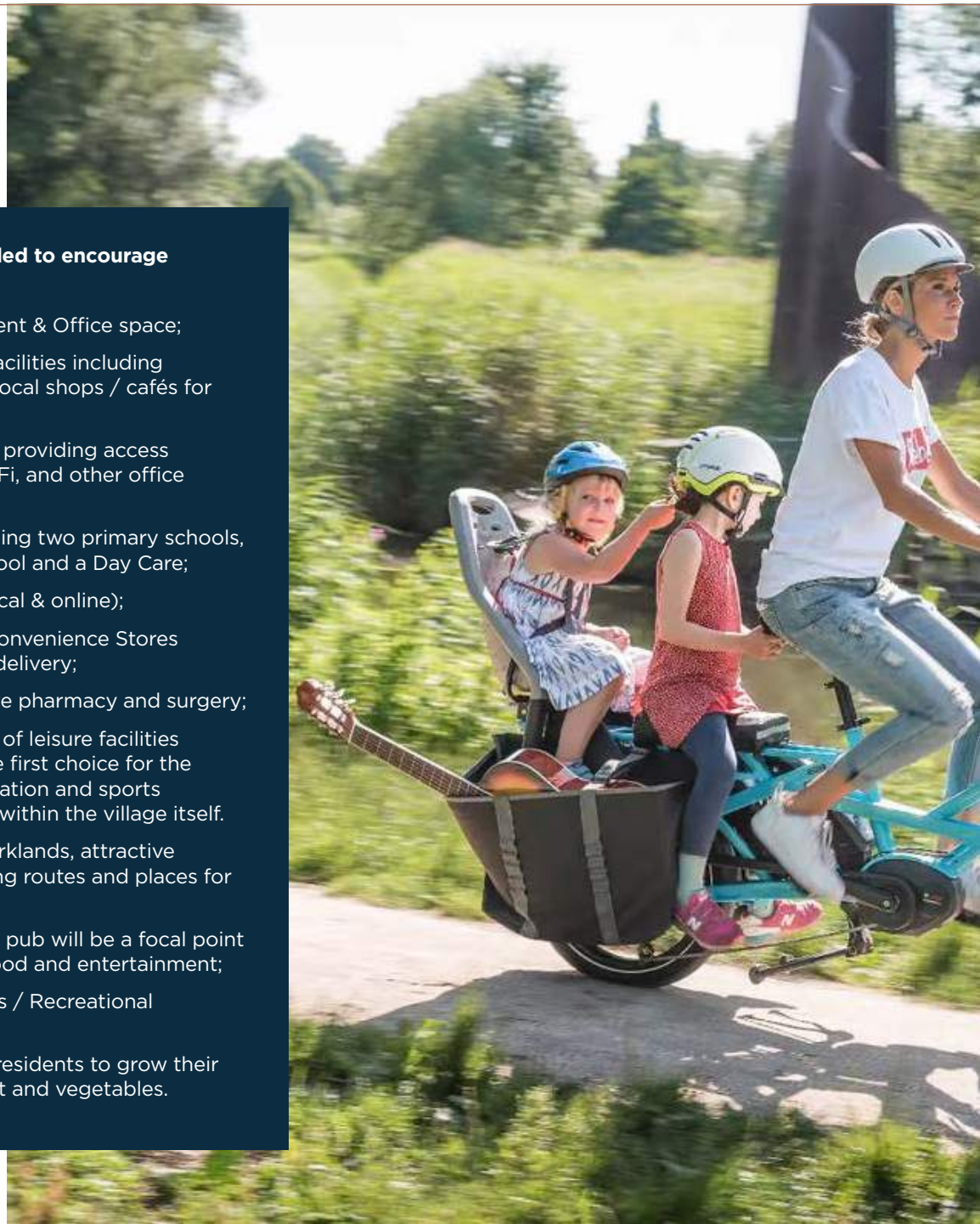
Development at Hatton will enhance the existing range of shops and services and leisure facilities, and provide additional employment space, primary and secondary education along with mobility hubs, including open space. These all contribute to the internalisation of trips.

By design, this anchoring and internalising of day-to-day trips within the local community will be maximised on site.

In strategic developments across England and Wales it is a common objective to assess what proportion of daily trips can be "internalised" within the new or extended community. Trip internalisation can be maximised by designing in accordance with the 15 minute neighbourhood principles. The result being more resilience, lower carbon emissions and thriving communities supporting local business, greater interaction and a sense of place that prioritise active travel and micro-mobility.

What will be provided to encourage Internalisation?

- Local Employment & Office space;
- Home working facilities including broadband and local shops / cafés for lunches;
- Co-working Hub providing access to hotdesks, Wi-Fi, and other office equipment.
- Education including two primary schools, a secondary school and a Day Care;
- Shopping (physical & online);
- Supermarkets/Convenience Stores including home delivery;
- Health: An on-site pharmacy and surgery;
- Leisure: an array of leisure facilities ensuring that the first choice for the majority of recreation and sports activities will be within the village itself.
- Greenspaces: parklands, attractive footpaths, jogging routes and places for dog walking;
- Pub: A new local pub will be a focal point for socialising, food and entertainment;
- Community Hubs / Recreational activities;
- Allotments: For residents to grow their own flowers, fruit and vegetables.



Viable size for a self-sustaining community

New communities become self-sustaining when infrastructure, such as schools, mobility hubs, open space, leisure facilities and work hubs and workplaces for instance are included within the design and mix of the masterplan. This is of equal importance to roads and other infrastructure and should be provided as part of a site becoming commercially self-sufficient.

Hatton New Community is the optimal location to provide such a self-sustaining community, and work has been undertaken to establish a threshold where growth can be provided without incurring detriment to the external movement networks.

New and independently located communities such as at Hatton are capable of becoming self-sustaining communities in their own right, in contrast to bolt-on developments to existing urban settlements. In designing such a development from its very inception, inclusive places to live and work can be created.

Through the design of the site, the new community at Hatton will allow for levels of internalisation beyond that of established small settlements of a similar size, and act as a new destination for day-to-day needs supporting existing residents in the surrounding villages.

Policy guidance is changing to reflect these trends of internalisation all levels.

More emphasis is now being placed on meeting climate change targets and this means reducing carbon emissions, thus reducing the need to travel and increasing sustainable travel uptake for new developments where growth must occur.

There is now ample expression in Government policy to this effect, and the July 2022 update to DfT Circular 02/2013 “The Strategic Road Network and the delivery of sustainable development” states at paragraph 12 that:

> **“New development should be facilitating a reduction in the need to travel by private car and focused on locations that are or can be made sustainable. In this regard, recent research on the location of development6 found that walking times between new homes and a range of key amenities regularly exceeded 30 minutes, reinforcing car dependency. Development in the right places and served by the right sustainable infrastructure delivered alongside or ahead of occupancy should have no significant impact on the SRN.”**

A truly cyclable place

The development of Hatton as a new community will create a great opportunity to enhance local cycling infrastructure and help to embed cycling within every scale of the development, creating a friendly cycling environment and building on the attraction of local cycle routes such as Dark Lane.

The development can help reset behavioural patterns associated with cycling through the implementation of a comprehensive cycling infrastructure consisting of a strategic hierarchy of routes, parking, storage, hire and repair.

Not every route in Hatton will be cycle priority, but all routes should support cycling at some level. A network of secure cycle parking areas should be connected by dedicated neighbourhood cycling routes, as well as a priority cycle highways. This should afford commuter cyclists safe and high-speed links to public transport interchanges and the wider cycle network, with a connection to Sustrans Routes 41 and 52 with connection to Rugby, Kenilworth and Stratford-upon-Avon.

Easy access to secure cycle storage should be provided to all homes as well as key destinations such as Hatton Station and HCW. Cycling should become the easiest and most affordable means of transport from front door to destination.

This could be further supported by neighbourhood cycle centres, as well as a bespoke local Hatton cycle hire scheme consisting of volunteer/donor bicycles managed by a Community Development Trust.

Hierarchy of Cycle Infrastructure

1. Regional routes

Leisure & commuter routes between towns & villages

2. Town highway

Fast, segregated routes through the community, connecting to the regional route

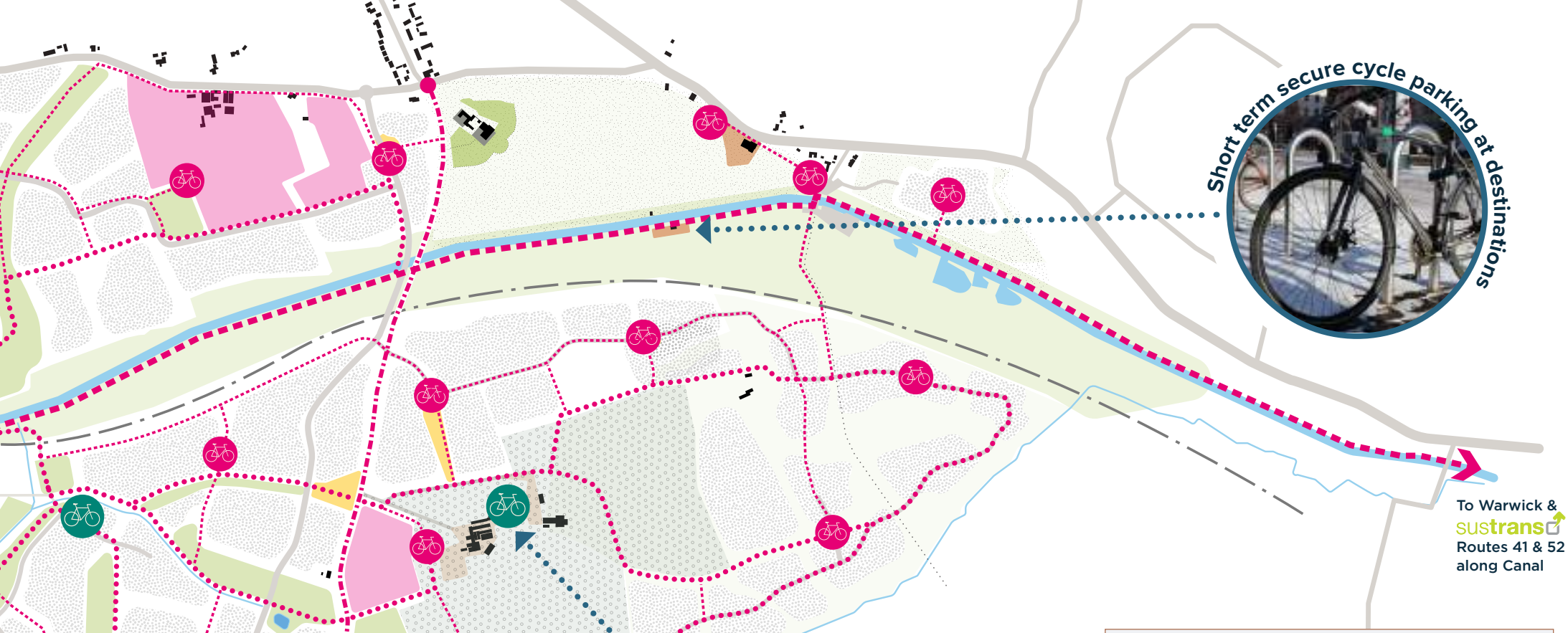
3. Neighbourhood connector

Quick, internal main cycling routes linking the main destinations on segregated lanes

4. Local street integration

Connecting internal routes integrated within the road design - priority for the bicycle is designed into the street

Illustrative cycle connectivity layout for Hatton



Cycle Integration

Cycling needs to be easy, practical and safe for residents to take up. As well as safe routes within and beyond Hatton, storage and parking needs to be integrated at every point of a resident's journey.

Public:

- Secure long-term cycle store at transport interchanges, workplaces & local centres
- On-street locking facility for short-term parking at shops, workplaces, parks and streets

Private:

- On-plot secure short-term locking facility outside the front door
- Integrated and convenient cycle store within home or apartment block, ideally with direct access to street

Dark Lane

As part of 'making a place at Hatton', a number of primary transport spines will be provided which will be key to the delivery of internalised movement at Hatton.

These will serve a range of purposes and will depart from the traditional hierarchy of a road and vehicular based system where the most important routes and streets are allocated for cars and pedestrians and cyclists come second.

Hatton will be different (and better).

We are struck by the character and attractiveness of Dark Lane as the central north-south avenue that runs through the site. This is already a popular cycling route and In our emerging masterplan the rural nature of this route will be preserved and become the primary spine by which means sustainable transport (primarily walking and cycling with some use by buses) will be promoted as first in the hierarchy of users.

Thus, an approach of 'streets for people' will characterise the masterplan, ensuring the leafier and most attractive routes will benefit those choosing the most sustainable mode of movement.

Enhancements are proposed for Dark Lane through the diversion of the Lane over the canal to provide additional space to create an active travel link.

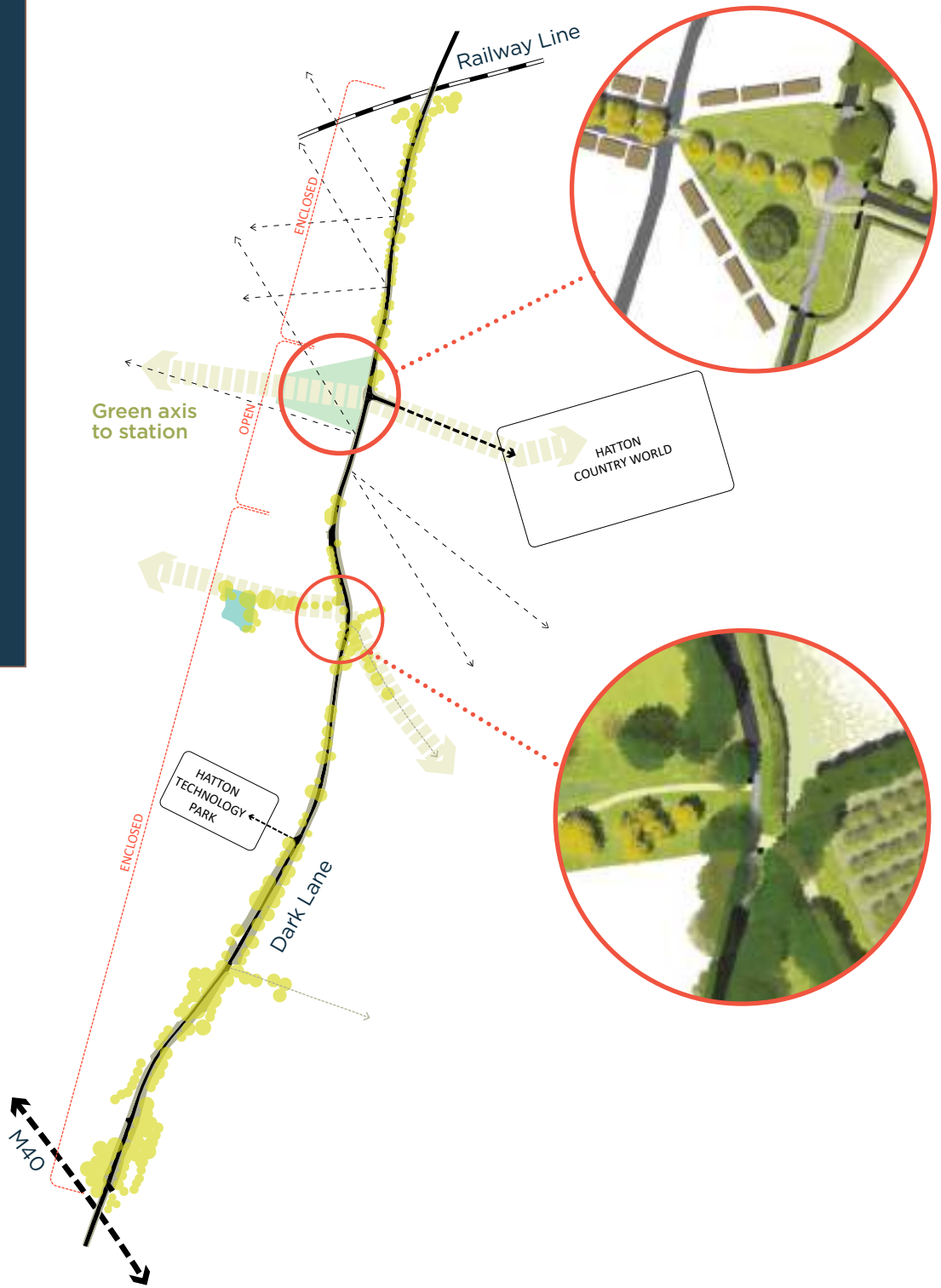
- Simple devices to discourage use as a main through route
- Additional planting to increase enclosure and visually narrow road
- Signage/ 'gating'

- Creation of a strong green axis between Station and Hatton Country World
- Creation of 'village green' at Hatton Country World entrance
- Change of road surface through green to highlight entrance and slow traffic

- End of PROW and enhancement of green corridor
- Create easy and safe crossing point for pedestrians .... change of surface and narrowing of road

- Enhance existing vegetation to retain sense of green tunnel enclosure signage

- Retain Dark Lane character
- **Enclosed** to North and South
- **Open** at Country World entrance.... potential for demonstration phase on Village Green
- Enhance structure planting along lane ... to break long views
- Placemaking interventions at key crossing points



Village Green

- Village Green at entrance to Hatton Country World
- change in road surface to Dark Lane through Green - slows traffic at junction

Footpath Crossing

- key junction of green corridor and existing PROW
- reducing road width and introducing new material at junction to help reduce vehicle speed and prioritise pedestrians/cyclists crossings

Dark Lane Character

Indicative image of Hatton Station and possible environmental improvements including safe and secure cycle storage facilities

Station Road

Station Road is a quiet street serving slightly more than 100 homes. With limited footpaths, two narrow bridges across the canal and railway, there is currently limited space for segregated infrastructure for pedestrians and cyclists, however, this can be transformed through a shared surface arrangement.

Treatment of the central street section where this runs through the community and past Hatton rail station, will become a focus for public realm improvements at the interface with the station which will include safe, secure and convenient cycle storage, making this a cycleable destination.

This would re-characterise a minor section of the main street within the hamlet as a safe refuge for priority road users, where vehicular access would remain, but adding signage to indicate that more vulnerable road users should be afforded priority. This will provide a home zone feel to the area and will enhance the gateway to the village and rail station as well as enhanced public realm and connectivity to the new community.

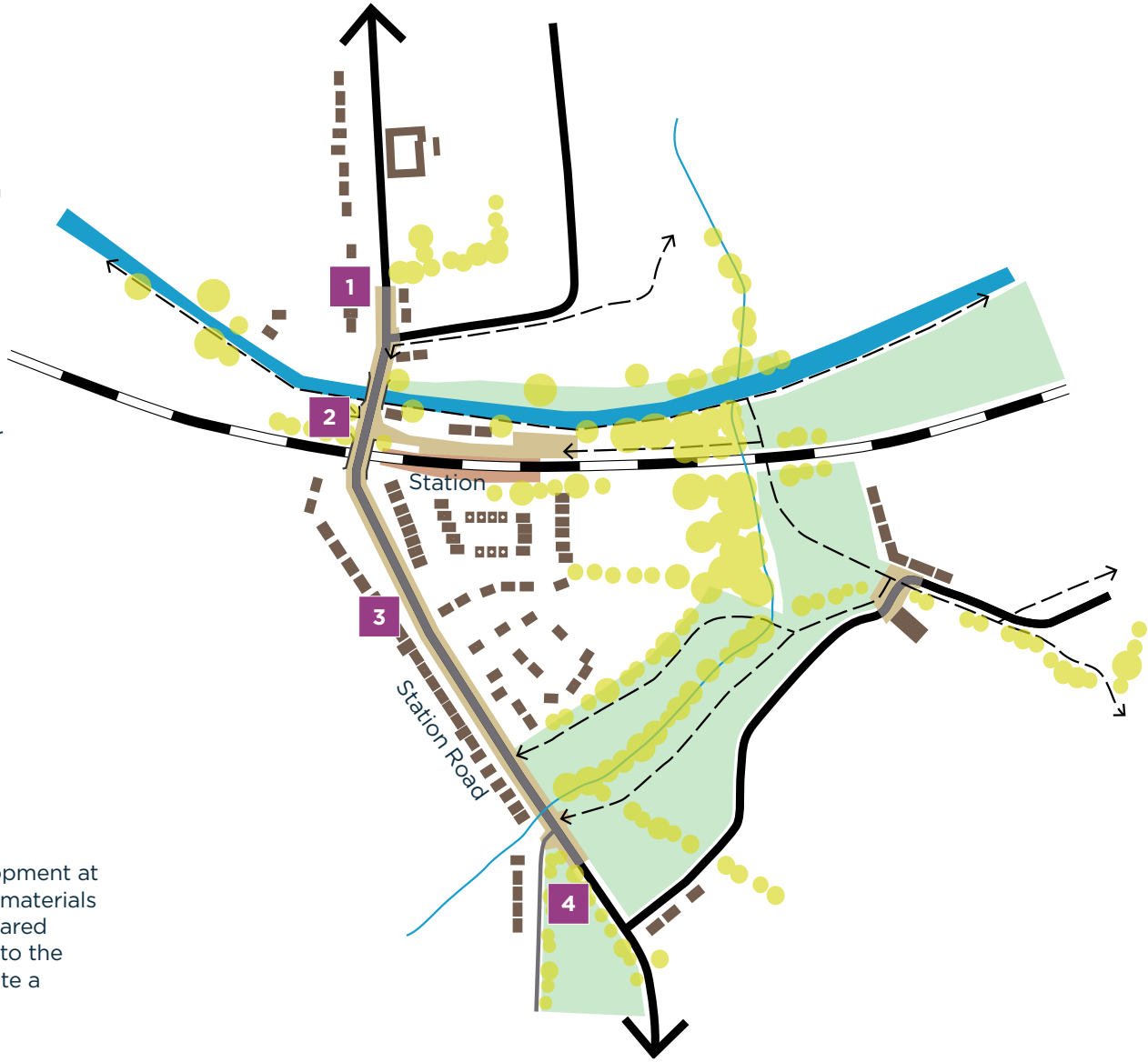
This would also link north of the railway to a secondary access to development at Hatton via the railway underpass along the canal towpath which itself could be subject to environmental improvements.

- Beginning of shared surface area announced from north via change of material and new development frontage

- Public realm outside of station highlighted by signage and further material changes/ lighting etc.

- New template for a shared village street where priority is afforded to the most vulnerable users and speeds are reduced

- Linkage to new development at Hatton by connecting materials and signage for the shared surfacing eastwards into the development to indicate a change of priority



Canal Towpath

With access to Hatton Station secured off Station Road, and north-south sustainable movement achieved along Dark Lane, the third major movement corridor unique to the site is the existing towpath along the Grand Union Canal which provides a connection to Warwick Parkway rail station, Warwick town centre and part of the journey onward to Leamington Spa.

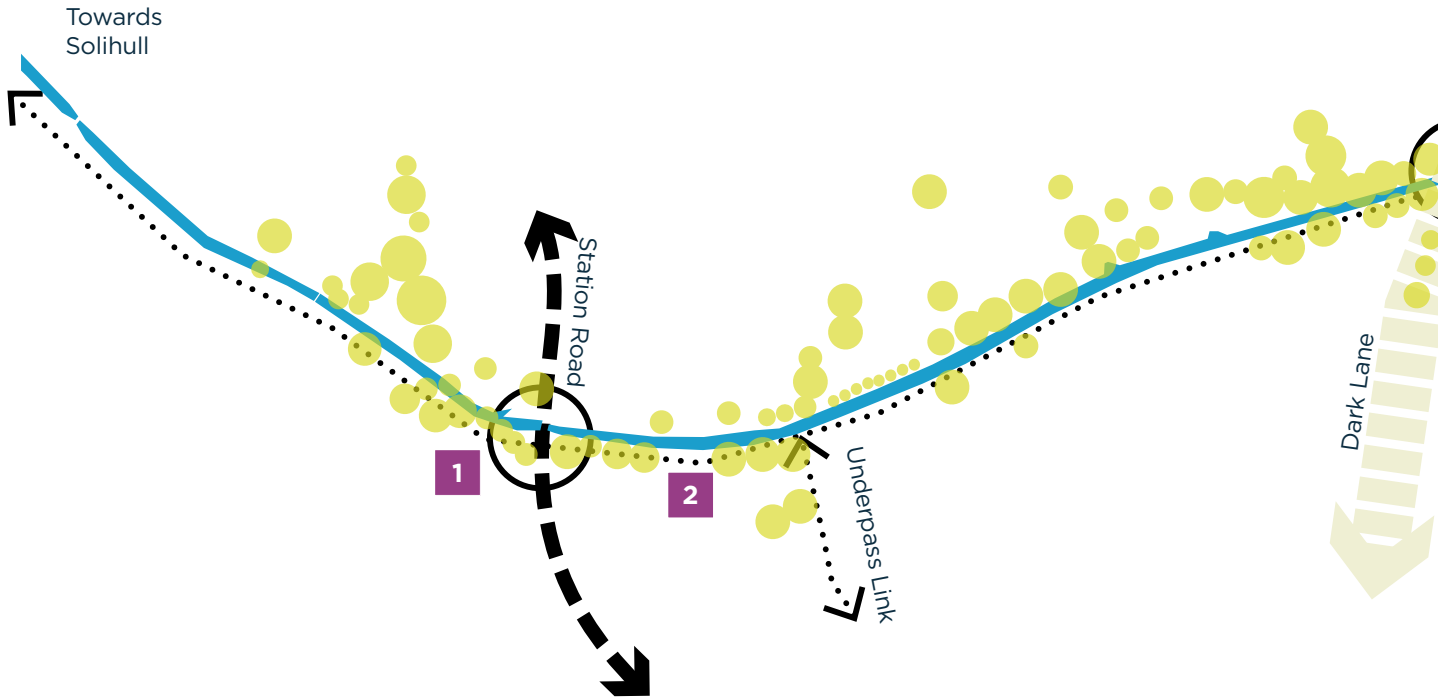
Within the ownership of the Canal and River Trust (CRT) and running much of its length through a conservation area, the towpath presents a particularly picturesque asset to the new development at Hatton.

Hill and the Arkwright Family have been encouraged by WDC to engage the CRT in discussions, considering the upgrading of this route to present an improved walking and cycling experience connecting both railway stations and affording an off-route access corridor into Warwick and Leamington from the site.

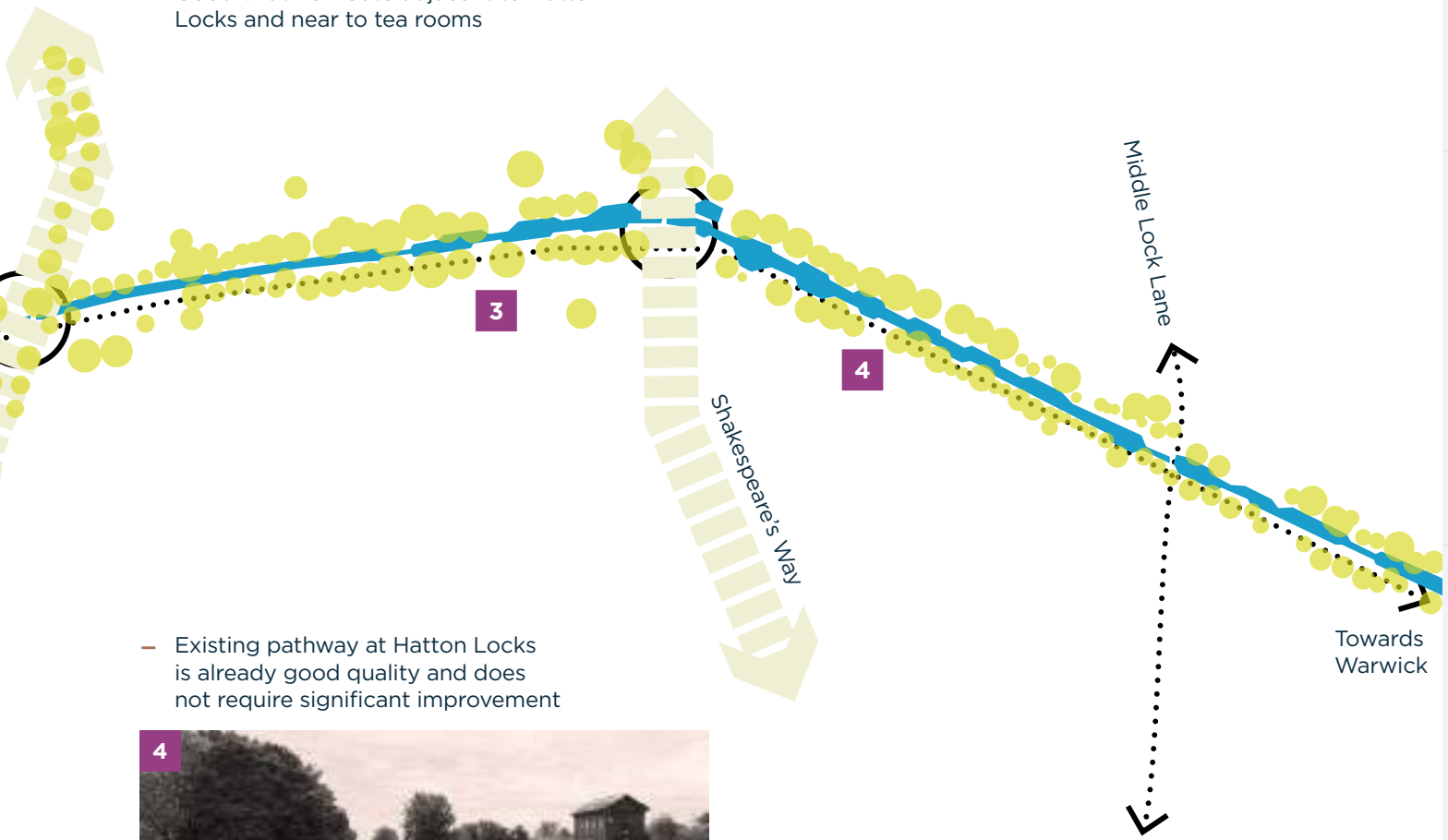
Direct interventions will be limited to access points and connections where these sit on Hill-controlled/ Arkwright land, providing ramped and improved surfacing onto the towpath, but the site promotion includes an ambition for engagement with the CRT to see additional cycling and leisure infrastructure provided along elements of the route that engage more directly with the development.

– Upgrades required to signage, access ramp and steps to towpath

– Narrow pathway to be upgraded to support cycle path



– Good width of route adjacent to Hatton Locks and near to tea rooms



– Existing pathway at Hatton Locks is already good quality and does not require significant improvement

Self-sustaining with internalisation of trips

2 adjacent stations with a 3rd along active travel corridor

Situated with access to world-class jobs

A well-designed & beautiful Hatton

Creating spaces where people want to be, which respect and reflect the existing beauty and heritage of the area

Quality design that is sustainable, beautiful and appropriate for Hatton will be a key driver for Hill and we take pride in the fact that we build homes to suit the needs of our future residents and for the South Warwickshire landscape in which they will be built.

Our existing consultant team of Urban Place Lab, Turley and Vectos, have an intimate knowledge of the site and a strong understanding of the best of the South Warwickshire vernacular.

We looking forward to working at Hatton with a number of award-winning architects and our wider network of consultants who share the existing team's vision and determination to achieve the best outcome for this new community.

We anticipate collaborating with local designers, as well as a number of a our existing trusted parties to arrive a quality of place for Hatton that is unique and diverse, and brings something new to the South Warwickshire landscape without resorting to a pastiche.

Our approach to housebuilding is to prioritise quality in all that we do, with excellent customer service and beautiful, modern homes that will delight our customers for generations. We craft our homes around our customers' needs and the demands of modern living. Beautiful design is central to every single home we build – because our customers are individuals, so too are our award-winning designs.

In the past 22 years Hill has won more than 460 industry titles, including WhatHouse? Housebuilder of the Year twice and Best Medium Housebuilder at the Housebuilder Awards in 2021 and 2020.

After a successful 2020, during which we won a number of the industry's most coveted awards, in 2021 we won Best Design for three storeys or fewer for the Davenport Villas at Mosaics, Oxford at the Housebuilder Awards. These stunning homes were also crowned Best Family Home at the prestigious Evening Standard New Homes Awards and were also highly commended in the Best out of London Home category. We won Best Home, Best Sustainable Development and Best Medium Housebuilder (Silver) at the WhatHouse? Awards 2021.

We are looking forward to adding new homes built at Hatton to this portfolio of national best practice for which Hill has become increasingly renowned.

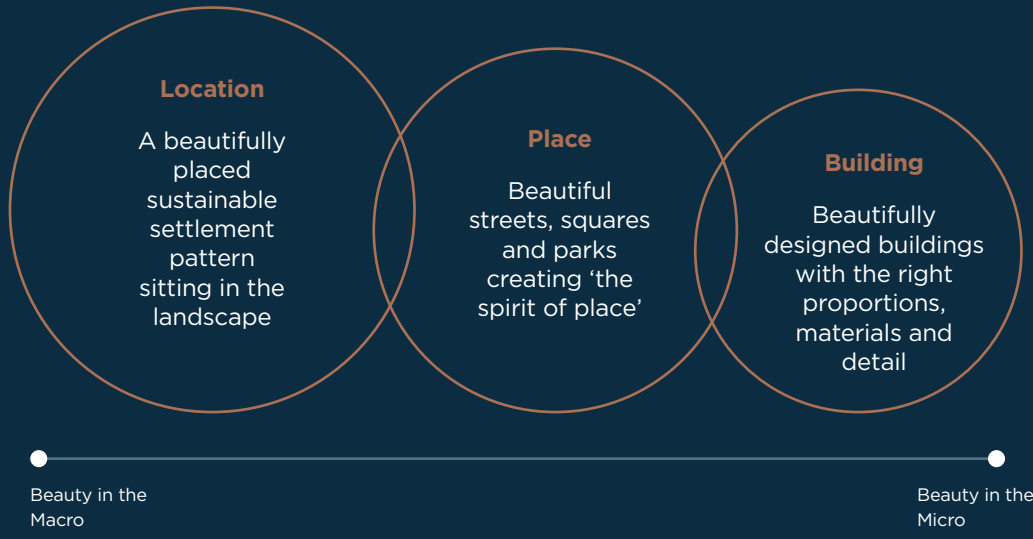
Part of this approach will be the creation of a masterplan and house types that are unique to Hatton.

These will apply the best of local vernacular to places and buildings, learning from the wealth of architectural styles and heritage that populate Warwick and Leamington Spa and which also characterise outlying towns such as Henley-in-Arden (outside of the District but within the area of the SWLP) smaller villages and architectural set pieces such as Packwood House.

Furthermore, we will be guided by the findings of the Government's Building Better Building Beautiful Commission (BBBBC) that requires an approach to achieving beauty at the three scales of location, place and building. It also sets out ambition for place stewardship, much along the lines that the Arkwright Family has applied to the curation of the Hatton Estate over two centuries.

This extends to the landscape as well as built form, creating green spaces, treed avenues as well as hard spaces and requires a long-term approach to vision in common with the landscape planners (and planters) of the greatest of Britain's estates.

Cascading scales of achieving beauty



Examples from the portfolio of award winning unique developments delivered by Hill

1 Davenport Villas at Mosaics, Oxford

2 The Avenue was sympathetically designed to reflect the surrounding architecture of the popular medieval town of Saffron Walden.

Our approach to the design of great places, cascades from macro to micro ... from location to place and building

Creating people places

Successful places reflect the needs of the community; providing residents and visitors alike with the homes, facilities and amenities to foster rewarding lives and experiences. A key requirement is also to create interest and identity, and places that go beyond life's basic needs, offer a much richer experience for those fortunate enough to live in or visit such destinations.

The design principles for Hatton have at their heart the creation and extension of a real community. Hatton will be able to deliver much needed affordable homes to help young people and lower income households, integrated seamlessly throughout to help foster an inclusive community. The approach is not one focussed solely on houses and parking spaces, it is aimed at creating the spaces for life to unfold and innovate; whether that is in the garden, house, front door, street, footpath or park.

This approach aims to provide the variety of features found in traditional villages, with small greens and squares dotted throughout, seating areas and focal points, integrated with existing trees and hedgerows, and streets designed for play or social events, where car use is secondary.

These incidental spaces are supplemented with a diverse range of large natural green spaces within the extensive landscape surrounding and within the new community, from wetland-habitat, through to natural parkland.

Masterplan transect showing variation in the spatial design, character and density

Local centre positioned midway along the axis between the station and Hatton Shopping Village.

Tree lined avenue fronted by more formal building forms inspired by Leamington Spa's Regent Grove and Warwick's High Street

Improvements to pedestrian/ cycle access to Hatton Station along Station Road

Creating meaningful green spaces with rich biodiversity

A village green open space at the highest point. A place for views, orientation and the community to come together.

Higher residential density located along axis of key destinations and in proximity to the station and district centre

The large park offers views across the countryside and towards Warwick

Mixed use
School
Higher density
Medium density
Low density

Hatton Shopping Village

Lower residential densities located towards the western edge creating a transition to the countryside with a strong village character inspired by local examples

Shakespeare's Way integrated into the placemaking design as a rural country lane

Good placemaking and street character examples in the local area

1. Dense high street with subtle variation in width, Henley in Arden
2. Formal tree lined avenue with central footpath, Leamington Spa
3. Tight village street with variation and interest, Norton Lindsey

Character and quality

The designs for the new community will seek to integrate with and enhance local character by drawing upon the design quality found within and close to Hatton.

The overall site layout is structured to provide a rich mix of streets and spaces with a strong local character acting as a unifying thread throughout. Neighbourhoods, like their residents, must not be homogeneous and monotone, but respond to each aspect, edge and location in a considered manner that reflects the locality.

Local house typologies and materials will be applied in a way that supports innovative character and interest, and clearly relates to key local characteristics found in the area. House and street designs will be balanced and building features drawn from local precedents.

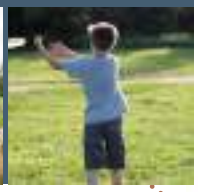
Boundary treatments, landscape and street design are possibly even more important to character and quality than the architecture, especially in more rural settings, as these are what the eye is drawn to first. The rich and abundant landscape already present, will be retained and supplemented by new planting and natural features, to enhance the biodiversity and create a natural, verdant setting supporting the notion and creation of a neighbourhood community.

Home offices can be integrated above garages or within larger garden spaces, offering a degree of separation between the work and home environment

Nodes and small spaces integrate features to create character & provide places for residents to rest, meet or simply sit away from their home for a break!

Retained and new tree belts & hedgerows maintain the rural character and enhance the biodiversity of the site

Green edges can offer natural recreation space and potential for productive landscape



Parking is predominantly off-street to maintain the rural character and to reinforce the streets and lanes as spaces for people

The edge of the development offers the opportunity to provide sculptural landscape features for contemplation, seating & views

House frontages are not repetitious, with boundary treatments and driveways providing variation to suit the setting and house type

Links to countryside

Connections provide direct routes to surrounding areas and green space as well as the village centre; promoting walking and cycling, rather than car use

Community orchard & food growing areas are located for ease of access ton the edges of the new neighbourhoods

The streets and lanes should present as a public space rather than a road dominated by cars. Materials are to be informal and not over-engineered or include unnecessary markings and signs.

Green space and landscape surrounds and permeates through the development, offering an unbroken loop for walking/ running/cycling; connecting homes to nature.

The framework of the existing hedgerow landscape is retained creating smaller pockets for development with a mature backdrop from the outset.

Good placemaking and street character examples in the local area

1. Spatial features to define spaces and transition, Packwood House
2. Informal village character using variation in set backs and landscape, Bridge End, Warwick
3. Creating street enclosure with walls and varying building forms, Bridge End, Warwick

A biodiverse & environmentally resilient Hatton

Strengthening green and blue infrastructure and achieving a net increase in biodiversity across South Warwickshire

Hill has set itself and is on target to achieve an objective of 20% Biodiversity Gain in 2022 and thereafter 5% incremental uplifts to meet 30%:2025 –far in advance of the COP15 agreement.

With a legacy of family and countryside stewardship over generations, both Hill and the Arkwright family are committed to seeing the landscape and ecology of Hatton evolve and improve, delivering biodiversity net gain through the following:

- Maximise the opportunity to bring the Canal into greater community appreciation through the creation of a canal-side recreational meadow and nature park and improved green links connecting to the tow path.
- Further enhance the strong network of hedgerows, woodlands and defensible boundary features contributing to Green Belt enclosure.
- Copses, ponds and streams are to be retained and enhanced with new grassland and woodland and improved habitat connectivity throughout the site.
- Re-imagine and commit to doorstep play and recreational opportunities throughout the community spaces with the creation of 'outdoor rooms' for active and passive activities.
- Undertake and enhance community engagement with nature through the provision of educational, play and fitness trails along green routes – 2, 5, and 10k leisure runs.
- Create a network of neighbourhood orchards to restore this priority habitat and allotments to provide community food production.
- Ensure the creation of new connected woodland habitat to buffer M40 and railway line routes.
- Focus on the enhancement of lower quality habitats and creation of a gain in biodiversity throughout the community spaces.
- Commit to delivering a series of green spaces connected to existing communities at Hatton Green and Hatton Station offering shared benefits to both new and existing residents.
- Undertake community involvement in habitat and open space management with education at the heart of stewardship.

- Hatton House Historic Parkland – Protected and Enhanced for Biodiversity
- Restoration of Historic Hedgerows
- New Woodland as Buffer to M40
- Streamside Wet Meadow
- Canalside Nature Reserve
- New Woodland to Connect Existing Copses
- Neighbourhood Sports Pitches
- Canalside Recreational Meadow
- Shakespeare's Way Green Route
- Play/Nature Trails
- Green Corridor – Active Travel Routes
- Neighbourhood Allotments
- Central Community Parkland
- Neighbourhood orchards – Priority Habitat
- Hatton Country World

Key Features

30ha
of publicly accessible meadow and parkland

15ha
of community woodland, orchards and allotments

20km
of new footpath, cycle and play/educational trails

The 'Big Gifts' of park and more

Living at Hatton is about expecting more

Cycling and walking are safe and easy choices

Hatton House

Grand Union Canal

Hatton Station

Hatton Station Village

STATION ROAD

Neighbourhood Centre

School

District Centre

A productive landscape for healthy lifestyles

As a destination, the community at Hatton already boasts more attractions on the doorstep than many comparably sized towns and villages can lay claim to.

The injection of a new community drawn from (among others) automotive innovators, entrepreneurs, along with early adopters, self-builders and others, will allow this to develop on a new level, where access to workspace, landscape, countryside and greenspace will reach superlative heights.

One of the biggest new 'gifts' at Hatton will be the canal-side park. Stretching from Hatton Locks to Hatton Station, this linear green space will become a sub-regional haven for biodiversity net gain, informal sport and recreation, as well as nature conservation and ecological mitigation.

Linking the two railway stations of Hatton and Warwick Parkway, the park will firmly establish the new community and all its features on the sustainable map of destinations in the region, opening up railway access to Hatton Country World and the expanded technology park.

Across the masterplan, a network of green spaces will knit the development into the surrounding countryside and allow users and visitors of the canal towpath and locks, access into a systems of green loops, paths and grids that criss-cross the site opening up new countryside, spaces and greens for wider enjoyment.

Beyond the park, local growing spaces will seamlessly mesh with green space, linking with established practices and operations at Hatton Country World, and further embedding this much-loved facility at the heart of a new generation of South Warwickshire residents in a connected, sustainable development concept with unique appeal and superlative environmental credentials.


1


2


3

1 Hatton Locks

2 Hatton Shopping Village

3 Hatton Country World

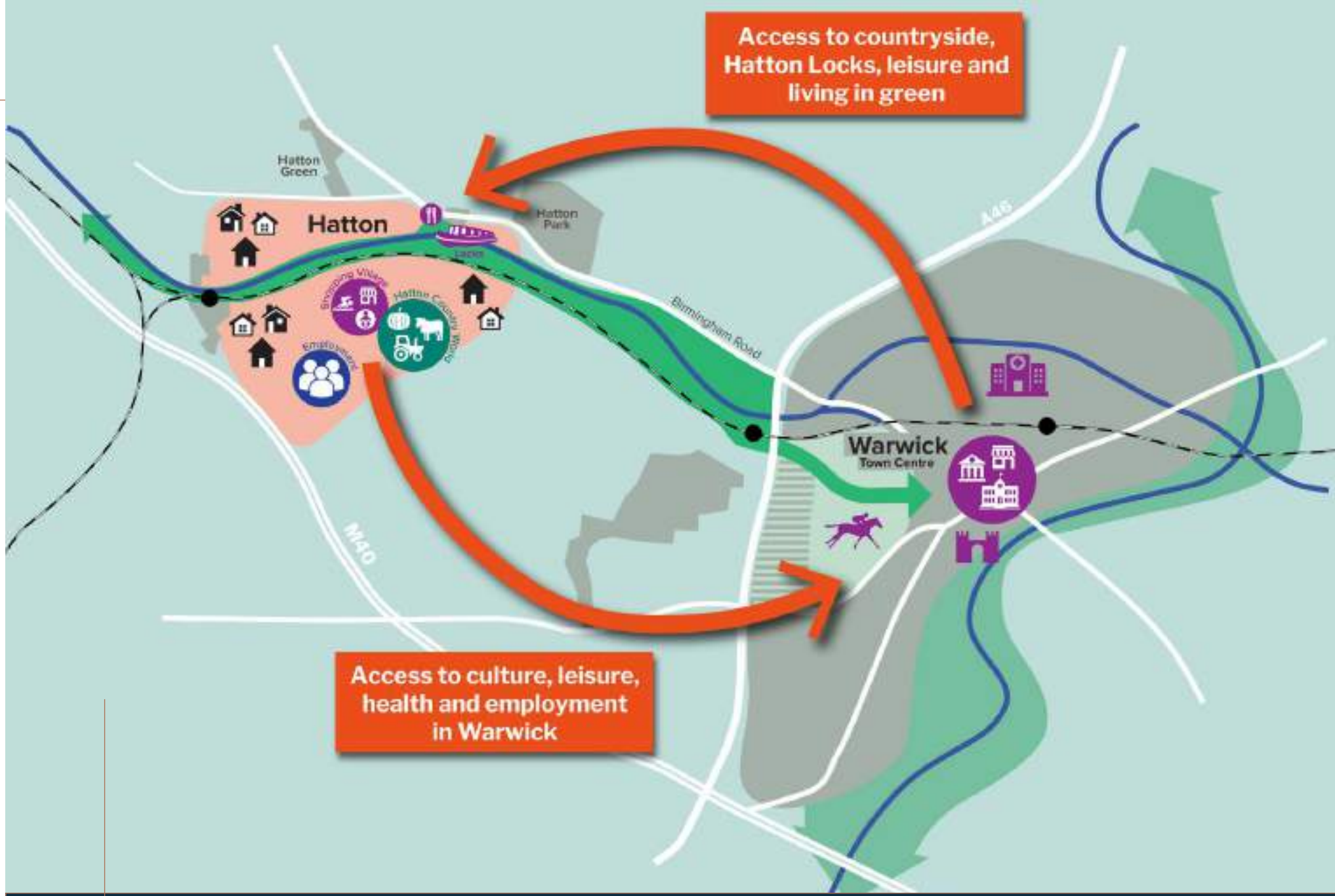
Added value of Hatton

We consider Hatton to offer value greater than many other housing promotions in the SWLP by virtue of its relationship to Warwick and Leamington. Potential exists for the creation of a virtuous relationship between town and country, with enhanced access to Warwick and Leamington offering educational, healthcare and cultural benefits to the community at Hatton, and via the same links, Hatton providing a new platform for affordable country living with excellent access to attractive countryside, work-from-home infrastructure, local schooling and shopping facilities with a focus on local produce.

New anchor tenants at Hatton Shopping village include the British Garden Centre and discussions are ongoing with potential operators of a farm shop providing domestic produce.

Beyond this, key tenants to support an active and health lifestyle include the electric cycle shop (with opportunities for cycle hire) the Everyone Active swimming pool and a range of specialist healthcare practitioners including chiropractor, osteopath, acupuncturist, masseur, physiotherapist and an energy healer.

Taken in conjunction with the Technology Park and the major attraction of Hatton Locks (the Stairway to Heaven) this array of local retail and service businesses will allow investment into the project to be focused on other aspects including adopting low and zero carbon technologies, sustainable transport provision, and creative models of affordable housing, custom and self-build that elude developments starting with a blank sheet.



Co-benefit of location between Hatton and Warwick

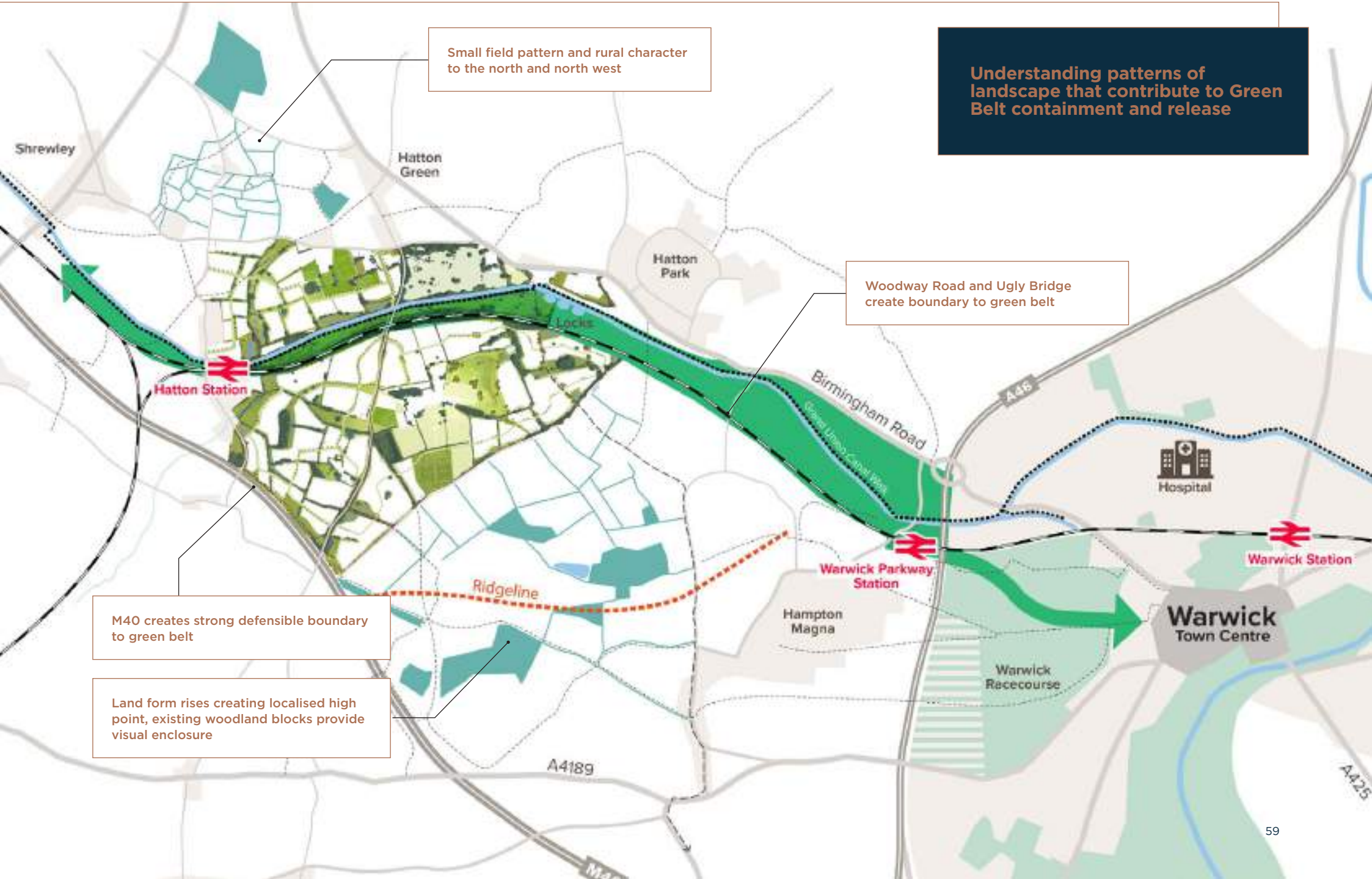
A win-win for Warwick and Hatton

Exceptional circumstances

The NPPF makes clear that changes can only be made to the Green Belt through the local plan process and where exceptional circumstances have been fully evidenced and justified, having fully explored all other reasonable options for meeting identified need, including brownfield land, optimising density and the assistance of neighbouring authorities.

In this case, those tests have yet to be undertaken but we can start to identify the exceptional circumstances that could justify removal of land at Hatton for a new settlement, including:

- The likely scale of housing need far exceeding what can be found in the urban areas and non-Green Belt locations, which will warrant consideration of peripheral urban locations and/or new settlements currently located in the Green Belt.
- NPPF para 144 urges that the need to promote sustainable patterns of development is taken into account when reviewing Green Belt boundaries, which would need to be weighed against the harm to Green Belt by way of removal.
- Hatton can be shown to be a sustainable option for accommodating a new settlement, which can be relatively self-contained whilst providing excellent public transport and active travel links to Warwick Parkway and Hatton Stations for links to Birmingham, Leamington and Stratford, and by foot or cycle into Warwick town centre, for higher order needs.
- Our Green Belt and landscape analysis shows that the site is well contained visually with a strong defensible boundary to the M40, with the railway and canal to the north.
- Whilst development in this location would create a sustainable new development between Hatton Station, Hatton Green and (at a slight distance) Hatton Park, the character and individuality of these existing settlements would remain in place, yet within enhanced reach of additional benefits serving the wider community.
- The site is of a scale that can provide for biodiversity net gain and offset Green Belt loss through compensatory improvements to environmental quality and accessibility.
- Beyond the area of the core proposal, there are areas of contained landscape which hold the potential capacity to absorb further growth.


Understanding patterns of landscape that contribute to Green Belt containment and release
Small field pattern and rural character to the north and north west
Woodway Road and Ugly Bridge create boundary to green belt
M40 creates strong defensible boundary to green belt
Land form rises creating localised high point, existing woodland blocks provide visual enclosure
Shrewley
Hatton Green
Hatton Park
Hatton Station
Locks
Birmingham Road
Grand Union Canal Walk
A46
Hospital
Warwick Station
Warwick Parkway Station
Ridgeline
Hampton Magna
Warwick Racecourse
Warwick Town Centre
A4189
A425

Hill development at Foundry Field in Burnham Market, Norfolk

Governance

We believe that new communities should have a say in how they are run, when and where they grow, and that value created in the community should be recycled for the greater good.

The proposed new community at Hatton will benefit from a substantial head-start, having a meaningful role in the future and growth of the place.

Nearby Hatton Park has already expressed an interest in becoming a devolved parish, potentially leaving the Arkwright Estate, Hatton Green and Hatton Station as an autonomous parish with the opportunity for a self-governing structure already from the early days of the project.

Alternative structures also exist which are well aligned to the long-term stewardship model and historic land-ownership of the estate by the Arkwright family. This notion of stewardship is echoed in the Building Better, Building Beautiful Commission recommendations as a pathway to achieving beauty and design quality and is a keen fit with the Hill model of placemaking.

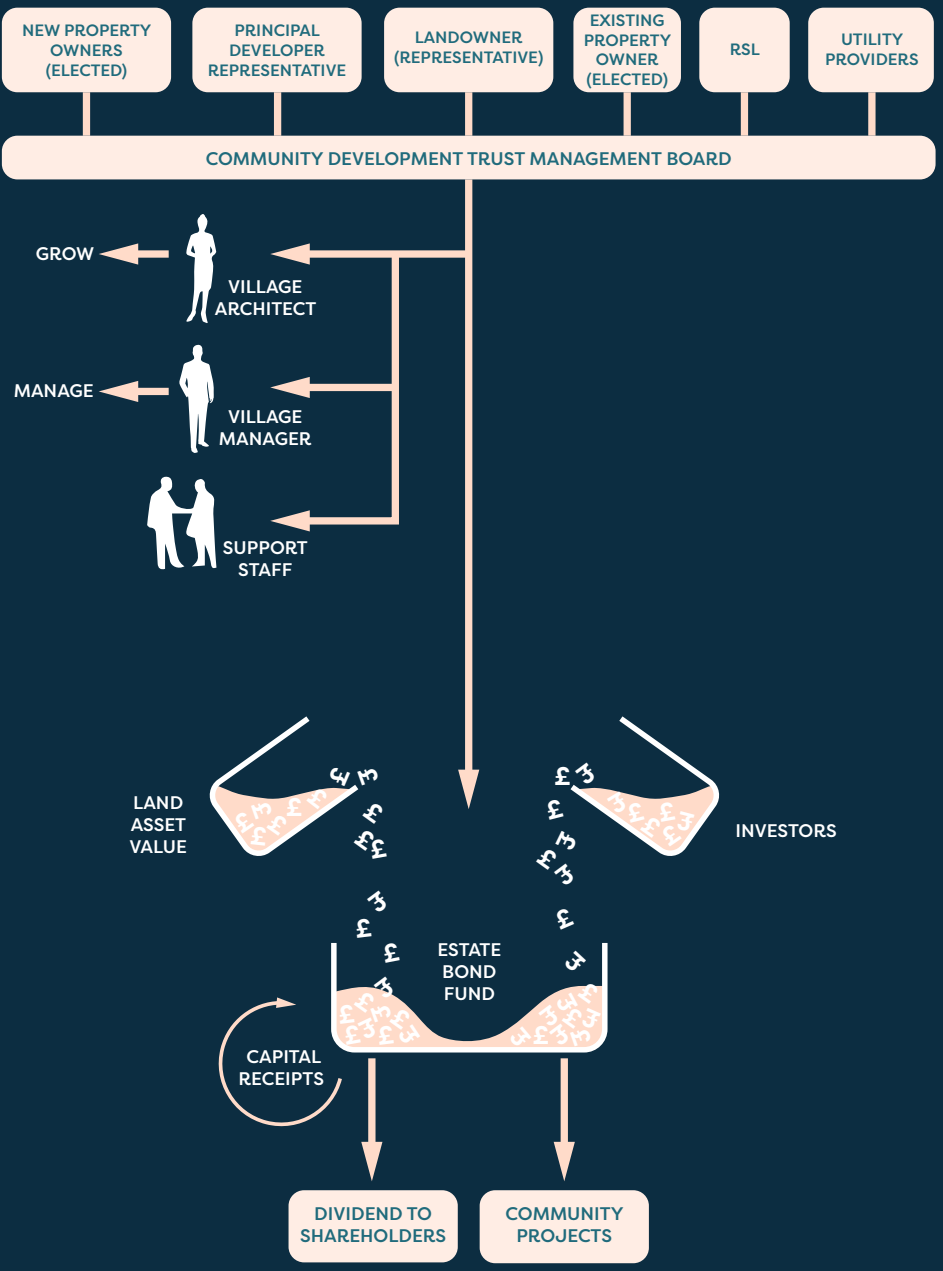
The notion of a site-specific Community Development Trust has echoes of Sir Richard Arkwright's Cromford Mill and village development in Derbyshire, where, following the traditional estate model, innovation around community invested housing and local currency were adopted with the purpose of recycling receipts into the local area.

Land at Hatton could follow a similar model with representatives of the community sitting on a development board and engaging staff (volunteer or employed) assisting in the management of the design process, maintenance, events and community stewardship.

A variety of models exist to deliver this, with the community taking a greater or lesser role on the board. The greater the role and level of commitment shown by the community, the greater the return.

Potential exists for individual property owners to become bond or shareholders, incentivising investment in the community, and increasing local cohesion and loyalty to the place.

This can further increase housing affordability, with the CDT holding bonds in individual properties via shared ownership, ensuring that increased in home values are captured and retained in the community as a whole.



Conclusion

We believe that the model of new development promoted by Hill on Arkwright family land for the Hatton New Community wholly aligns with the SWLP Issues and Options consultation.

The scale of available land, alongside the single land-ownership of the Site is unique in the plan context with its proximity to not one, but two rail stations (Hatton and Warwick Parkway).

Hatton will deliver:

- Up to 4,500 new homes and up to 3,000 jobs (new and existing)
- New facilities for education, including 2 new primary schools, a secondary school and a nursery
- Opportunity to create pedestrian and cycle links to Warwick
- Significant areas of green spaces, including 30ha of publicly accessible meadow and parkland; 15ha of community woodland, orchards and allotments; and 20km of new footpaths, cycle and play/educational trails
- The existing Hatton Country World, Hatton Shopping Village and Technology Park providing a wide range of facilities enabling the formation of a new local centre and community from day one.
- An opportunity to create a place that connects individual communities whilst maintaining separation from Warwick and with the M40 continuing to maintain a strong southerly boundary towards Stratford District.

The vision for Hatton and the accompanying Illustrative Masterplan have been prepared to align with the five pillars of the SWLP which aim to create a South Warwickshire which is: climate resilient; healthy, safe and inclusive; well-connected; well-designed and beautiful; and, Biodiverse and environmentally resilient.

Offering far more than a conventional green field site, the multi-decade hard work of the Arkwright family to create a bustling rural hub at Hatton Country World now presents a template for new community creation that is infrastructure led and which will result in healthier living, beautiful homes in a carefully stewarded landscape setting, with zero-carbon lifestyles in close proximity (by sustainable means) to both Leamington and Warwick.

In partnering with Hill, the Arkwright family have joined forces with one of the UK's award-winning house builders, itself a family business with a reputation for quality and environmental excellence as well as for demonstrating a true commitment to creating community.

We look forward to further demonstrating the environmental, engineering and place capability of Hill and Hatton New Community over the continued emergence of the SWLP.

We consider that Hatton should be included as a new settlement allocation and a fundamental constituent of the vision for a future South Warwickshire.

Hill development at The Avenue in Saffron Walden, Essex

Promoted by:

Hill Residential Ltd
The Power House, Gunpowder Mill,
Powdermill Lane, Waltham Abbey,
Essex, EN9 1BN

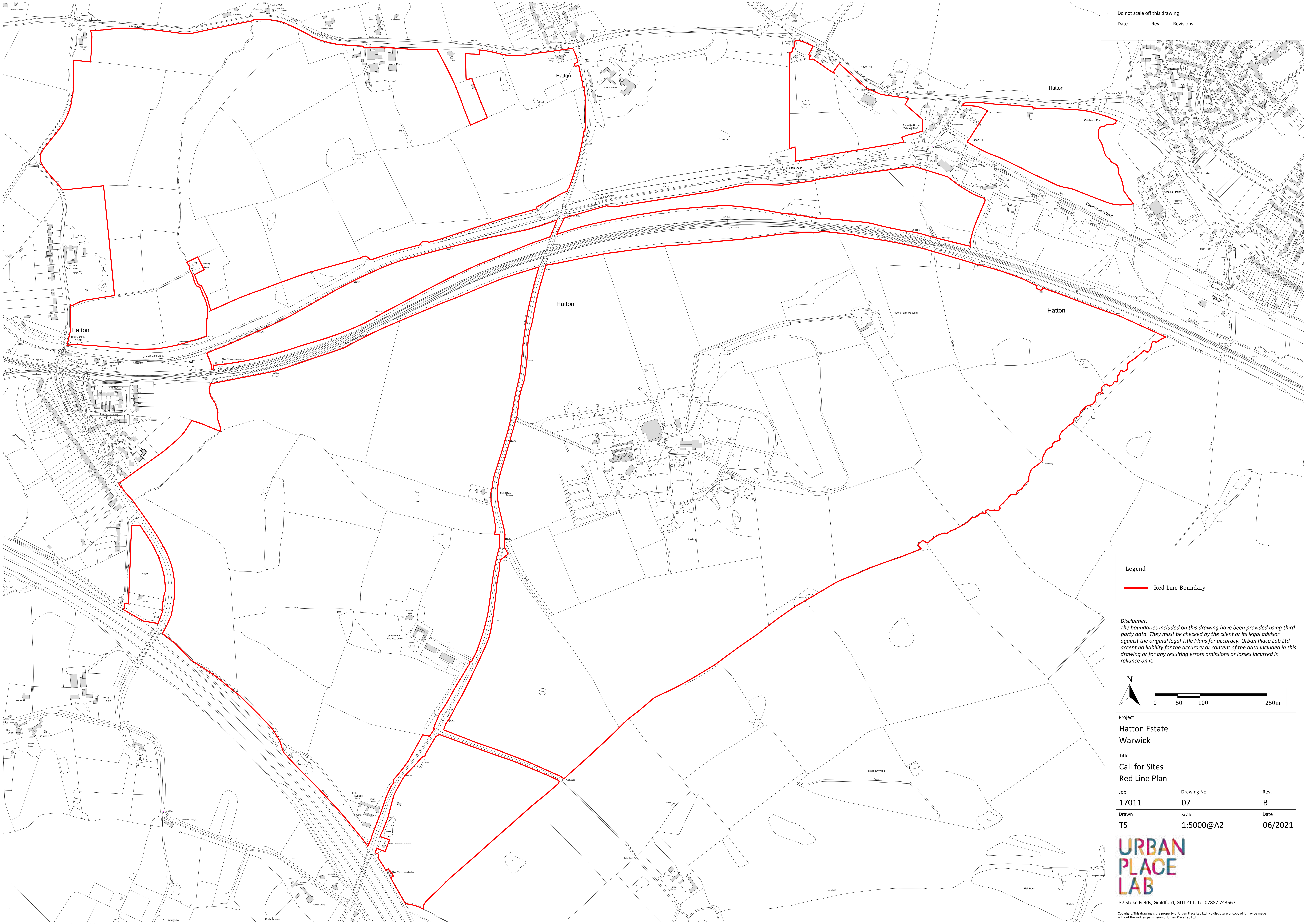
& supported by:

Hill development at Foundry Field in Burnham Market, Norfolk

Hatton

A New Community for South Warwickshire

Appendix 2: Site Location Plan



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Date	Rev.	Revisions

Legend

Red Line Boundary

Disclaimer:
The boundaries included on this drawing have been provided using third party data. They must be checked by the client or its legal advisor against the original legal Title Plans for accuracy. Urban Place Lab Ltd accept no liability for the accuracy or content of the data included in this drawing or for any resulting errors omissions or losses incurred in reliance on it.

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Project
Hatton Estate
Warwick

Title
Call for Sites
Red Line Plan

Job	Drawing No.	Rev.
17011	07	B
Drawn	**Scale**	**Date**
TS	1:5000@A2	06/2021

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Appendix 3: Internalisation and Containment Technical Note (March 2023)

Hatton New Community
Internalisation and Containment Technical Note

215933/N01
March 2023

Introduction

1. This Internalisation Note has been prepared by Vectos on behalf of Hill Residential Ltd to outline the transport approach and the opportunity to contain a significant proportion of trips within the proposed Hatton New Community in Warwickshire.

2. Specifically, this note considers how the site will be designed to 'internalise' trips. This means that Hatton New Community will be designed to keep people within the site for purposes such as work, education, retail, leisure and socialising, rather than residents having to leave the new community for these purposes and thus reducing the number of external trips.

3. In short, internalisation is:

   *"The trips generated within Hatton New Community that will both begin **and** end within the development boundary"*

4. Hatton will function as a new village settlement. In addition to the proposed 4,500 residential dwellings to come forward as a part of the promotion, Hatton will enhance the existing range of shops and services and leisure facilities, and provide additional employment space, primary and secondary education along with mobility hubs, including open space. These all contribution to the internalisation of trips.

5. Based on industry standard data, the majority of travel is for reasons of education and leisure (including incidental shopping). Commuting and business form other reasons for travel, with a marked increase in working from home or from a 'Third Place' in the community since the onset of the pandemic, a trend which is expected to last.

6. By design, this anchoring and internalising of day-to-day trips within the local community will be maximised by this site.

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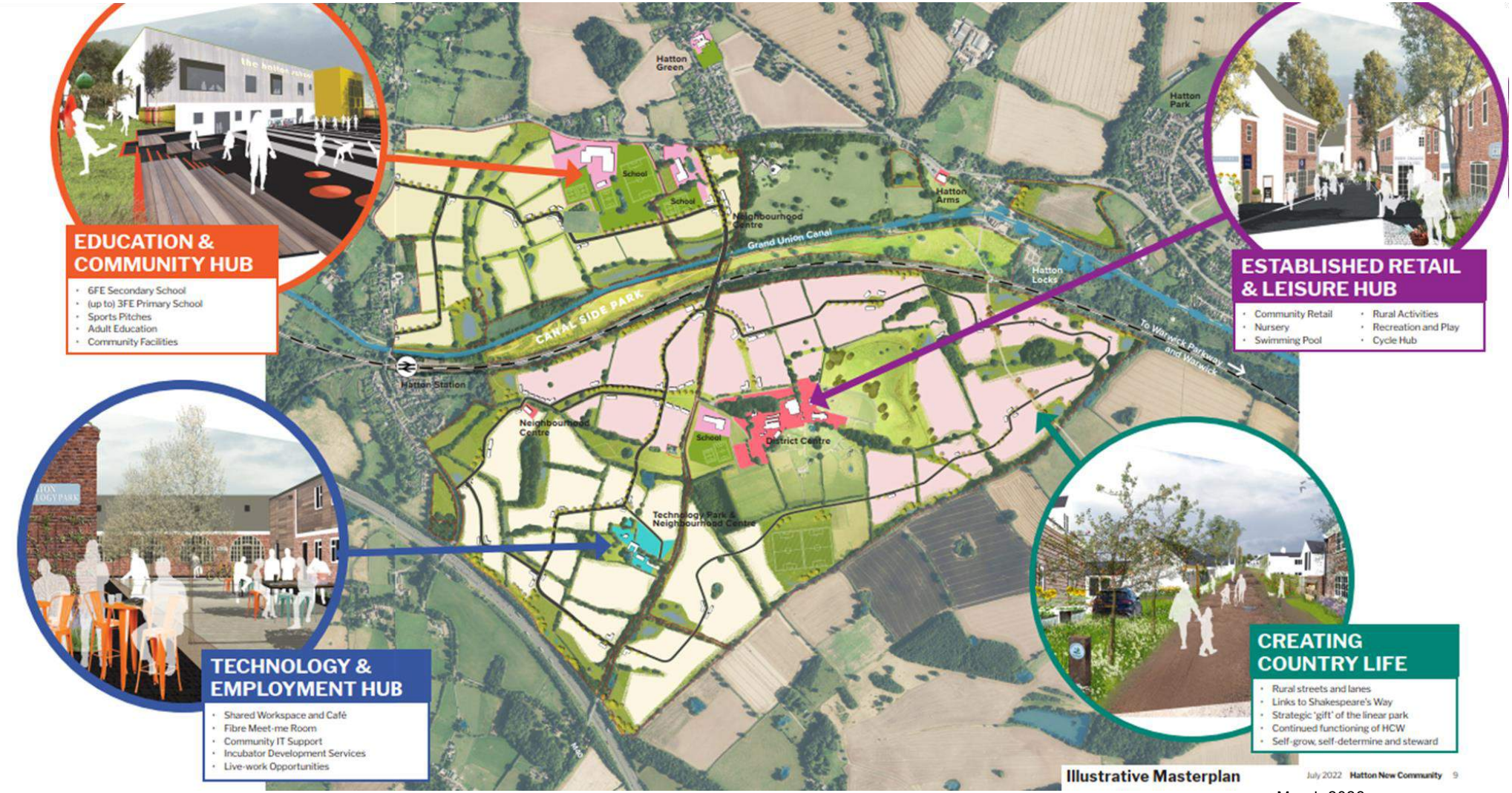

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Vision Placemaking

7. A series of ambitious Placemaking interventions deemed to be the most desirable will be an integral part of the package of measures to encourage and promote local living.

Vision Components – Placemaking

8. Hatton will offer residents the freedom to fulfil the majority of daily activities within their community either physically or remotely. This will be made possible through an integrated package of accessibility measures that enable local living with a thriving community and economy. The result will be a resilient community designed to support net zero carbon objectives.

Introduction to Trip Internalisation & Local Living

9. The main objective of the placemaking components is to generate a vibrant community and enable local living that focusses strongly on accessibility, permeability and social inclusion.

10. In strategic developments across England and Wales it is a common objective to assess what proportion of daily trips can be "internalised" within the new or extended community. Trip internalisation can be maximised by designing in accordance with the 15 minute neighbourhood principles. The result being more resilience, lower carbon emissions and thriving communities supporting local business, greater interaction and a sense of place that prioritise active travel and micromobility.

Figure 1 - The 15 minute neighbourhood offers most amenities within a short walk or cycle

11. Sustrans supports such a concept (they refer to 20 minute neighbourhoods) declaring that "research shows that people are generally happy to walk for 20 minutes to get to and from the places they need to go. 80% of journeys under a mile are made on foot, which usually equates to around a 20-minute

walk. In such a neighbourhood, the 20-minute walking trip could be cycled in around 7 minutes.[1]". The Town and Country Planning Association is a further supporter, having issued a comprehensive guidance document[2]. The Department for Transport also includes provision for this approach in its active travel local authority toolkit 2022[3].

12. Local living already happens in established towns, where residents travel locally to school, to the shops, go for a walk, as well as for work. There are usually a good range of facilities including schools, shops, leisure services and healthcare. For an exemplar garden village, the convenient features of established towns must be incorporated with accessibility and mobility features are improved upon.

13. In the National Travel Survey (NTS) there are four main journey purpose categories. A vision-led approach must therefore address these by offering alternatives on site to prevent the need to travel externally as much as possible (whilst realising co-benefits):

- Local employment + co-working + third place;
- Education + Escort Education[4];
- Shopping (physical & online) and services; and
- Leisure.

14. A fifth category which acts as an enabler for these main four is Internal Mobility. This makes the internal destinations accessible in the most sustainable ways.

15. Following this approach therefore we can derive an internalisation factor for each category which will help to assess trip generation and capacity needs.

Local employment, office space and homeworking

Local Employment & Office space

16. Hatton will be home to a range of local employment opportunities.

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[1] https://www.sustrans.org.uk/our-blog/get-active/2020/in-your-community/what-is-a-20-minute-neighbourhood

[2] https://tcpa.org.uk/resources/the-20-minute-neighbourhood/

[3] https://www.gov.uk/government/publications/active-travel-local-authority-toolkit/active-travel-local-authority-toolkit

[4] Escorts supervise pupils with Special Educational Needs whilst they are being transported from home to school and vice versa

Designated office space for long term tenants

17. This will be made possible with the provision of designated office space for the premises of local businesses. The offices will be located in close proximity to the co-working hub and could even share the same building and facilities hosting short and long term users. They will offer a range of office sizes to attract different types of business and allow them to grow in the same location.

18. Such facilities will benefit from early advertisement, but also a hands on approach to identify potential tenants. This can best be achieved by appointing a local business champion with sound local knowledge. The champion might be a local authority representative, an elected member, local resident volunteer, member of a local community group or chamber of commerce.

19. A self-sustaining community with work trips anchored within the local community offers additional benefits to just reducing vehicle miles travelled. For example, this would also mean increased spending in the local shops, café and pub.

Other local employment

20. Schools offer direct employment opportunities for local residents. Whilst this may not always include teachers, this does often include teaching assistants, secretaries and canteen staff. With additional services of pre-school and after-school clubs as well as day care, the proposed schools for Hatton will offer many local jobs within a short walk or cycle, hence internalising trips.

Case Study

- Teaching Assistants account for around a quarter of the overall state-funded school workforce and so offer notable employment opportunities.

21. The local supermarket, pub, co-working hub and mobility hub will also offer employment opportunities for local residents. The repair café will likely offer volunteering opportunities too.

<u>Home working</u>

22. Hatton will offer high quality digital infrastructure and the space needed to make home working a natural choice for those who are permitted and inclined to do so.

23. Working from home will be highest in areas which offer reliably fast broadband and the physical space at home to set up a workstation.

24. This will reduce peak car at rush hour, and additional rates of internalisation will be achieved through the presence of the co-working hub.

Case study

- Patterns observed post COVID indicate a shift to working from home of between 25-40% of the entire workforce, depending on the sectors in which people work. This compares with pre COVID levels of an average of 13%.

— Many workplaces now often more flexible policies which allow working from home all of the time, for certain days in the week, or that only require being in the office between the core hours of 1000-1600. This means peak hour traffic can also be mitigated by enabling home working at the start or end of the day.

Co-working Hub

25. Hatton will have co-working hubs conveniently located offering residents access to hotdesks, Wi-Fi, and other office equipment.

26. Co-working spaces allows short-term leases to individuals, freelancers, small and medium enterprises, and other professionals. In contrast to traditional offices, flexible offices provide equipped and serviced office premises and meeting rooms, without long-term rent commitment

27. This will help maximise the number of people who are able to work remotely, especially those who need more space or tranquillity than working from home. It is therefore expected that the combined remote working trip internalisation rate (co-working space + work from home) will meet the higher end of the range.

28. The co-working hubs will share their location with the cafés and mobility hubs to make it extremely accessible from both inside and outside the Hatton New Community. Community hubs will be attractive destinations for lunch and break times, and the mobility hubs will allow access by shared mobility with cycle parking and showers. There will be parking for blue badge holders, but otherwise limited spaces for private cars, with priority space allocated to active and shared modes.

29. This way, residents may internalise their commute with a short walk or cycle to the co-working hubs. Overall, this approach will allow the co-working hubs to label themselves as eco-friendly, making it attractive to the growing market of entrepreneurs seeking to promote their green credentials.

30. The hubs will be delivered through developer funding with building and initial running costs provided from day 1. Following this it is anticipated that the hub will become commercially viable and will be funded through revenue.

Figure 2 - Co-working space Leamington Spa[5]

Case Studies

- According to Statista Research, the volume of flexible office workspace in the United Kingdom is expected to nearly double between 2019 and 2023, reaching 167 million square feet in 2023[6].
- There has been an increase from 10% to 13% of workers using flexi-time since 2016[7]. This offers the chance to decide the start and finish times within agreed limits.

Education

31. Hatton will offer a range of education services to cater for all children to ensure the local schools and day care centre will be the first choice for majority of parents. This will be a fundamental building block of the new strong local community. Facilities will be accessible by wheelchair and mobility scooters.

Primary schools

[5] https://wdcbusinessenterprise.co.uk/spaces/cowork

[6] https://www.statista.com/statistics/754743/volume-of-flexible-office-space-united-kingdom/#:~:text=Size%20of%20the%20flexible%20workspace,the%20United%20Kingdom%202019%2D2023&text=According%20to%20the%20forecast%2C%20the,million%20square%20feet%20in%202023

[7] https://www.cipd.co.uk/Images/flexi-time-chart-download_tcm18-108398.pdf

32. Hatton will boast up to two primary schools. This will offer parents and children the convenience of education within the village within a short walk or cycle, and ensure that almost all related trips will be internalised.

33. The first primary school will be built in readiness to receive pupils at the earliest opportunity during the next phases of development. This is widely viewed as an important step to keeping journeys localised whilst simultaneously generating the social networks of children and parents alike to generate community vibrancy. It will also ensure school loyalty in the community for future years.

34. Walking and cycling to school will be the norm for almost all children and parents, supported by active travel programmes by the schools which prove effective in achieving positive mobility behaviour by all.

35. In the earlier stages of development, imaginative ideas will be explored to provide school places both physically and financially from the outset. This will tackle some of the challenges posed by the phasing of a housing development and achieving a critical mass of pupils. These will include but not be restricted to:

    — Setting up an early learning school;

    — Facilities;

    — Liaise with local academies to assess collaboration and discuss possible funding streams with the DfE;

    — Explore upfront DfE grants;

    — Propose that the schools form part of the infrastructure investment, and like roads, need to be built before development opens (and there is no monetary return necessarily upfront);

    — Explore whether teacher salaries can be funded through infrastructure costs; and.

    — Very early primary school places will be provided.

36. Hatton could improve the existing Nursery and Holiday Club, or provide an additional class within the primary school, for under-fives. The Holiday Club / Day Care service could be sited within the same building as the school, but with its own entrance to ensure access during school holidays.

37. The nursery / day care centre could be run by variety of groups including local schools or councils, members of the community or by a private provider. This would minimise the need to travel beyond the site for most parents, and offer new employment opportunities. A unit for special educational needs could also be considered. However, the presence of the existing nursery demonstrates that this facility in this area will work.

38. In order to overcome the challenge of making schools viable in the early stages, to ensure sufficient pupils, it is recommended that the delivery of housing units is made in significant phases. This will also release more funds (e.g., Section 106) to support building costs, so that the schools are ready on time.

Secondary school

39. Hatton will be home to a new secondary school, ensuring that the wider demographic of children are educated locally, reducing the need to travel offsite for the majority of students and parents.

40. It is viewed that the secondary school would open towards the end of the phasing of development, since 3,000 homes are normally a minimum requirement for such an establishment. However, secondary schools are normally dependent on a larger catchment. During the interim period it is important that travel for secondary school students, to the local existing secondary schools is provided by bus, funded through the development.

Shopping (physical & online)

41. Hatton will offer a range of accessible facilities to ensure that the default option for residents will be to shop within the village itself, within a short walk or cycle. Facilities will be accessible by wheelchair and mobility scooters. Zero emission cargo bikes and ground drones will also be available to deliver local groceries as well as online shopping directly to the home.

Supermarkets/Convenience Stores

42. Local supermarkets with a bakery will be an important feature of Hatton to offer residents convenient access to groceries, thereby eliminating many journeys outside the site. Like many local supermarkets across the country, there will be limited car parking. However, the supermarket will offer delivery service via both ground drones and cargo bikes. This will be made easy using the active travel lanes.

Figure 3 - Zedify cargo bike deliveries

43. Being located near to the mobility hubs will also give customers alternative ways of accessing the supermarket and taking goods home.

Case study: Starship ground drone deliveries, Milton Keynes

Figure 4 - Co-op's ground drone deliver bots, Milton Keynes[8]

- Up to 60 robots operate from the Co-op's Monkston Park store in Milton Keynes delivering groceries which community residents have ordered online. Where necessary, additional robots are dispatched for larger orders. Operating since 2018, 15,000 orders were delivered within the first year of service.

- The delivery area stretches to 2.7km south of the store and 2.2km north with it taking the robots up to 60 minutes to travel the full distance.

Health

44. An on-site pharmacy is important for the sustainability of the surgery, and so discussions will take place regarding the best approach to including an additional pharmacy at Hatton that is mutually beneficial to the community.

Repair café

45. A repair café is an exciting new concept that integrates a number of services under one roof, helping to maximise revenues. The café element will be strong draw for locals for refreshments and meeting place for neighbours, families and friends. It will be located close to the co-working hub and mobility hub generating extra footfall.

46. It will also offer repair services to household appliances, mobile phones or bicycles. Expert repair workers or volunteers are invited onsite on specific days. This removes the need to drive to local towns to return equipment.

47. The café can also be a place to sell and exchange goods and furniture. And where residents can sell or offer fruit and vegetables from their allotments.

Case study

[8] https://internetretailing.net/magazine-articles/magazine-articles/co-op-autonomous-deliv

- The repair café concept is being planned for Meon Vale, with leadership from the Parish Council and volunteers; and this could be replicated and scaled up at Hatton.

- The rise of online exchange forums Gumtree and Nextdoor show the thirst for neighbourhoods to share, sell, trial and exchange a huge range of household items and electrical equipment. Driven by a thirst for a bargain and to recycle and avoid buying new when it's not necessary. Having a physical location for these exchanges to take place boosts the community and makes it open to those that do not use online forums

Online shopping

48. Sustainable online shopping will be enabled through micro-consolidation centre at the Community Hub, where parcels can be received and either collected by the residents, or sent by cargo bike or ground drone to their front doors. This will minimise noise, emission and vehicle miles travelled by delivery vans around the village. The micro-consolidation centre will also comprise self-service parcel lockers, where customers can collect or send back returns at the time of day of their choosing.

49. Micro consolidation and parcel lockers will mean almost all deliveries will be successfully made on the first attempt, removing hundreds of VMTs every month of service vans not needing to make repeat journeys.

Leisure

50. Hatton will offer an enviable array of leisure facilities ensuring that the first choice for the majority of recreation and sports activities will be within the village itself. This will minimise the number of car journeys leaving the site whilst strengthening the community. Facilities will be accessible by wheelchair and mobility scooters.

Greenspaces

51. Hatton will offer an abundance of acreage afforded to parklands, hedgerows, ponds and newly-planted mature trees to offer attractive footpaths, jogging routes and places for dog walking in the near vicinity. This will enhance the wildlife and biodiversity of the area, further making it attractive for residents to explore. This also removes the need to travel outside the village for the most basic of pleasures of experiencing the local nature and fresh air.

Figure 5 - Active travel corridors and biodiversity, Houlton, Rugby[9]

52. Footpaths and cycle paths will connect with existing facilities like the Greenway and local woodland to offer additional local activities. Seating and benches will offer places to sit, rest, picnic and socialise attracting neighbours and friends alike. Playgrounds across the village will also ensure the children are well-entertained within the site.

Pub

53. A new local pub will complement the existing offerings outside of the redline boundary, and may be a focal point for socialising, food and entertainment within the community and ensure that residents do not always need to travel into the nearest town to enjoy an evening out. Working with local farmers it could showcase local produce in its meals ensuring low carbon farm to fork. The pub will work closely with the producers that attend the farmers markets.

Case study – The Bayberry pub, East Wichel

— East Wichel, built on the site of Westlecott Farm, is the first part of the Wichelstowe housing development to the south of Swindon. East Wichel has over 800 houses and flats plus a school, shops, offices and the Bayberry pub. By September 2011, over 400 homes were occupied. Marston's Taverns opened the pub-restaurant in May 2012. The community centre opened in July 2013. A dentist opened in the main shopping parade in November 2018 and a Co-op food store in late January 2019. A fish & chips takeaway then joined in August 2019.

[9] https://houltonrugby.co.uk

Figure 6 - The Bayberry pub in East Wichel[10]

Community Hubs – Recreational activities

54. The Local Centre will benefit from a multi-functional hall called the Community Hub. This will offer an arrange of local activities attracting all demographics and making it the first point of call for recreation.

55. Community halls in communities across the region are proving extremely popular, with the key to success making it a flexible space which offers the services most desired. Halls that are designed with minimal flexibility, may not be able to cater to the activities of the community as it grows and evolves.

56. It will be located close to the mobility hub, along active travel corridors, so that it is easily accessible without the use of the car. This will allow most of the space be allocated to the hub rather than car parking. Residents will be polled on which activities are most popular. Typically, this might include:

- Yoga (adults and children)
- Bridge
- Book club
- Mindfulness
- Youth club
- Badminton
- Volleyball
- Fitness classes

[10] https://www.wichelstowe.co.uk

57. This will strengthen the community spirit, improve mental health and fitness, and help develop a volunteer network (e.g., shopping for older people) whilst removing significant vehicle miles travelled outside the site for recreational activities.

58. The hub will also offer changing rooms meeting needs of all users and step free access for wheelchair users and pushchairs.

Case Study - Houlton's community centre

— The Barn is home to Houlton's community gatherings, including 'meet the neighbours' events and yoga classes. It is home to the Tuning Fork restaurant, which is run by locals, using produce from local farmers. It also houses the Visitor Centre which provides information about the future of the development. Images are shown below.

Figure 7 - Community Centre, Houlton, Rugby[11]

[11] https://houltonrugby.co.uk/news-events/dollman-farm-officially-opens

Case study: Marmalade Lane, Cambridge

— This Community Hub in Cambridge is run by the local residents serving 42 homes and offering a dining room, seating area, kitchen, play area and gym. The community is a car free development.

Figure 8 - Marmalade Lane, Cambridge: Community Hub[12]

Case study: Studley Village Hall

— The Studley Village Hall is located north of Stratford with a capacity of 120 people and offers a wide range of facilities and equipment. Hire costs start at £11 per hour.

[12] https://www.theguardian.com/artanddesign/2019/may/08/marmalade-lane-co-housing-cambridge

Figure 9 - Studley Village Hall – North of Stratford[13]

59. Regular activities include:

- Monday - Line Dancing, WW, singing Group
- Tuesday - Slimming World, Pilates, Indoor Bowls, Spiritual Group, Library
- Wednesday - WI, Spiritual Group, Pilates,
- Thursday - Yoga, WW, Bridge Club, Women's Club, Young Dance class, Library
- Friday - Line Dancing, Yoga, Pilates, Kick Boxing, Library
- Saturday - WW, Library

Leisure facilities

60. Multi-functional sports fields catering to football, rugby, athletics will help maximise local sport participation, offering variety of activities which will be attractive for a diverse community. Sports clubs will be established by local volunteers in partnership with the local schools. This will further help to minimise the need to travel beyond the village.

Allotments

61. Hatton will offer allotments for residents to grow their own flowers, fruit and vegetables strengthening the resilience of the community against shortages and price increases which were seen during the COVID pandemic. It also responds to the growing trend of residents wishing to spend more time outside with nature.

[13] https://www.hallshire.com/halls/view/5405/studley-village-hall#

62. Residents may wish to sell or exchange their produce at the repair café or the local pub helping to sustain local businesses, whilst reducing carbon food miles.

63. Overall, this also reduces the need to always travel to the supermarket, when there is food available locally.

Internal street design

64. In addition to the four main categories of placemaking, internal design within the village should also be included. It will be geared towards safe streets and enabling the maximum uptake of on-demand mobility services offered by the mobility hubs.

65. This will be supported by joined up active travel corridors, segregated walking and cycling lanes that cross the village, connecting key destinations such as schools, shops, mobility hubs as well as the repair café, pub, co-working hub and community hub. Trips made this way will be more convenient that by using private cars.

Figure 10 - Conceptual Street design prioritising active travel and shared mobility services

66. Other features of the internal streetscape include:

- Drop curbs to accommodate pedestrians, wheelchair, pushchairs
- 20 mph speed limit
- One way, single lane for cars on selected streets
- Segregated cycle and walking paths
- Connections with the Greenway
- Connections with woodland walking routes

— Limited parking at key destinations

67. Case study: active travel corridors in the Netherlands

Figure 11 - Active travel corridors in Houten, Netherlands

A report by the ITDP found that in Houten 53% of residents travel to the grocery shop by bike or on foot. This rises to 79% for errands like visiting the bank or getting a haircut, and for visiting friends and family. This is greatly enabled by the safe active travel corridors in the community.

Development Internalisation (Placemaking Components)

68. Starting with residential trips, the first consideration for application to total people trip generation disaggregated by journey purpose is the placemaking elements of the Vision.

69. This provides a map for calculating realistic levels of internalisation within the site. Key considerations are working from home, education, commuting, retail, and leisure, and whether the trip will occur t0 / from home, or to / from somewhere else in Hatton. In the case of home working, no such 'trip' will actually occur unless this is to a third-place within the site itself. These 'trips' are accounted for as home working 'trips'.

Home to Education within Hatton New Community

70. Education internalisation is based upon NTS data (latest from 2019), local school attendance data, and the capacities at proposed on-site schools. Based on these factors the anticipated internalisation of school trips from residents at Hatton New Community to schools at Hatton New Community is 91% for primary and secondary school students, and 45.5% for further education (6th form).

Working from Home

71. Vectos / SLR have developed a tool to collate data on pre-Covid (2019) levels of working from home at the LA District level and then estimate both variation in working from home according to area

classification within Districts, as well as to estimate future (2023+) working from home rates by district and area classification.

72. Based on the working from home rates combined with data on proportion of car commuters who drive to work and average distance of car commutes in each area, the tool then generates estimates of the number of car trips avoided due to working from home, the car vehicle-km saved, and the associated CO2 reductions this produces. The full methodology is included in the MAP.

73. Utilising this working from home tool, the pre Covid-19 data shows that in the area of Hatton New Community 15.8% of people worked from home, and the forecast data for the same area for post Covid-19 indicates 26.7% of people are likely to work from home at any given time (on an average weekday).

Home to Employment within Hatton New Community

74. Employment at Hatton New Community comprises the employment specific uses and an element of retail, and based on local census internalisation factors for residential to employment, it is judged that up to 25% of residents travelling from Hatton New Community for work will also work within the site. Further detail is included in the MAP.

Home to Retail within Hatton New Community

75. In the absence of any more recent data, 2011 census data has been used to make a reasonable judgement on residential to retail internalisation within Hatton New Community. This data provides an average distance travelled for shopping which has been applied to the relative size of Hatton New Community. On this basis, and also due to the recommended retail offer Hatton New Community to cater for day-to-day trips, around 90% of trips are expected to be internalised. Further detail is contained in the MAP.

Home to Leisure within Hatton New Community

76. Using the same methodology as for retail trips, allowing for different leisure trip types and the design, layout, and ethos of Hatton New Community, it is expected that around 61.5% of home to leisure trips will remain internal to Hatton New Community. Further detail is contained in the MAP.

Education from Home within Hatton New Community

77. There will be an element of external demand for education at Hatton New Community, and education trips that derive from Hatton New Community are already accounted for within the residential trip generation, with the arrival and departure profiles reversed. As such, 85% of education trips are internalised daily in this assessment.

Employment from Home within Hatton New Community

78. Employment trips that derive from Hatton New Community itself are already accounted for within the residential trip generation, and where these are discounted from the total employment demand the arrival and departure profiles are reversed. As such, 29% of employment trips are internalised daily in this assessment.

Retail from Home within Hatton New Community

79. Retail trips that derive from Hatton New Community itself are already accounted for within the existing facilities from Adventure World, Hatton Country World and Hatton shopping village.

80. There will also be an element of new retail which will absorb the day-to-day needs of the new community and has been considered ancillary to the development. The additional retail is not expected to attract any trips external to the new community other than that already visiting the existing retail and leisure facilities.

Total Internalisation

81. The placemaking element of the Vision is represented here through a detailed trip internalisation analysis, with supporting evidence, judgements, and comprehensive methodology set out in the MAP.

82. This methodology demonstrates that around 66% and 62% of residential trips are likely to be internalised in the AM and PM peak (3-hour) periods respectively, which equates to an internalisation factor of 67% across the day from residential trip generators.

83. Factoring in additional land uses at Hatton, containment of all trips across the site is realistically in the region of 58% over the day. These trips will be split across a range of modes with the vast majority made by active travel modes accommodated within the site. It is reasonable that a very small proportion might be made by car however the masterplan would be designed to facilitate this type of car movement, but not promote it above more sustainable modes (for example roads being non-direct and designed to a pedestrian scale, with active travel corridors being direct).

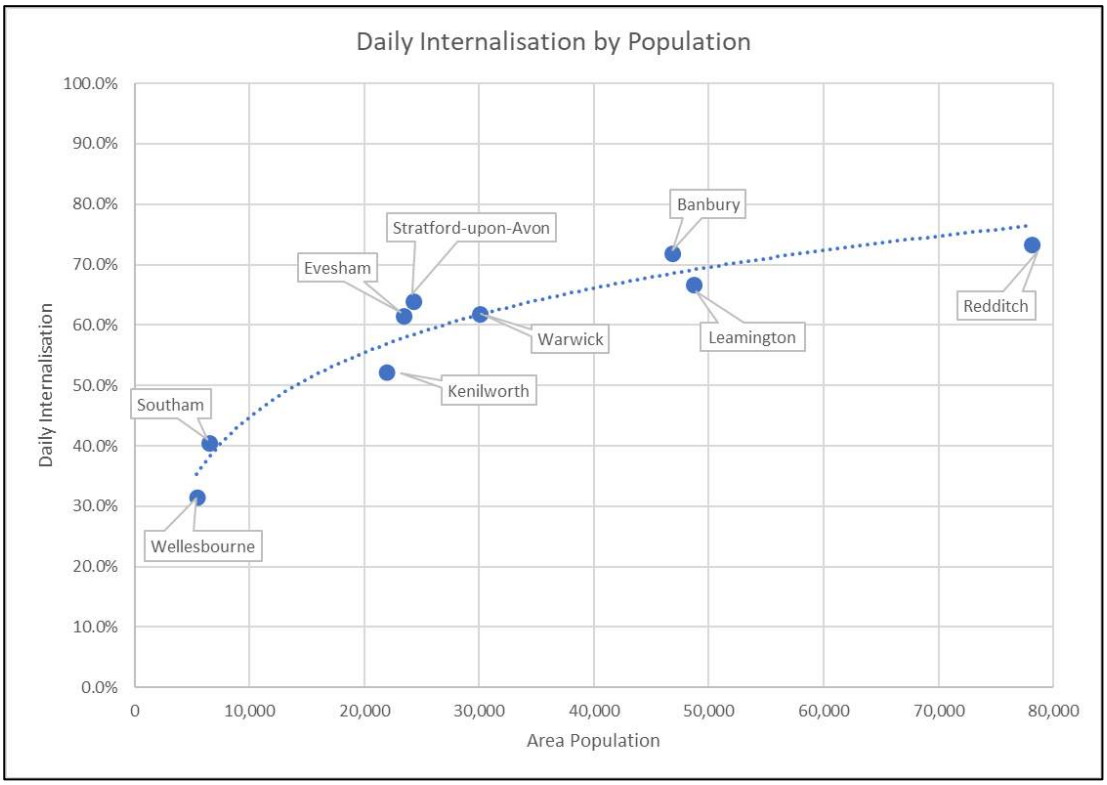
Viable Size for a Self-Sustaining Community

84. Garden village settlements become self-sustaining when infrastructure, such as schools, mobility hubs, open space, leisure facilities and work hubs (third places) and workplaces for instance are present. This is as much necessary infrastructure as roads are, and should be provided for before a site can become commercially self-sufficient.

85. The scale of such settlements is important in establishing the tipping point where critical mass achieves higher levels of internalisation along with plateauing levels of external vehicle movement. The overall benefit of a larger settlement in housing and employment numbers will often outweigh external movement across the day. A crude illustration of the estimated levels of internalisation of movement across the day, plotted against relative population size, is shown at **Graph 1** to

demonstrate how increased levels of development create increasing levels of sustainability. It is important to note that size is not the only factor that affects internalisation, for example Stratford-upon-Avon has a large and well-established town centre that not only internalises trips but also attracts more trips from further afield.

Graph 1 – Estimated Levels of Internalisation by Population



86. Hatton New Community is the right location to provide such a self-sustaining settlement, and work has been undertaken to establish a threshold where more crucial development can be provided without incurring detriment to the external movement networks.

87. Thus, working towards the UK's net carbon zero aspirations whilst maintaining necessary growth. In order to transition to net zero carbon in the transport sector, a place-based approach which focuses on solutions to create better neighbourhoods, and healthier, happier and more resilient communities is critical.

88. New and independently located settlements such as that at Hatton New Community maximise on the garden village principles in becoming self-sustaining communities in their own right, rather than bolt-on development to existing urban settlements. In designing such a settlement from its very inception, a truly socially inclusive place to live and work can be made.

89. Not only will Hatton New Community allow for levels of internalisation beyond that of established small settlements of a similar size, but it will act as a new centre for day-to-day needs for existing residents in the surrounding villages.

Trip Generation

90. **Table 1** demonstrates the importance that placemaking and a self-sustaining community will have on the external vehicular trips for the development.

Table 1 – Comparison of External Vehicle Two-Way Trips (WCC vs MAP Trip Rates)

4,500 Units	AM (0700-1000)	PM (1600-1900)
WCC Trip Rates	**6,075**	**6.957**
MAP Trip Rates	**3,379**	**3,715**

91. **Table 1** shows that this will result in circa 44-46% less external traffic during the AM and PM 3-hour peak periods, which will help towards the UK's net carbon zero aspirations. This further demonstrates the benefits of a creating critical mass to support further the mobility measures and to support higher levels of local living.

Summary

92. The potential to develop a successful and thriving new community at Hatton has been demonstrated throughout this Internalisation Note. Large-scale development prospers when designed in a coordinated manner, with the key placemaking and mobility features providing for truly socially inclusive communities that prosper and retain trips within the site.

93. In the case of Hatton New Community, local living is placed as the highest priority, followed by a movement hierarchy with convenience of single occupancy vehicular travel at the bottom. This create an environment wherein local trips are encouraged and the effect of the development on the local highway network is minimised in terms of traffic effect.

94. Policy guidance is also changing to reflect these trends and to present a vision-led approach which acknowledges that development cannot go on in the way it has done traditionally. More emphasis is now being placed on meeting climate change targets and this means reducing carbon emissions, thus reducing the need to travel and increasing sustainable travel uptake for new developments where growth must occur.

95. There is now ample expression in Government policy to this effect, and the recently published DfT Circular 02/2013 now states at paragraph 12 that;

96. "*New development should be facilitating a reduction in the need to travel by private car and focused on locations that are or can be made sustainable. In this regard, recent research on the location of development6 found that walking times between new homes and a range of key amenities regularly exceeded 30 minutes, reinforcing car dependency. Development in the right places and served by the right sustainable infrastructure delivered alongside or ahead of occupancy should have no significant impact on the SRN. This is a key principle for planning for development in all local authority areas and will be an expectation of the Company*."

Appendix 4: Transport Vision Document (March 2023)

vectos. | PART OF SLR

TRANSPORT VISION DOCUMENT

Hill Residential Ltd

Hatton New Community

March 2023

Transport Vision Document

Contents

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Appendices

Executive Summary

The purpose of this report is to set out a Transport Vision mobility strategy for the development of a new settlement at Hatton. The document is prepared in support of a Regulation 18 Local Plan representation.

The site is located within Hatton, approximately 5km west of Warwick Town Centre (straight line distance). Hatton is a moderately sized village and parish which contains key local facilities including a local shop, railway station, restaurants, nursery, shopping village, and landmarks including the 21 locks on the Grand Union Canal. Warwick Town Centre benefits from a range of key services and facilities as would be expected within a Town Centre.

The creation of a new settlement at Hatton will help to meet local housing requirements in a pattern of growth that is sustainable, beautiful and accessible and which is capable of accelerated delivery due to advanced infrastructure already being in place.

Hatton New Community builds on its excellent location and the established operation 'Hatton Country World' to the west of Warwick. The design and masterplanning of the new community ensures it is permeable by active travel modes and it aims to attract a wide range of people who will have the opportunity to embrace local living and sustainable mobility through a site design based on the hierarchy of travel and SAM Framework. As the site comes forwards, an accompanying Travel Plan will build on the design of the site and encourage modal shift from single car occupancy to walking, cycling public transport and car clubs, learning from already changing travel habits in society. The development will provide the means for policy compliant growth whilst also contributing to climate change and healthy living aims.

The overall Transport Strategy adopts the Vision and Validate approach and focuses on an overall access strategy based on a 15-minute community concept. In the first instance the scheme would seek to minimise the overall need to travel through virtual mobility (working from home, online deliveries etc). The next stage is to contain trips within the site and this will be delivered through provision of on-site services and facilities (including retail, leisure, and primary and secondary education as well as on site mobility hub and micro consolidation centre). Containment will also be facilitated through delivery of high quality and attractive active travel routes within the site. It is accepted that the development will create demand for off-site trips and the scheme will deliver a package of off-site sustainable access measures to provide a realistic opportunity for off-site trips to be made sustainably. These includes enhancement to active travel links to Hatton and Warwick Parkway Rail Stations, Warwick Town Centre and Leamington Spa. The public transport Strategy can include provision for a Demand Responsive Transport Bus services. Car clubs will also be provided which can assist with limiting car ownership within the site.

This document sets out the access strategy to support a new community including walking, cycling, public transport and vehicles. The primary vehicle access will be from Hockley Road. Secondary access will also be provided onto Hockley Road and Station Road as well as the use of Dark Lane. The existing nature of Dark Lane will be changed to become a more pedestrian and cyclist friendly environment by adopting quiet lane principles. National and local policy supports and encourages growth which in turn is supported by a presumption in favour of sustainable development which encourages mobility, health and well-being, and economic vitality.

People across the UK choose their time and method of travel, or indeed whether to travel at all, based on the heuristic process of acting to minimise their own inconvenience. Driving a car is one of many choices for mobility and that choice is exercised based on multiple behavioural factors. The aim for Hatton New Community is to ensure that the residents attracted to live here who may prefer to drive over other modes shift to sustainable modes as new habits are established and encouraged by the Travel Plan and TPC.

At the same time, evidence nationally shows a marked reduction in people learning to drive, an increase in the number of people wishing to live in city centres, and the development of mobility as a service including the rising popularity of car sharing and car clubs for example.

It is not the purpose of planning policy to protect the convenience of the commuting car driver, and this site is excellently located to promote a new community which encourages sustainable development, for residential, employment or commercial uses. The framework for non-motorised modes of travel at this site is established in this report, including a focus on the travel hierarchy which places active travel and travel by sustainable transport above the private vehicle in terms of importance during the design process.

These features of development are well grounded in Warwickshire's policies.

The traffic modelling undertaken in both the local junctions and Paramics models demonstrates that using the Warwickshire County Council trips rates will result in delays and congestion on certain parts of the network that would require highway capacity improvements. It demonstrates that the P&P approach will not be a viable option to achieve this level of development anywhere in or near Warwick. However, the V&V approach, demonstrated through the MAP trip rates, will result in a manageable road network and one that will still require some physical junction improvements.

The detailed modelling, using the MAP trip rates, for the primary access will results in either a roundabout or signalised junction, and the secondary access will be a ghost island priority junction.

Similar using the MAP trip rates, the detailed modelling for other local junctions demonstrates that improvements will need to be made at the A4117 Birmingham Road / B4439 Hockley Road junction. This will result in either a roundabout or signalised junction.

The Paramics modelling, again using the MAP trip rates, identifies congestion at the A46 / A4177 Stanks Island junction. This then causes additional impacts in and around Warwick whereby existing traffic is re-routing and causing congestion elsewhere. It is proposed that physical improvements should be considered at the A46 / A4177 junction and run through the Paramics model to determine if the impacts are only limited to the one junction. Improvements to the A46/A4177 junction will need to consider all modes.

1 Introduction

Overview

1.1 This Vision Strategy has been prepared by Vectos on behalf of Hill Residential Ltd to outline the approach to the transport vision for the proposed mixed-use development known as Hatton in Warwickshire.

1.2 Hatton will function as a new village settlement. In addition to the proposed up to 4,500 residential dwellings to come forward as a part of the promotion, Hatton will enhance the existing range of shops and services and leisure facilities, and provide employment, education and mobility hubs, including open space.

1.3 Based on industry standard data, the majority of travel is for reasons of education and leisure (including incidental shopping). Commuting and business form other reasons for travel, with a marked increase in working from home or from a Third Place in the community since the onset of the pandemic, a trend which is expected to last.

1.4 By design, this anchoring and internalising of day-to-day trips within the local community will be maximised by this site.

1.5 The South Warwickshire Local Plan (SWLP) Scoping Consultation 2021 indicated that the two districts may need to find land for as many as 35,000 new homes.

1.6 The priority will always be to make best use of urban land within existing settlements but the consultation recognised the likely need for urban extensions and potential new settlements, which could offer a more sustainable solution.

1.7 It identified a series of growth options, of which the most popular from the consultation exercise in 2021 was Rail Corridors, which could achieve the greatest modal shift away from car use and provide a stimulus for investment and improvement of train services.

1.8 The reality is that the plan will contain a mix of growth options to deliver the most sustainable forms of development across the two districts. However, there is a strong case for a new settlement along the rail corridor through Warwick District, with the preferable location being at Hatton.

This report

1.9 The purpose of this report is to set out the Transport Vision for Hatton and is prepared in support of Regulation 18 representations to the Warwick Local Plan. This vision is based on the emerging principles of promoting sustainable travel via a design process which considers the travel hierarchy, i.e., placing active travel and public transport at the forefront of the design process and considering their importance above that of trips by private vehicle.

1.10 The remainder of this report is set out as follows:

- **Existing Conditions** – summarises the existing situation in terms of sustainable travel;

- **Changing Mobility Habits** – describes the trends of changing travel patterns;
- **Vision and Validate Approach** – sets out the Vision and Validate approach;
- **Access Strategy** – focuses on access to the site by all modes;
- **Trip Forecast and Assessment** – forecasts the trip generation associated with the proposals;
- **Traffic Impact** – assesses the impact of the proposed development on the local highway network;
- **Modelling** – sets out junction and network modelling based on existing traffic flows and the traffic impact assessment;
- **Conclusions** – summarises and concludes.

2 Existing Conditions

Site Location

2.1 The site is located within Hatton, approximately 5km west of Warwick Town Centre (straight line distance). It is bound to the north by Hockley Road, to the northeast by Hatton Park and to the southwest by the M4O. It is dissected by the Chiltern Mainline railway and by the Grand Union Canal.

2.2 Hatton is a moderately sized village and parish which contains key local facilities including a local shop, railway station, restaurants, nursery, shopping village, and landmarks including the 21 locks on the Grand Union Canal.

2.3 The location of the proposed development has been shown in **Figure 2.1**. Additionally, **Figure 2.2** demonstrates the site location in relation to Warwick nearby.

Figure 2.1 – Site Location

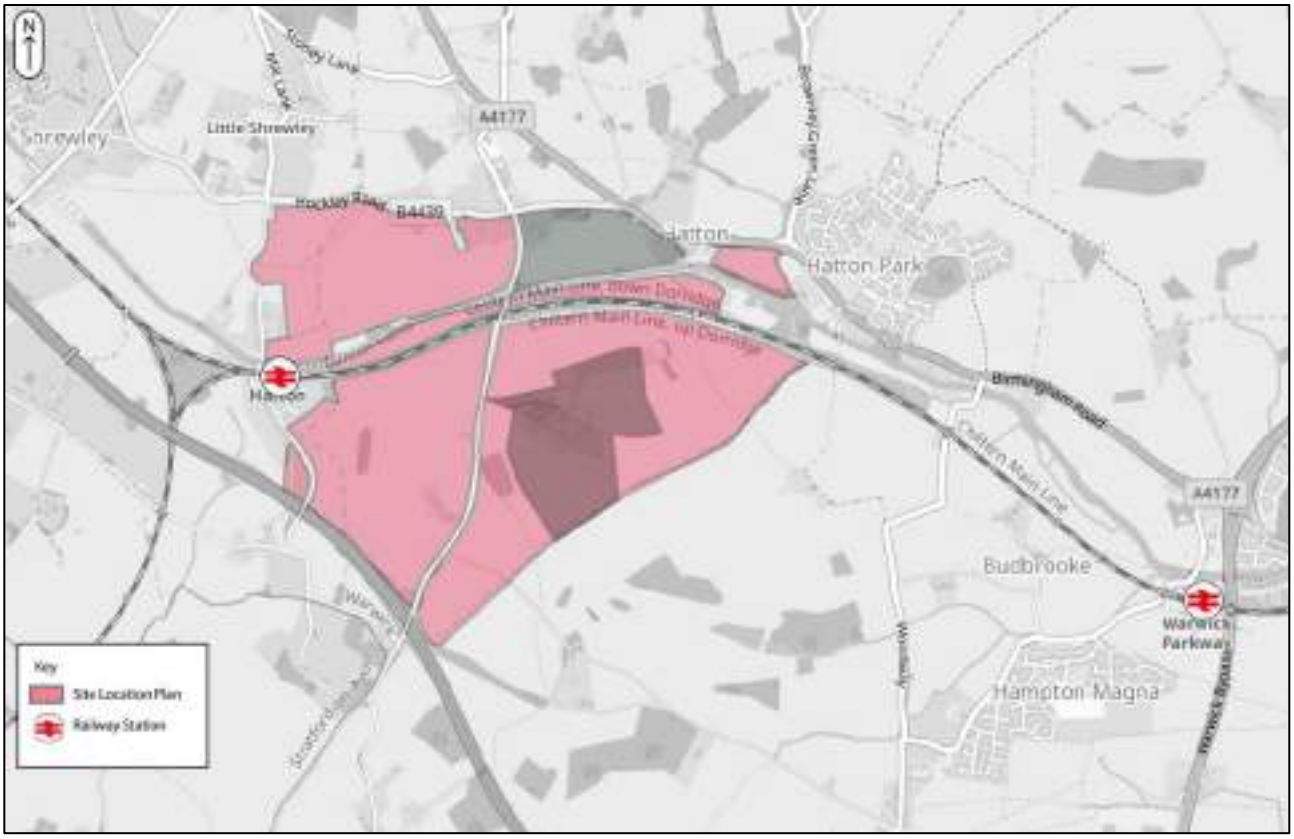
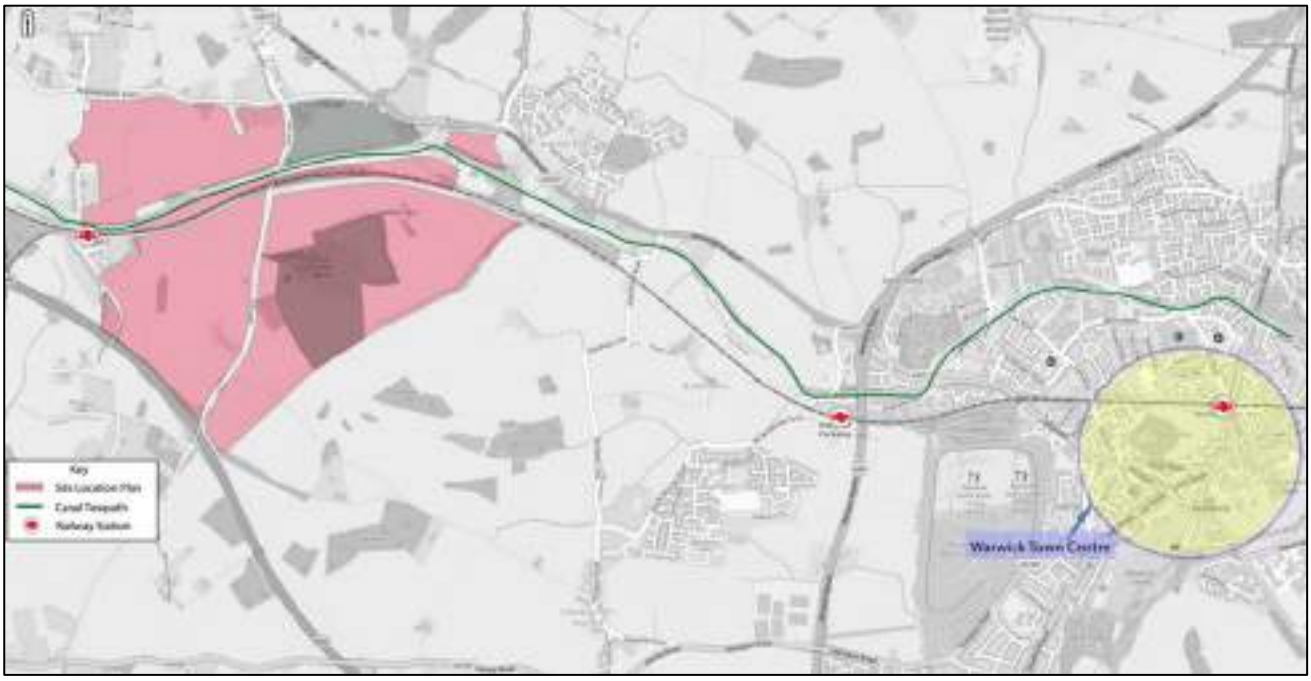


Figure 2.2 - Site Location in relation to Warwick Town Centre



Local Services and Facilities

2.4 There are a range of local facilities and amenities within a comfortable walking and cycling distance of the site. In addition, there are also services and facilities already present within the site boundary itself including Hatton Village with independent shops and a garden centre and a public swimming pool, a nursey, Hatton adventure farm, a cycle shop with repair service, a local grocery shop and a hairdresser's salon. Outside of Hatton to the east, Warwick Town Centre is an approximate 5km distance which provides further facilities and services. These are further displayed in **Table 2.1** and **Figure 2.3**.

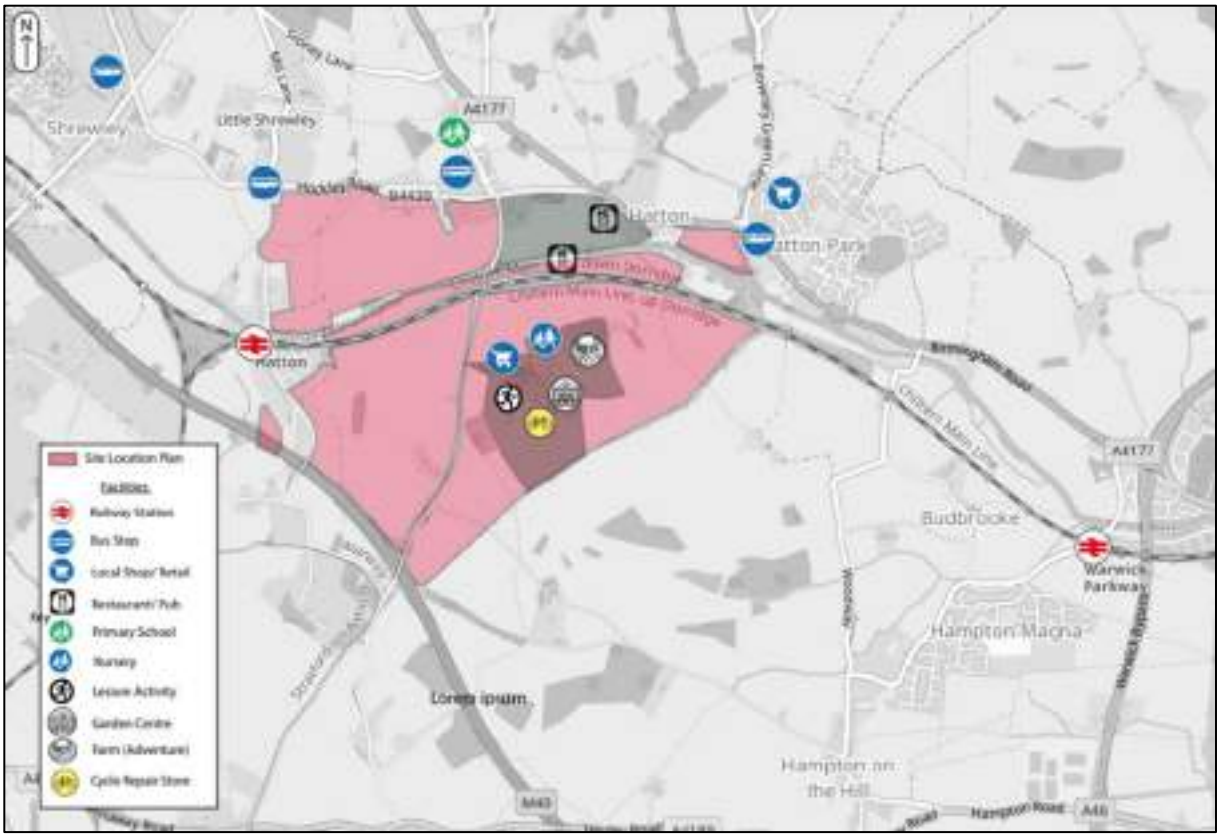
2.5 Due to the large scale of the site area, the distances in **Table 2.1** have been measured from the centre of the site approximately from Dark Lane. The accessibility criteria for the walking and cycling distances are measured against an average walking speed of 5kph and a cycling speed of 15kph as per industry standards.

Table 2.1 - Local Facilities

	From Centre of Site		
Local Facility	**Distance (m)**	**Walk (mins)**	**Cycle (mins)**
Public Transport			
Hatton Railway Station	900m	11	4
Warwick Parkway Station	3000m	36	12
Bus Stop- Little Shrewley Crossroads	1400m	17	6
Bus Stop- The Green	1300m	15	5
Education			

	From Centre of Site		
Local Facility	**Distance (m)**	**Walk (mins)**	**Cycle (mins)**
Primary School- The Ferncumbe	1300m	15	5
Nursery- Hatton Village	400m	5	2
Nursery- Banana Moon	1000m	12	4
Food and Drink			
Café - Hatton Locks	950m	11	4
Pub/Restaurant- The Hatton Arms	1200m	14	5
Leisure			
Hatton Adventure World - Farm	400m	5	2
Hatton Swimming Pool	400m	5	2
Retail/ Employment			
Hatton Village - Multiple Shops	400m	5	2
Cycle Shop- Warwickshire Cycles	400m	5	2
Hatton Village - Garden Centre	400m	5	2
Warwick Town Centre	5000m	55	15

Figure 2.3 - Local Facilities Map



2.6 It is important to highlight, that the services and facilities outlined in **Table 2.1** would be significantly enhanced as part of the proposed mixed-use community, which includes additional education, retail, leisure, and employment opportunities.

2.7 The proximity of the site to existing and proposed facilities is essential in encouraging a shift towards active travel for users of the site, who may otherwise lean towards the utilisation of private vehicle to make these trips. The proximity to the public transport links, leisure, and retail/ employment are considered good for this site location.

Existing Access

2.8 The site is dissected by the Chiltern Mainline railway and by the Grand Union Canal, and there are access points which provide a crossing facility across key landmarks. There are several primary vehicular access points from the site, Dark Lane, Station Road and Hockley Road.

2.9 Dark Lane travels from the north to the south of the site through the centre and over the M40 towards nearby villages. Station road runs to the west of the site from the north to the south and over the M40, shortly connecting to dark Lane. In the north from Hockley Road (B4439) there are access points to the site which travels to the east of Hatton. There are existing access points which provide excellent routes for pedestrians and cyclists which can be accessed from the site.

2.10 The canal towpath (see **Figure 2.4)** is an excellent, traffic free route which provides a shared pedestrian/ cycleway path which travels in the east direction towards Warwick. The canal towpath

travels through Hatton Locks, located just north of the site. The path can be joined from the Hatton Locks access road where a bridge and car park is provided for suitable access. The canal towpath provides a direct route between Hatton and Warwick Parkway station. Warwick Parkway station provides opportunity for rail interchanges to Warwick and further locations. The canal towpath further continues through Warwick and access ramps/ steps are located for access for both cyclist and pedestrians.

Sustainable Travel Conditions

2.11 The site in Hatton is located in a highly accessible area with several opportunities to travel via sustainable travel modes including walking, cycling and public transport (bus and rail).

Walking

2.12 The surrounding area of the site, despite the rural nature, has a good network of well-kept footways that provide connections to local facilities, such as to Hatton Village. Both Hatton Station and Warwick Parkway Station are accessible by foot and by bike via the canal towpath which provides a self-sustaining environment and encourages active travel.

2.13 For the existing infrastructure, Hockley Road, which bounds to the north of the site has a good quality footway on the northern side which is separated at times by a grass verge away from the carriageway. This footway further connects to the wider pedestrian network including a footway on Birmingham Road, which is present along its western side to the north of the Hockley Road/Birmingham Road junction, and on its eastern side to the south of the junction.

2.14 Further to the south of the site, the footway becomes a high-quality shared surface for both pedestrians and cyclists before the Birmingham Road/ A46 junction. This shared surface is part of an advisory route towards the town centre of Warwick. These footways discussed are appropriately equipped with dropped kerbs and occasional tactile paving.

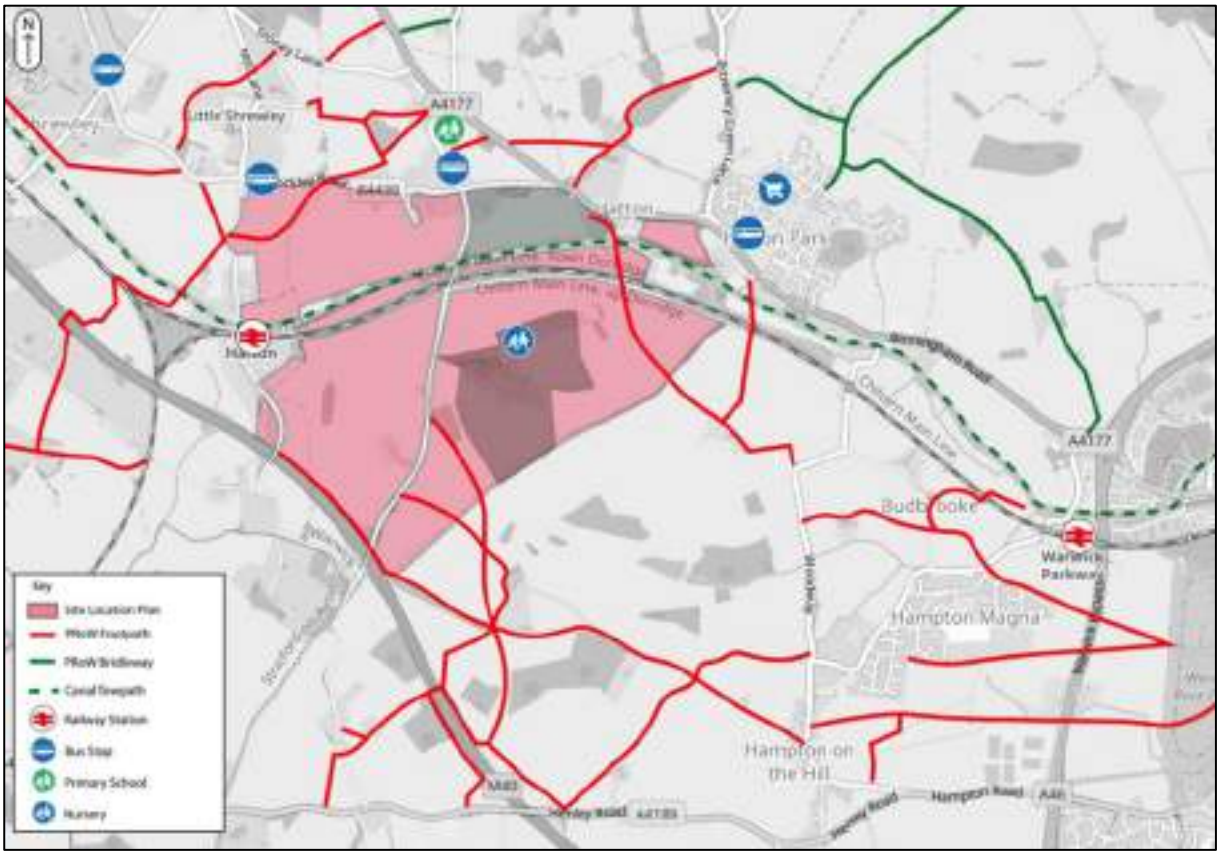
2.15 Dark Lane which travels directly through the centre of the site, which can be accessed from Hockley Road to the north and Gannaway Road (A4189) to the south, does not present any footways.

2.16 There is a potential opportunity for a high-quality route to Warwick Parkway for pedestrians and cyclists following the existing Tow Path which will be further encouraged to promote active travel, suitable for commuting and leisurely purposes.

Public Rights of Way

2.17 A range of Public Right of Ways (PRoWs) operate in the vicinity of the site, largely comprising public footpaths, see **Figure 2.4** which demonstrates the footpaths and bridleways.

Figure 2.4 - PRoW Routes



2.18 A footpath runs diagonally through the northwest of the site and provides a pedestrian link from Hockey Road to Station Road and is unpaved.

2.19 An additional footpath runs through the northeast of the site, connects Canal Road, and subsequently Birmingham Road, the Woodway south of the site. The Public Right of Way runs over the railway line via a footbridge and its route is present on the ground across the site currently.

2.20 There are two further public footpaths operating through the site which connect Dark Lane to Henley Road via two sets of gates off Dark Lane.

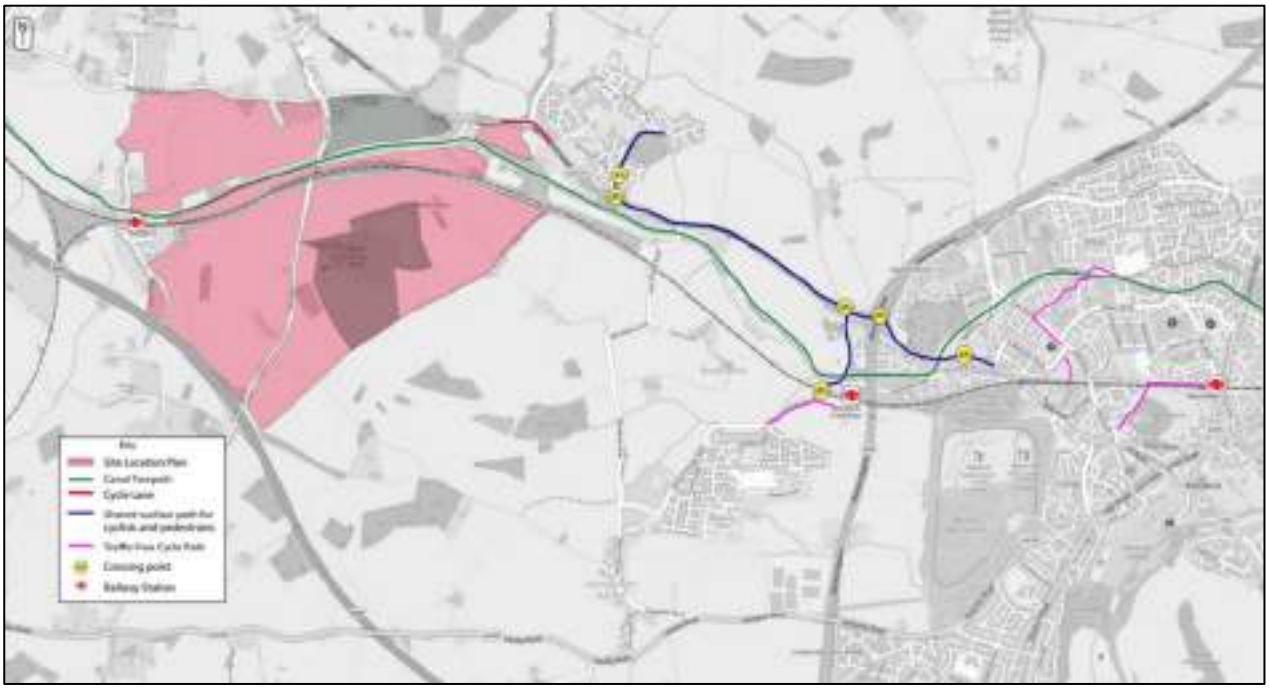
2.21 The surrounding public footpaths and bridleways are easily accessible for pedestrians, maintaining safe access points to and from the site, and it is predicted that with these accessible routes, walking levels will be increased.

Cycling

2.22 The surrounding area of the site is highly appropriate for cycling, for leisure routes and commutable routes across both advisory cycle routes and National Cycle Network (NCN) routes.

2.23 **Figure 2.5** demonstrates the site location plan in relation to the existing cycle facilities in Hatton and towards Warwick which include traffic- free routes, the canal tow path, cycle lanes and shared-surface paths.

Figure 2.5 - Local Cycling Routes



2.24 The primary desire line for cyclist is eastbound towards Warwick Parkway Rail station, Warwick Town Centre and to the west to Hatton Rail Station.

2.25 There is provision of traffic free cycle routes for the majority of the route from the site to Warwick Parkway Rail Station and Warwick Town Centre via Hockley Road and Birmingham Road. There are some locations where there are gaps in cycle provision as shown in **Figure 2.5** and new cycle provision is necessary and this is set out later in the report.

2.26 A further traffic free route providing eastbound travel is facilitated via the Canal Towpath.

2.27 Access to Hatton Rail Station is via station Road, which is a quiet rural road, suitable for cycling.

2.28 The canal towpath which runs through the centre of the site can be used for leisure use and well as commuting purposes. As it is a shared surface route for cyclists and pedestrians, it can be predicted that the pedestrian will likely take priority over cyclists on the towpath.

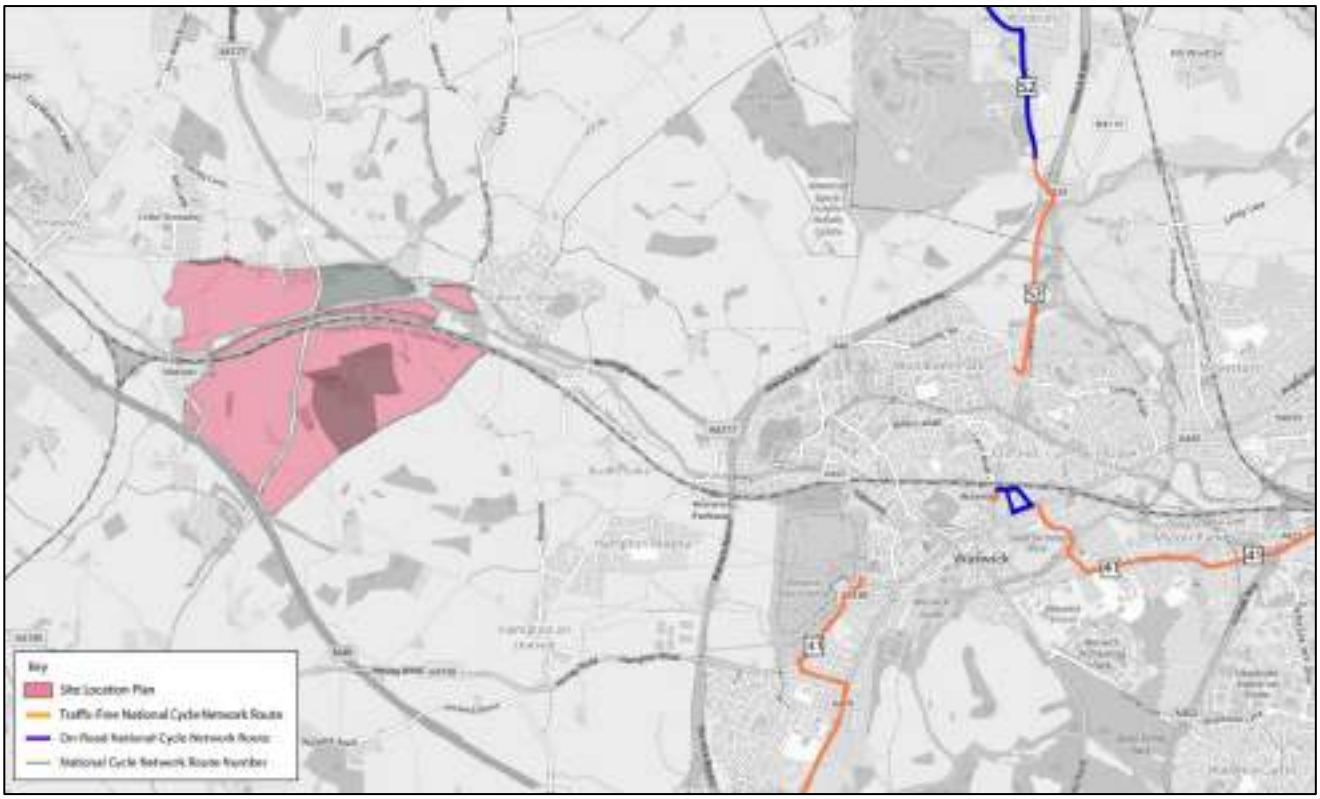
National Cycle Network Routes

2.29 National Cycle Network routes 41 and 52 route to the southeast and north of Warwick respectively. National Cycle Network 41 (NCN 41) is a long-distance route that when complete, will connect Bristol, Gloucester, Stratford-Upon-Avon, and Rugby. The route is almost 200km long and is 40% traffic-free. NCN 41 can be joined via Warwick rail station which can be accessed from the site via the shared footway/cycle way Birmingham Road, in under 30 minutes.

2.30 National Cycle Network Route 52 begins in Warwick and will run north through Warwick through Coventry and Coalville before linking to NCN 6 just west of Loughborough. NCN 52 begins just north of Warwick Railway Station on Coventry Road, so therefore can be accessed via the same route from the site before joining the shared foot/cycleway on Coventry Road.

2.31 These NCN routes in relation to the site location is highlighted in **Figure 2.6.**

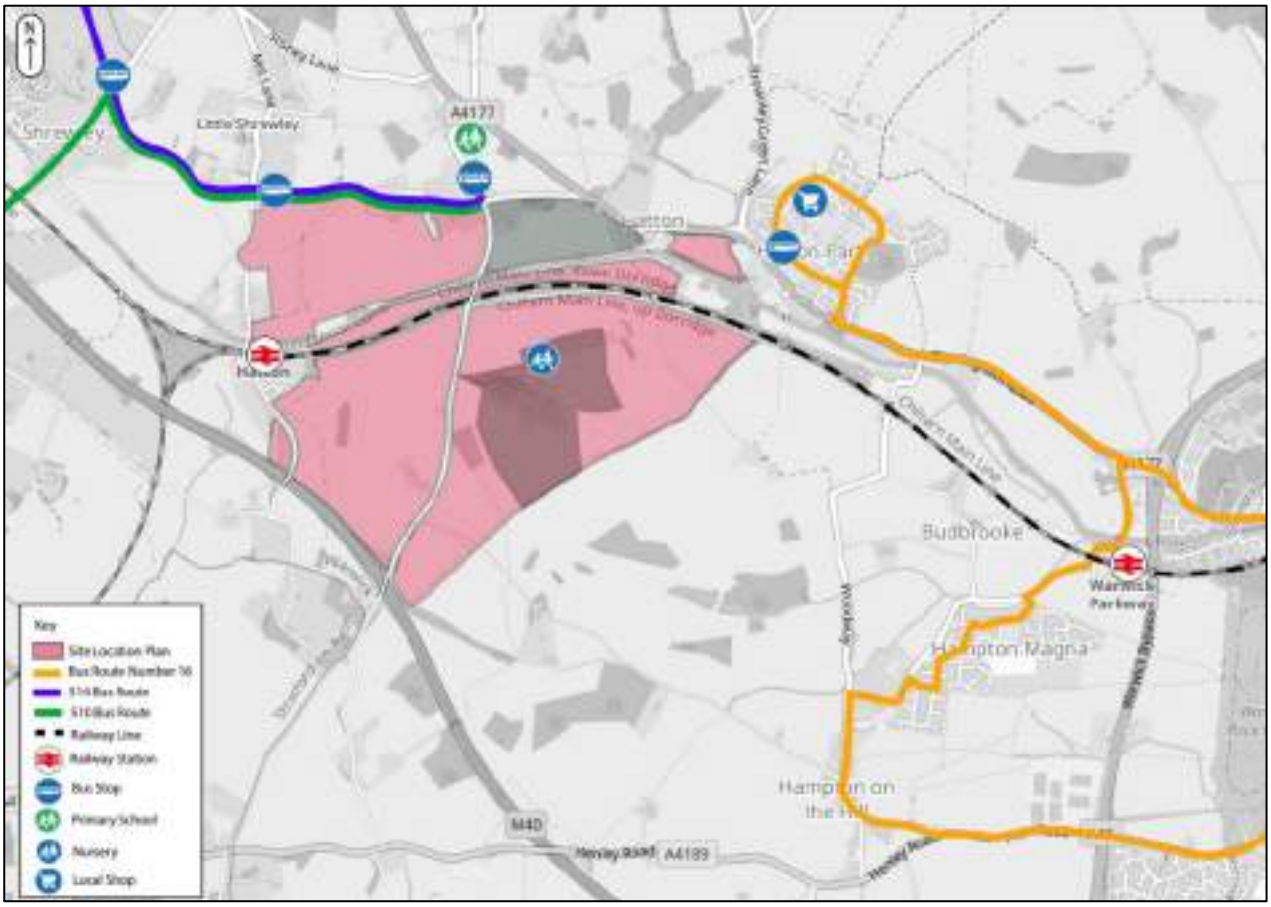
Figure 2.6 - National Cycle Network Routes



Public Transport

2.32 Public Transport services can be accessed within short walking and cycling distances from the site, which provide opportunities for travelling via bus or rail, and **Figure 2.7** demonstrates the public transport links within the local area from the site.

Figure 2.7 - Public Transport Links



Rail

2.33 The site is located within short, accessible distances of two railway stations, Hatton, and Warwick Parkway.

2.34 Hatton Railway station is located just west of the site and can be accessed with minutes from the western side of the site, or within an approximate 11-minute walk or a 4-minute cycle from the centre of the site via either the canal towpath or station road.

2.35 Hatton station provides cycle parking spaces which are bike stands outside the station and there are an available 48 car parking spaces. Travelling from Hatton station provides the opportunity to change at Warwick Parkway or Warwick which are all on the same direct line asking it suitable for multi-modal journeys to Warwick.

2.36 Warwick Parkway station is located to the east of the site, on the outer area of Warwick town centre, approximately a 3km distance, a 36-minute walk or 12-minute cycle via Birmingham Road or the canal towpath.

2.37 Warwick Parkway provides cycle parking stands which are sheltered and covered by CCTV located on platform 1 and a further 700+ car parking spaces, allowing a multi-modal journey. Leamington Spa, Stratford-upon-Avon, Birmingham, High Wycombe, London and more.

2.38 **Table 2.2** below summarises the rail journey services for Hatton Warwick Parkway Station including the frequency and journey time to several destinations.

Table 2.2 - Rail Journey Services

Destination	Journey Time	Frequency
Warwick Parkway Railway Station		
Hatton	4 minutes	Every 30 minutes
Dorridge	10 minutes	Hourly
Leamington Spa	10 minutes	Every 30 minutes
Solihull	15 minutes	Every 30 minutes
Banbury	20 minutes	Every 30 minutes
Birmingham Moor Street	25 minutes	Every 30 minutes
Stratford-Upon-Avon	30 minutes	Every 40 minutes
Bicester	40 minutes	Every 40 minutes
High Wycombe	1 hour	Every 30 minutes
London Marylebone	90 minutes	Every 30 minutes

2.39 As demonstrated in **Table 2.2,** London can be reached directly from Warwick Parkway, which is just a 3-minute rail journey from Hatton, alternatively the station can be reached in 20 minutes by cycling from the site. Warwick Parkway lends itself to multimodal commutes and other journey types by the 18 sheltered cycle storage spaces covered by CCTV, and direct services to London Marylebone every 20-30 minutes. London can be reached by Warwick Parkway in just under 90 minutes. The service also offers connections to other key employment areas in High Wycombe, Bicester, and Leamington Spa.

Bus

2.40 The nearest bus stops are located north of the site, an approximate 1km distance from the centre of the site and are along Hockley Road. The services 510 and 514 are operated by Flexi Bus and 514 service operates between Solihull, Lapworth and Hatton. The bus service runs once each way on Mondays and is known as a flexi-service. North of Dark Lane along the Green a further bus stop is served by the 510 buses, which is another flexi-service that connects Henley-in-Arden, Claverdon, Hatton and Warwick.

2.41 The semi demand- responsive service is open to everyone but is prioritised towards people with mobility problems as each bus is equipped with an electric lift or low floor ramp to help passengers on

board, and all vehicles can carry wheelchairs/mobility scooters and pushchairs. The buses run on a set route, however if you live near the route and have a mobility problem, you can request a pickup closer to home.

2.42 Bus stops to the east of the site, in Hatton Park which is an approximate 15-minute walk, are serviced by the number 16 bus which is an hourly service running Monday-Saturday that connects Hatton Park, Claverdon, Hatton and Warwick.

2.43 The location of these bus stops and the bus routes, in relation to the site is demonstrated in **Figure 2.7.**

2.44 All existing bus stops are within a suitable walking distance of the northern parts of the site**,** however, there are opportunities to increase the pedestrian infrastructure to allow more accessible, safer walking routes to the bus stops to the east.

Local Highway Network

2.45 The site can be accessed via several roads which border the site, Hockley Road to the north, Dark Lane to east which travels through the middle of the site and Station Road to the west.

2.46 Hockley Road runs in a west-east direction from Shrewly, to the immediate north of the site. The road is currently a single carriageway with a footway running along the northern side of the road and is subject to a 50mph speed limit before decreasing to a 40mph speed limit before reaching the crossroads of The Green and Dark Lane. The road continues and reaches Birmingham Road to the east of the site which travels towards Warwick.

2.47 Dark Lane is a single country lane subject to a 40mph speed limit which travels through the centre of the site. Dark Lane notably crosses over the canal and railway line via narrow bridges which accommodates the movement of one car at a time.

2.48 Station Road to the west of the site travels from Hockley Road in a south direction to Dark Lane. The road is subject to a 50mph speed limit and provides vehicular access to Hatton Railway Station.

2.49 With regard to connections in the south, the M40 runs along the south border of the site, with junction 15 being the nearest junction for joining, located an approximate 8km from the site. This junction can be accessed from the A4189 or A46 for both eastbound and westbound to the motorway. The M40 connects London, Oxford, and Birmingham.

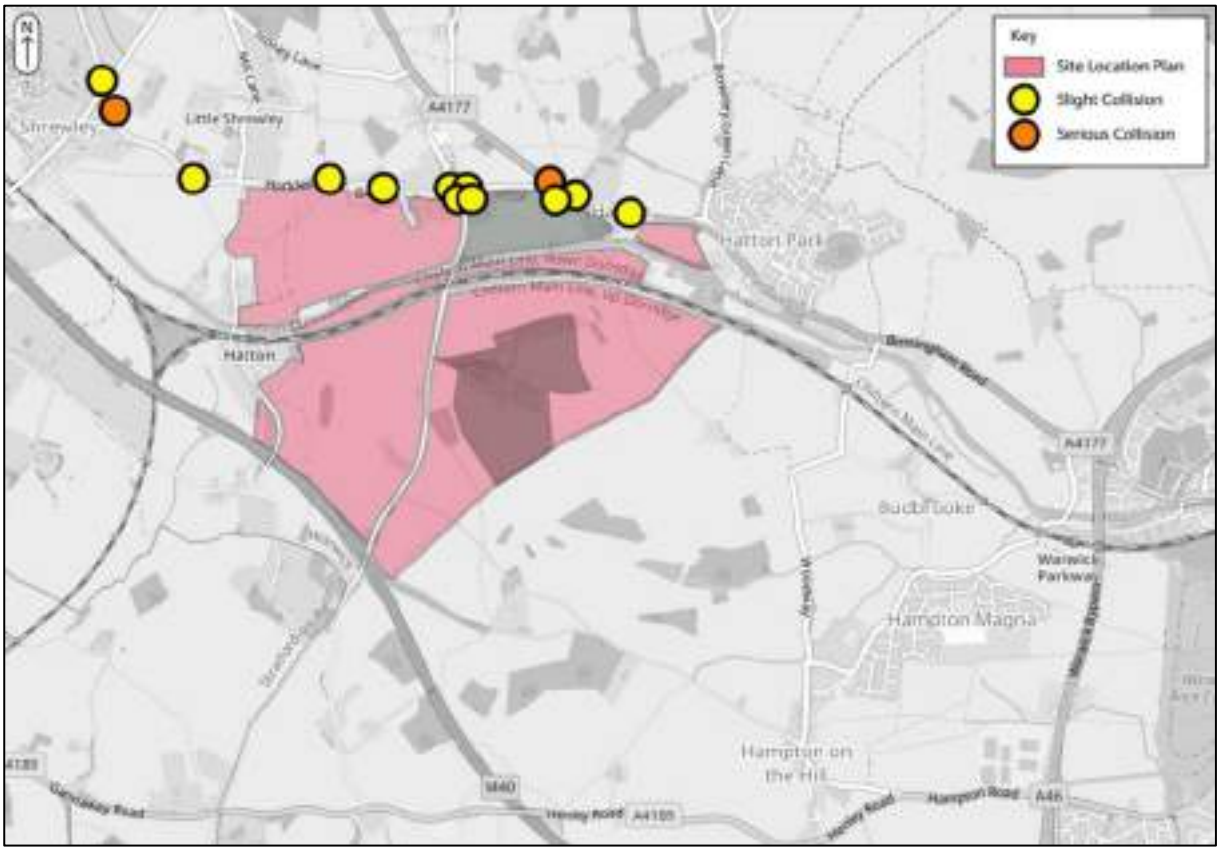
Personal Injury Collision Data Analysis

2.50 An investigation into the Personal Injury Collisions (PIC) has been undertaken in order to examine the safety of the local highway network and this data has been obtained from Warwickshire County Council (WCC).

2.51 In 2021, the collision data was obtained and reviewed in our previous ITA for the 5-year period until June 2021, and the data has now been updated from WCC for the time period until December 2022.

2.52 **Figure 2.8** demonstrates the location of the recorded 13 collisions within the vicinity of the site area. The collisions are reviewed below and are ranked in order of severity, with the level's being 'slight', 'serious' and 'fatal'.

Figure 2.8 - Recorded Collision Data



PIC Review

2.53 Collision 1 occurred on the 26th of April 2016 at 14:45 on Hockley Road under 'dry' and 'fine' weather conditions. The collision occurred when a car travelling along Hockley Road failed to negotiate the left bend and drifted onto the opposing carriageway and into the path of oncoming traffic. The collision collied with a minibus and resulted in one casualty and was classified as 'serious' in severity.

2.54 Collision 2 occurred on 13th May 2016 at 17:00 under 'dry' and 'fine' weather conditions. The collision occurred at the Birmingham Road/Hockley Road junction when a car pulled out of the junction, turning right onto Birmingham Road, and failed to see a motorcycle travelling along Birmingham Road. The collision was classified as 'serious' in severity and resulted in one casualty.

2.55 Collision 3 occurred on 14th January 2017 at 11:18 under 'fine' and 'dry' weather conditions on the Hockley Road/Dark Lane junction. The collision occurred as a car turned right out of Dark Lane onto Hockley Road and pulled out into the path of another car. The collision was classified as 'slight' and resulted in four casualties.

2.56 Collision 4 occurred on 25th October 2017 at 13:50 under 'dry' and 'fine' weather conditions on Birmingham Road, near junction with B4439. The collision occurred as a driver entered ongoing traffic

due to approaching a slight bend up an incline, colliding with another car. The collision was classified as 'slight' and resulted in one casualty.

2.57 Collision 5 occurred on 25th October 2017 at 13:50 on Birmingham Road. The weather conditions were described as 'fine' and 'dry' and occurs as a goods vehicle was driving around a slight bend in the road and entered oncoming traffic, colliding with an oncoming car. The collision was classified as 'slight' and resulted in one casualty.

2.58 Collision 6 occurred on 29th August 2019 at 06:58 on Birmingham Road opposite the Hatton Arms. The collision occurred on a 'damp' road rad surface and occurred when the driver of a car lost control and spun across the road, colliding with the driver side of another car. The collision was 'slight' and resulted in one casualty.

2.59 Collision 7 occurred on 9th October 2019 at 16:56 under 'fine' and 'dry' weather conditions. The collision occurred at the Hockley Road/Five Ways junction when a car came out of Five Ways Road, crossing the B4439 onto Shrewley Common and collided with a goods vehicle which was travelling along the B4439. The collision was categorised as 'slight' and resulted in one casualty.

2.60 Collision 8 occurred on 15th January 2020 at 08:51 at the Hockley Road/Dark Lane junction under 'wet' weather conditions. The collision occurred when a car travelling along Hockley Road attempted to turn right onto Dark Lane when an oncoming car collided with the rear passenger side. The collision resulted in two casualties and was classified as 'slight' in severity.

2.61 Collision 9 occurred on Hockley Road on the 10th of February 2020 at 14:49 under 'wet' weather conditions. the collision occurred when the driver of a car lost control on a right hand bend and collided with another car which was travelling in the opposite direction. The collision was classified as 'slight' and resulted in one casualty.

2.62 Collision 10 occurred on 5th September 2020 at 21:08 under 'fine' and 'dry' weather conditions at the Hockley Road junction with the Green. The collision involved one vehicle and occurred when the steering wheel of the car locked, and the driver intended to do an emergency stop, but instead the drivers foot slipped and pressed the accelerator, causing the car to collide with a wall. The collision resulted in one casualty and was categorised as 'slight'.

2.63 Collision 11 occurred on 30th October 2020 at 12:19 under 'fine' and 'dry' weather conditions on Hockley Road. The collision occurred as a car attempted to enter the carriageway from a private driveway and in doing so, collided with another car who was driving in a westerly direction along Hockley Road. Classified at 'slight' this collision resulted in one casualty.

2.64 Collision 12 occurred on 7th May 2021 at 11:10 under 'dry' and 'fine' weather conditions on Hockley Road at the junction with Dark Lane. The collision involved a vehicle travelling eastbound, whilst a second vehicle pulled out from the green onto the carriageway and collided with the moving vehicle. The collision resulted in one casualty and classified as 'slight'.

2.65 The final collision recorded occurred on 24th April 2022 at 16:17 under 'dry' and 'fine' weather conditions on Birmingham Road near the junction with Hockley Road. The collision involved two vehicles colliding when a vehicle pulled out of a junction slowly and the other vehicle could not stop in time. The collision resulted in two casualties and classified as 'slight'.

2.66 Following a review of the collision data, it can be concluded that there is a cluster of 4 collisions recorded at the Hockley Road Dark Lane junction and 3 collisions at the Hockley Road / Birmingham Road junction.

Collision Summary

2.67 The collision data demonstrates that despite the two main cluster of collisions, these can largely be attributed to driver error and are not as a consequence of the layout of the highway. Any intensification of use therefore as a result of the development coming forward at Hatton will not be considered detrimental to highway safety.

Chapter Summary

2.68 This section provides an overview of the existing levels of accessibility by walking, cycling and public transport. The location of the site is within an accessible area with several opportunities to travel via sustainable travel modes including walking, cycling and public transport.

2.69 There are existing access points which provide excellent routes for pedestrians and cyclists which can be accessed from the site, including the traffic-free canal towpath which travel. This provides excellent links to Warwick Parkway Rail Station and Warwick Town Centre.

2.70 There are several PRoW routes within the vicinity of the site and the public footpaths and bridleways are easily accessible for pedestrians, maintaining safe access points to and from the site. It is predicted that with these accessible routes, walking levels will be increased.

2.71 There is excellent cycle provision within the local and surrounding area of the site, with existing cycle infrastructure including cycle lanes, shared surface paths, traffic-free cycle paths and several crossing points providing links to key services and facilities.

2.72 Public transport services can be accessed within short walking and cycling distances from the site, including bus and rail. Hatton station is located directly to the west of the site boundary and provides frequent direct services to Warwick, Stratford-upon-Avon, and Solihull. Warwick Parkway Station and Warwick Station are also within accessible cycle distances which provides further direct links to Royal Leamington Spa, Coventry, Bedworth, and Birmingham.

2.73 Despite the highly accessible active travel provision, there are identified gaps within the infrastructure and potential improvement are addressed within chapter 5 with the aim to enhance the active travel levels within the area. Furthermore, the existing public transport routes and services can be developed and enhanced further to serve the emerging development proposals.

2.74 The collision data demonstrates that there is now apparent fault with the local highway network, and that collisions in the area are caused largely by driver error.

2.75 The site is well placed to build on the existing level of accessibility to Warwick, but to also come forward as a new community which can retain trips on site, draw trips off the local highway network and benefit the surrounding area through the improvement of active travel and transport links.

3 Changing Mobility Habits

Introduction to Changing Mobility Habits

3.1 There is demonstrable evidence to suggest that modern attitudes towards travel and the intergenerational effect and attitudes toward movement are changing rapidly, and that transport policy is seeking to keep abreast of these.

3.2 This change in attitude towards travel and mobility has been facilitated by a number of factors including the rapid growth in smart phones with internet access, combined with location services enabling users to access, order and pay for transport services in an integrated way, as well as the recent Covid-19 pandemic and a renewed desire for local living.

3.3 Car use has been considered the dominant travel mode in the UK for decades, and this has led to a Predict and Provide (P&P) approach to development planning. P&P involves predicting a demand (usually car) and trying to make it fit on the existing road network, where it didn't fit additional capacity was built in. In its place a Vision and Validate (V&V) approach is adopted for Hatton, this helps to advance sustainably designed, low carbon and future-proofed settlements by placing greater importance on the vision. This defines what the vision will allow thus placing greater importance on sustainable (including virtual) mobility. Traffic here is a function of road space rather than the other way around, and it is that available road space that dictates demand.

3.4 To support the V&V approach the rapidly changing use of cars and attitudes to travel in recent years is presented in this section.

Covid-19 and the Shift in Trends

3.5 The Covid-19 pandemic has provided a step-change in working habits when it comes to revealing to employers and employees alike, that working from home or from a 'Third-Place' is a viable and attractive option for every-day life. During the first Covid-19 pandemic in the UK, every worker who had the ability to work from home did so.

3.6 More than working habits however, the Covid-19 pandemic has shown people the benefits of local living and taking an active part in their local communities, something which a pattern of building dormitory settlements has eroded. It has never been more important to build for communities where residents can visit friends and family within their local neighbourhood, get a coffee, or pop to a shop for milk all within a walk or cycle from their home.

3.7 During the various lockdowns in the UK traffic on the roads reduced to unprecedented levels, and whilst these levels have very much bounced back as restrictions ease, it demonstrates the extreme end of the scale that can be achieved as people learn to change habits.

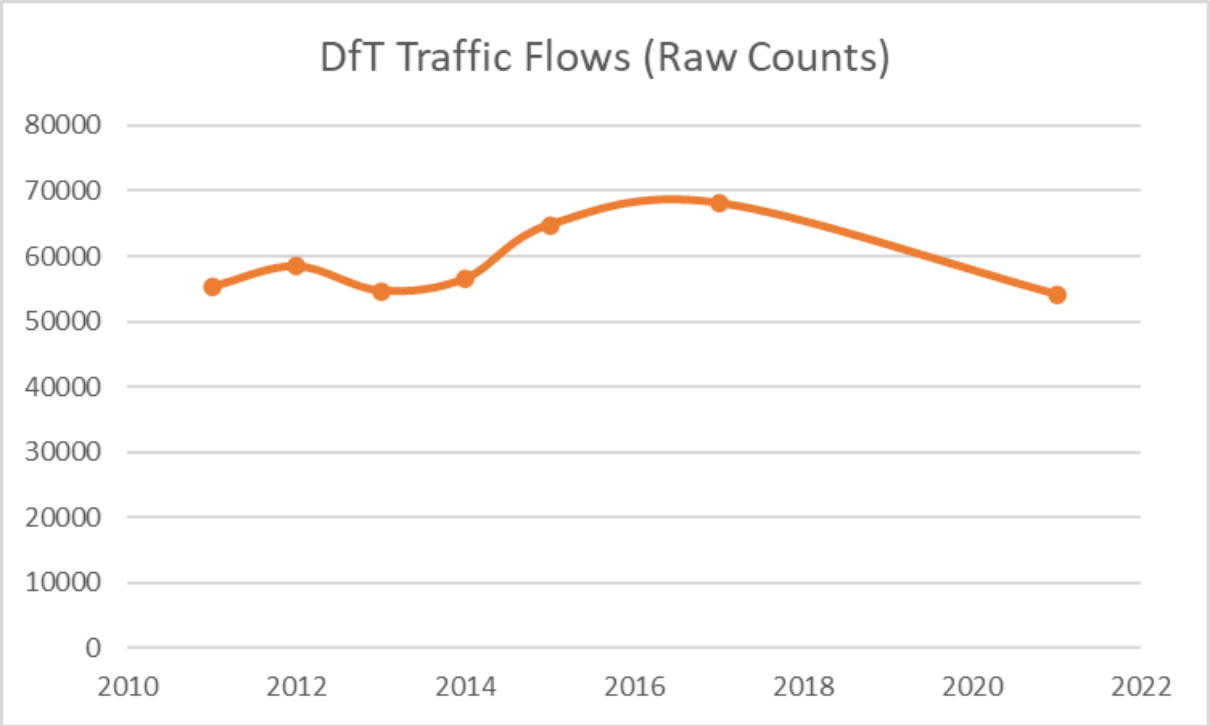
3.8 New development must grasp the opportunities to provide for the change in behaviour by designing for liveability from the very outset.

Traffic Levels

3.9 Traffic being a function of road space is demonstrated time and time again where national and local traffic forecasts predict a steady increase in traffic (although traffic growth forecast do not always materialise) in general accordance with population and economic growth, but this does not occur despite this growth happening.

3.10 The has been a demonstrable decrease in traffic levels largely due to the Covid-19 Pandemic. The graph below has been produced using Raw counts from the Department for Transport (DfT) on the A46 between Stanks Island and the M40 Junction 15.

Graph 3.1 – A46 Traffic Flows (DfT Raw Counts)



3.11 Due to the effects of the Covid-19 Pandemic, traffic levels visibility decreased in 2021. Whilst traffic levels are, as of 2023, somewhat more reflective of the levels recorded pre-pandemic, it is evident that this change in habit is here to stay. The ability to from home, for example, has remained a key factor in maintaining decreased traffic flows especially across the typical peak periods, and is an example of one of many factors which are contributing to traffic flows which are not quite in line with those predicted nationally and locally.

Commuter Wellbeing

3.12 Research published in 2016 into commuter wellbeing ranked different modes of transport with car driver alone ranking the lowest and bicycle and walking featuring the highest. This bolsters the case for local living and for new settlements to be designed to accommodate active travel users as a highest priority. This is illustrated in **Figure 3.1.**

Figure 3.1 – Commute Wellbeing

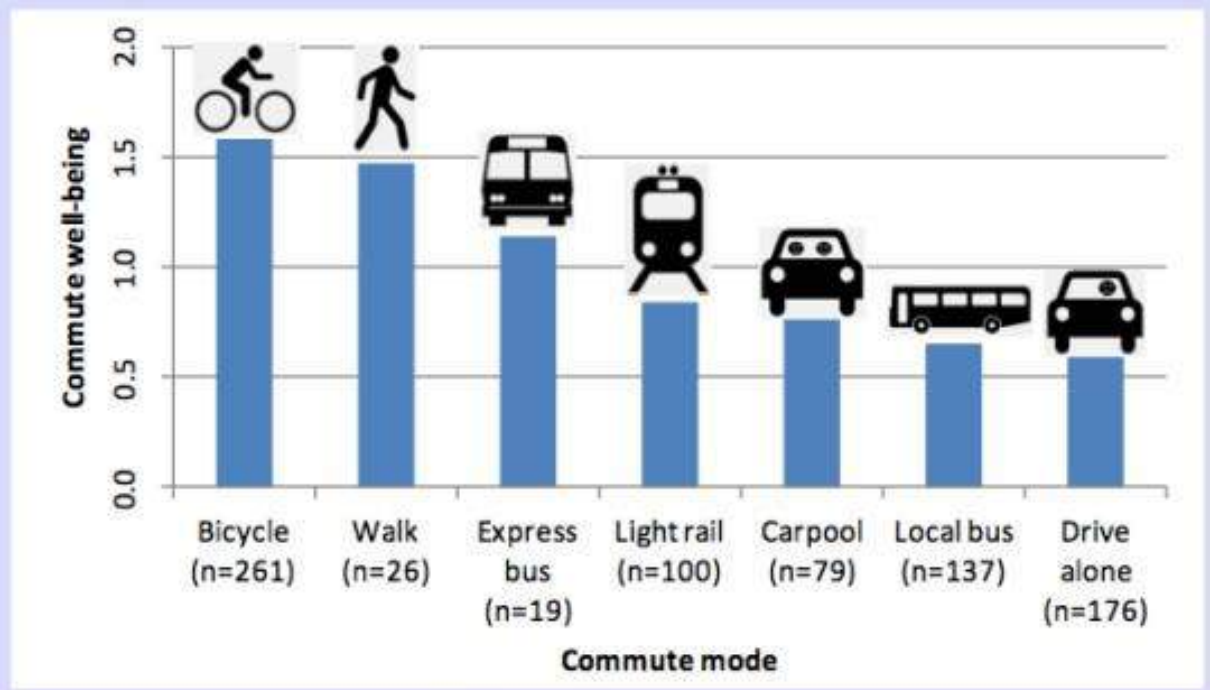


Fig. 3. Variation in commute well-being by mode

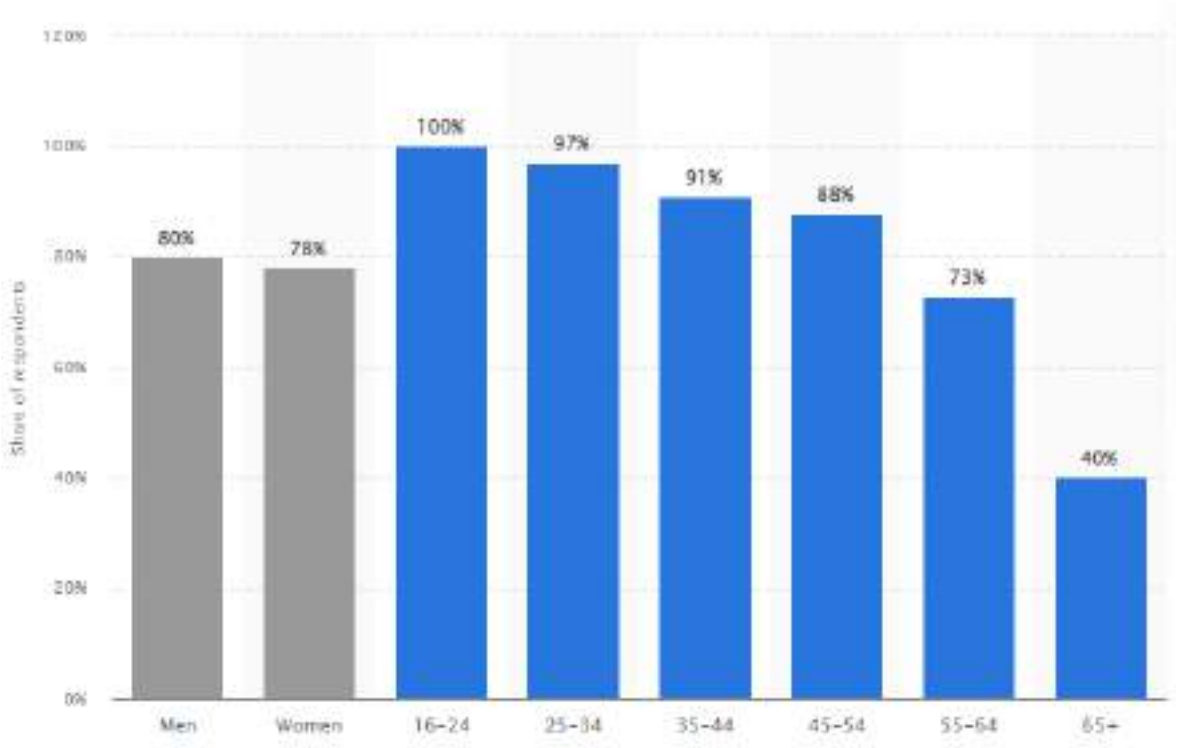
Smith et al 2-16: Commute well-being differences by mode

Intergenerational Divide

3.13 The intergenerational divide has increasingly shown how travel patterns and trends in movement patterns vary by age.

3.14 **Figure 3.2** shows mobile internet access by age group in Great Britain.

Figure 3.2 – Internet Access by age Group



(Statista 2019[1])

3.15 It is clear that younger generations are increasingly using their smart phones to access mobility and including payment for transport related activity, be it bus and rail journey planning and payments, taxi bookings such as Uber or demand responsive bus travel. This also extends to working and shopping all done virtually.

3.16 Advances in technology are quickly changing the way we live, and changing how we value time, how we value possessions, and how we achieve Mobility. Research undertaken in 2020 by Deloitte[2], states that the impact of the COVID pandemic has acted as a catalyst, speeding up consumer digital usage and introduced this new trend at a quick rate. The Deloitte research shows that 38% of respondents did more shopping online relative to pre-lockdown levels and half of these would maintain this behaviour post-lockdown. There has been a 22% increase in the number of people using online banking as a result of the COVID pandemic and of these 60% would continue to use online banking in

[1] https://www.statista.com/statistics/275985/mobile-internet-penetration-in-great-britain-by-age-and-gender/#:~:text=80%20percent%20of%20men%20aged,with%2078%20percent%20of%20women.&text=As%20of%202018%2C%2095%20percent,34%20years%20owned%20a%20smartphone.

[2] https://www2.deloitte.com/uk/en/pages/technology-media-and-telecommunications/articles/digital-consumer-trends-lockdown-behaviour.html

future. 14% more people in the study have used virtual appointments with medical staff and of these 25% would continue to do so in future.

Car Ownership

3.17 In the past there has been significant growth in the number of households with access to a personal vehicle, spurred in part to the decreasing relative cost of owning a vehicle over the same period (as shown by the National Travel Survey). This is despite vehicles being parked on average 80% of the time.

3.18 With changing attitudes to car ownership and increased opportunities to relinquish ownership of a car (such as car clubs), private car ownership is anticipated to decline.

3.19 This reflects the changing attitudes of younger generations such as millennials towards the car, where Prophet Marketing Agency have reported the following:

- 67% of millennials would rather buy a used car and spend the saved money on other things;
- 65% say that the latest smartphone has more value to them than the recent model of a car;
- 50% agree the car is losing its significance as a status symbol among their peers; and
- 69% are sure that car sharing and carpooling should be more common that car owning.

3.20 The Department for Transport (DfT) also report that young people have become 'accustomed to a lifestyle in which private car use is less central than it has been for previous generations', and that 'it is possible that the changes in young people's travel behaviour described above are the first phase of a social change that will continue through successive generations'.

3.21 Car ownership no longer defines status or aspirations. With the rise in working from home or a Third-Place, fewer people are likely to see a future living in dormitory (or sleeper) settlements and commuting to a single place of work. This has led to a marked decrease in car ownership among the younger generation over the past 25 years.

Electric Vehicles

3.22 The UK has announced that from 2030, new petrol and diesel car and van purchases will be banned in lieu of electric or hydrogen powered vehicles. The same will happen for HGVs from 2040.

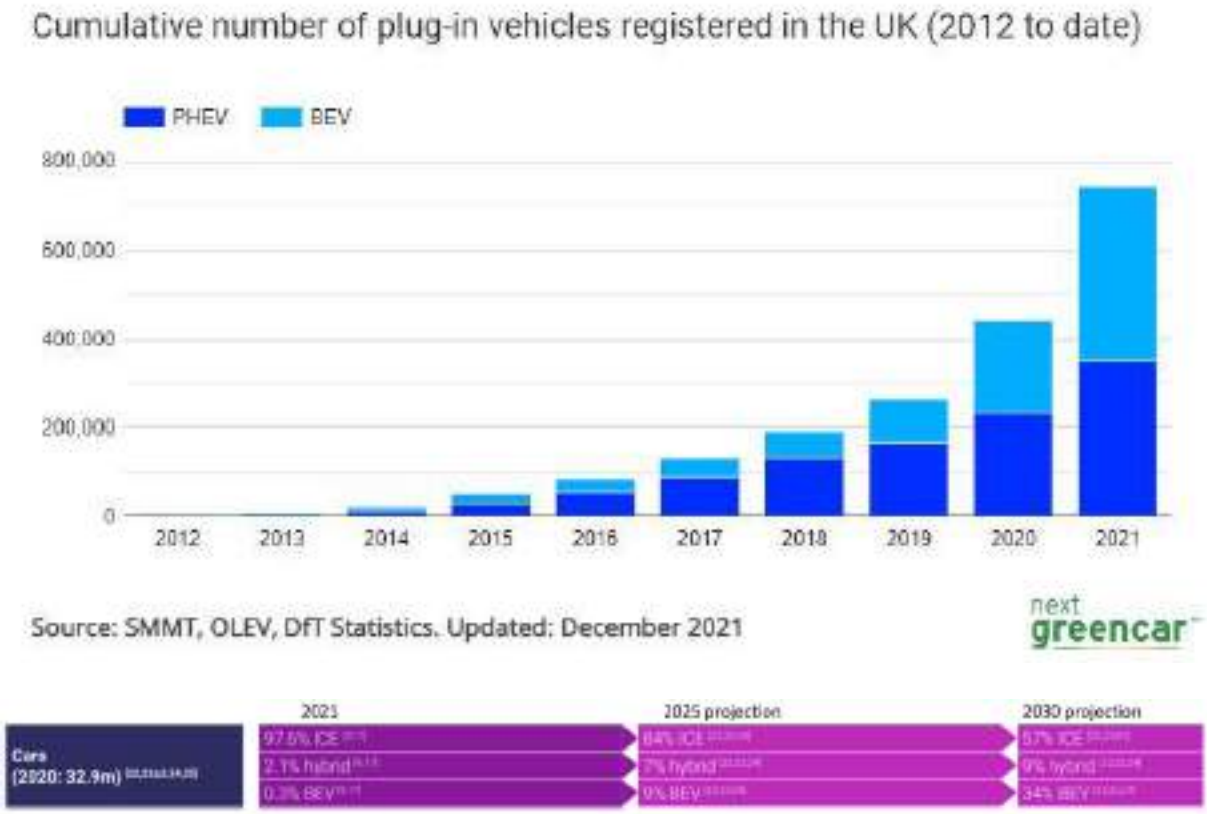
3.23 Electric vehicles (EV) or battery electric vehicles (BEV) are already on the rise more and more car purchases per year being electric (BEV, battery electric vehicle) or hybrid (PHEV, plug-in hybrid electric vehicle). In 2020 1.25% of all cars on the road were EVs (Department for Transport statistics, Tables veh0132 and veh0105). The current trends towards EVs will only accelerate as the UK attempts to phase-out combustion engine vehicles to 2030.

3.24 EVs form a large part of the Decarbonising Transport strategy set out by the UK Government, and infrastructure to support use of EVs is being developed quickly across the UK. Development at Hatton will support this policy aspiration and trend by providing EV charging capabilities for every home, as

well as at workplaces and public parking areas. Parking strategies such as communal residential parking hubs will be considered to reduce the dominance of the car in the placemaking of streets and homefronts.

3.25 Hydrogen uses are also a consideration and will be factored into the public transport aspirations for Hatton.

Figure 3.3 – UK registered plug-in vehicles



Summary

3.26 This section summarises the direction in which attitudes to travel and mobility are heading, and the changes already being seen in the UK. National transport policy is moving away from 'predict and provide' to a 'vision and validate' approach which encompasses a holistic multimodal approach, supporting access to development by walking, cycling and public transport in the first instance.

3.27 Travel trends are changing with a growing greater interest on getting mobility via a smart phone over owning a car. Liveability is at the forefront of minds particularly following the Covid-19 pandemic, where health and wellbeing are acknowledged to be of the upmost importance. Placemaking plays a role in delivering a place to live and work that achieves these goals, which play hand-in-hand with the climate aspirations of the UK.

3.28 These trends are inescapable and, in application to Hatton, can be grasped from the very outset of development. Hatton has the opportunity to produce a truly liveable community in this part of Warwickshire, which encourages a shift away from reliance on less sustainable modes of transport.

4 Vision and Validate Approach

Introduction to Vision and Validate

4.1 The vision and validate approach at Hatton will embrace a place-based solution with provision of everything communities need in a 15-minute neighbourhood, thereby minimising the need for individual travel.

4.2 The Mobility Strategy supports the vision by following the SAM (Sustainable Accessibility and Mobility) Framework (RTPI, Net Zero Transport: the role of spatial planning and place-based solutions. January 2021) as illustrated here.

4.3 The first stage is substitution of trips, this is minimising travel demand by applying 15-minute neighbourhood principles to site design. Shifting modes is making active and shared mobility the natural choice over the private car, with Maas (mobility as a service) enabled transport options. Finally switching fuels refers to minimising the most polluting fuels. Future-proofing of proposals to provide charging infrastructure is crucial.

The Access Hierarchy

4.4 The latest thinking[3][4] in transport planning terms considers travel as the third and fourth question to ask with regards to gaining access to services and facilities, with alternative options considered before that. Traditionally, when an individual wants to gain access to services or facilities, they would have needed to travel to visit the shop/facility in person. However, over time, this has changed and accessing services and facilities in modern life is different and, in many instances, adopts the following approach:

1. Can I do it online?;
2. Can I do it online and get it delivered?;
3. Can I travel locally (i.e., “active” (such as walking or cycling) travel)?; and, finally
4. I need to travel further so what is the most sustainable method?

4.5 Only once all of these questions have been answered, would people consider the use of the private car**.** As a consequence of the COVID pandemic there has been a shift to home working and virtual

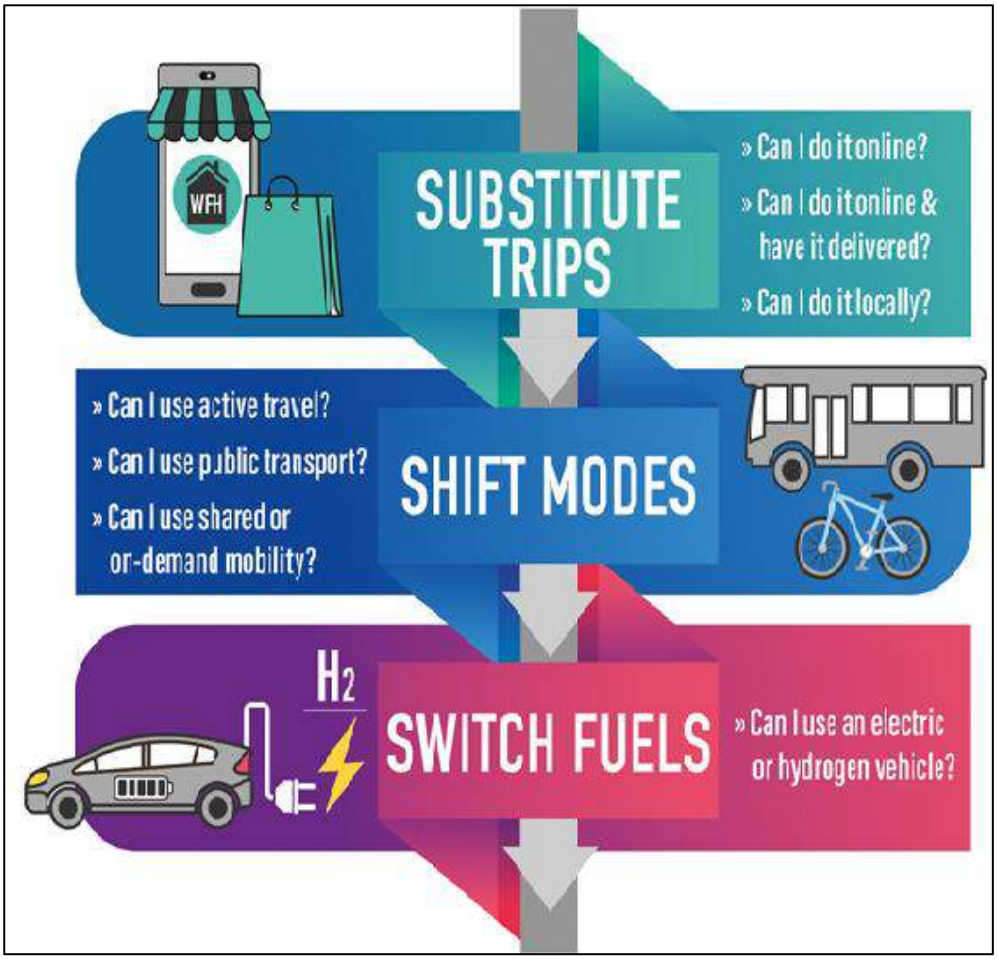
[3] https://www.rtpi.org.uk/research/2020/june/net-zero-transport-the-role-of-spatial-planning-and-place-based-solutions/

[4] Transport Times Events | News/Blog | Who will be the first local authority to cross the Rubicon?

mobility which also reduced the overall need to travel and this trend will need to be accommodated with new modern development which focuses on placemaking.

4.6 The overall all approach is shown in **Figure 4.1**.

Figure 4.1 – Access Hierarchy



Substitute Trips

Virtual Mobility

Super Fibre Broadband

4.7 It is proposed that each property will benefit from full fibre internet to maximise connectivity.

Covid-19 as a Catalyst

4.8 The way we live and the value we place on time has been accelerated as technology advances. We now pursue day to day activities in the 'physical' sense where the concept of using technology to bridge the digital world with the physical world we live in is more convenient. This includes mobility as well as online shopping, socialising and work.

4.9 The latest Deloitte research has shown that these trends which accelerated during the Covid-19 lockdowns has plateaued, but remains at an all-time high.

Working from Home/Third-Place

4.10 During the first (and subsequent) Covid-19 lockdown in the UK, every worker who had the ability to work from home did so. Working from home has now become an acceptable way of working for many employers, and the benefits are now apparent.

4.11 The concept of a 'third place' within the site becomes significant in the context of a 15-minute town. Facilities will exist within the site and provide a middle ground between 'home' and 'work'. These 'third places' can provide a boost to the local economy, capturing business during the day where people may otherwise be at their place of work and where they might seek a change from the home working environment. This helps to create vibrant communities by bringing neighbours together. The rise of remote working, stimulated greatly by the Covid-19 pandemic, creates an opportunity for a market town renaissance whereby residents can live, work, and spend within the settlement, regardless of the location of their employment.

4.12 The local living aspect of the site will provide a higher containment of trips, with longer distance private car journeys being replaced by sustainable travel patterns within the local area. Therefore, it is not anticipated that there will be any greater burden upon the surrounding transport networks.

4.13 The development will provide facilities to operate as a third place of work such as coffee shops and co working space.

Can I do it online and get it delivered

Micro-consolidation Centre

4.14 Micro-consolidation centres work well when the area which they serve is largely managed by a single entity. Micro-consolidation centres are places where goods are delivered to, for onward delivery by more sustainable and less intrusive methods. Zero emissions last mile solutions such as cargos bikes and small electric vans can be used to provide additional environmental benefits.

4.15 The new homes will all be able to utilise the micro consolidation offer. New employment and commercial schemes that are provided within the site will also be able to utilise the facility.

4.16 The key advantage would be to reduce the amount of vehicle trips within Hatton itself, creating a more attractive environment for pedestrians and cyclists. i.e., one delivery vehicle can drop off parcel for all site addresses within a single location (rather than delivering directly to each individual property) and then those parcels are distributed out within the site by sustainable modes such as cargo bikes.

Can I do it locally - On-site Facilities and Containment

Local Living

4.17 Local living or 'liveability' is at the forefront of people's minds right now and 15-minute neighbourhoods are based upon a design ethos of creating complete, compact and connected neighbourhoods where people can meet their everyday needs within a short walk or cycle.

4.18 This is not a new concept and historically many towns and cities have evolved around a model similar to a 15-minute neighbourhood. The emergence of these walkable places to live has grown around the world, and the need for them has only been quickened by the Covid-19 pandemic which has put a spotlight on the importance of the liveability of where we live.

4.19 This idea presents multiple benefits including boosting local economies, improving people's health and wellbeing, increasing social connections in communities, and tackling the climate change emergency.

4.20 In taking advantage of two key attributes, size and location, the site at Hatton paves the way for numerous measures and strategies to encourage local living and support the initiative of 15-minute neighbourhoods.

4.21 The new community will be developed in the context of local living, delivering a design that maximises the attractiveness of active travel as well as the provision of complementary land uses on site **Figure 4.2** illustrates how containment might work.

Figure 4.2 – Local Living

4.22 The fully permeable layout of Hatton will typically be dominated by an active travel network at a local level with a full and priority network for cycling. On site facilities will be provided which include:

— community facilities, a primary mobility hub (as described further below), primary and secondary education, flexible workspaces (third place of work), start-up units / employment,

leisure, retail and café facilities which enables future residents to live locally and reduce the need to travel off site; and

— parcel lockers adjoining the mobility hub for on-line deliveries to be dropped off and collected at convenient times enabling future residents to collect items locally.

4.23 The scheme itself includes mixed use community with complementary land uses ensuring that some trips can be contained and reducing the need to travel off site. This includes the provision of community facilities and commercial land uses and in site workspaces.

Shift Modes

Mobility Hub

4.24 A primary mobility hub will be at the heart of the development with supplementary hubs interspersed. This forms a focal central point for people to meet, interact, work, and spend time. The Mobility Hub could also provide a range of facilities, potentially retail and leisure facilities, as well as a 'third-place' to facilitate remote working. Each Mobility Hub would be highly accessible by active and public transport modes, offering safe and secure cycle parking, as well as potentially a bike repair shop. Car club and carpooling spaces would be made available, as well as EV charging points and a comfortable bus stop. It might include a small café, all seeking to make this a central place to encourage community interaction and naturally promote sustainable transport choices.

4.25 Car free, or low car, neighbourhoods, where the primary network is the active travel network lend themselves to a network of Mobility Hubs either Primary, Secondary or Tertiary.

4.26 Primary Mobility Hubs will be located in local centres and close to shared travel nodes. They will include members of the Community Concierge team (as part of the estates management team). A community concierge will be based on site to streamline deliveries, acting as a single point of delivery for large vehicles, and offering last-mile alternatives. This will reduce heavy vehicle presence on site and complements the rise in virtual mobility.

4.27 Secondary and Tertiary Hubs will be dispersed around Hatton in addition to the primary hub, to ensure that a hub is within a short walk from every home or place of work, as well as the primary school. These would be unstaffed, with varying facilities and at more frequent intervals.

4.28 **Figure 4.3** shows what the primary mobility hub within the site might look like.

Figure 4.3 – Primary Mobility Hub Illustration

4.29 The primary mobility hub is likely to includes a mix of uses such as:

- High-quality bicycle parking
- Bicycle repair stations;
- Bike and e-bike share;
- Connected active travel routes;
- Cargo bike share;
- EV car club;
- DRT pick-up/drop-off bays;
- EV charging points;
- Secure parcel lockers;
- High speed free Wi-Fi;
- Real time travel information;
- Wayfinding totem signage for onward active travel journeys;
- Proximity to public transport stop;
- Appropriate safety infrastructure such as lighting;
- Shower facilities;
- Community concierge features include;
- Micro-consolidation centre for parcel receipt, including onward last-mile delivery by cargo bike or ground drone for example;
- Third-place working hub;
- Café;
- Travel Planning servicing including for schools;
- Coordination of local walks and cycles;
- Management of IT platforms for car sharing and DRT.

Active Travel

4.30 Active travel provision will start at the local level with a network of greenways which prioritise active travel and e-mobility (including electric bikes and scooters) enabling future residents to travel around the site and further afield by means other than the car.

4.31 The active travel strategy will include improvements to (details of which are provide in section 6):

- Active travel links to Hatton Rail Station;
- Active travel links to Warwick Parkway Rail Station;
- Active travel links to Warwick Town Centre.

Public Transport

4.32 The development will provide investment into public transport provision, details of which are to be discussed with the highway authority.

4.33 It is expected that the development would provide a new conventional bus service as well as a more modern dedicated bus services that could provide direct bus links between the site with Warwick parkway rail station, Warwick town centre and Leamington spa for residents and site users.

4.34 The journey time between the site and Warwick Parkway, Warwick Town Centre, and Leamington Spa Town Centre and rail station is around 45 minutes during peak hours, therefore the provision of a 30 minute frequency service could be delivered by three buses.

Car Club

4.35 A Car Club will be provided at the Primary Mobility Hub. A car club is where several people access and drive the same vehicle. For example, several people in the same community would drive the car on different days of the week utilising a booking service.

4.36 This means that drivers have access to cars without the need to own them. Access without ownership is becoming more common in modern-day living as it takes away the pressure and cost of having to maintain a vehicle. It also provides scope for residents to make use of external spaces or garages on their property in other ways, without having the need to accommodate a vehicle.

4.37 Studies have demonstrated that each shared car replaces between eight and eleven private cars. Car clubs are becoming more prominent in towns and cities across the UK, and car club spaces can be located strategically at key destinations, major employment sites, transport hubs, and town and city centres. The membership of car clubs is increasing, reflecting people's changing attitudes towards Mobility.

4.38 The provision of a car club will encourage residents to adopt more sustainable travel habits with the knowledge that should an emergency arise, or there be a need to travel quickly, run an errand, collect a parcel, or vary a journey in another way, there is a flexible option which can be used as required on-demand.

4.39 Enterprise Car Club operates 2,000 vehicles nationally and has expanded to 30 new locations in the past 3 months. Research undertaken by Enterprise Car Club indicate that in the last 12 months each car club replaces 10.5 vehicles from the road. Enterprise Car Club has almost eliminated diesel vehicles from their fleet and 18% of the fleet in London is now electric or hybrid electric.

Switch Fuel

4.40 The development proposal could include an EV charging station. This will provide space for residents and customers to park their cars. It also provides the opportunity for people to park at the EV charging station and use the park and ride services, or to cycle to their destination using some of the new cycle route proposed.

Summary

4.41 The proposal would provide an exemplar highly accessible and sustainable development ensuring that residents can gain access to services and facilities within the site itself or by excellent sustainable transport choices.

5 Access Strategy

Introduction

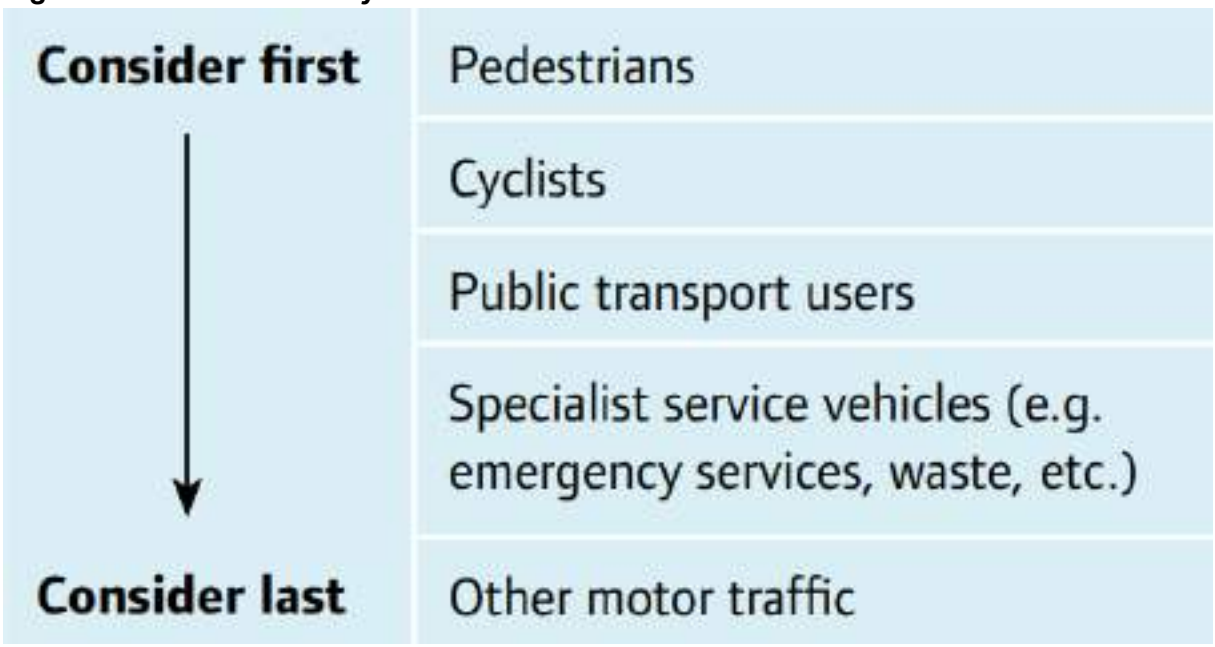
5.1 The Access Strategy for the proposal follows the user hierarchy which seeks to prioritise trips via active travel, i.e., by foot and by bike, followed by public transport and then the private car. The access strategy sets out the connection points the development would create as well as potential routs to key destinations.

5.2 As part of the evolution of the Access Strategy, consultation the following bodies are proposed to further inform and refine the access strategy and to maximise the opportunity for sustainable travel:

- Canals and Rivers Trust (CRT);
- Warwick County Council Highways
- Warwick County Council Public Transport Officer
- Warwick County Council Active Travel Officer

5.3 The access strategy is developed maximising the use of the existing provision of active travel and follows the movement hierarchy as set out in **Figure 5.1**.

Figure 5.1 - User Hierarchy



5.4 In summary, the access proposals for Hatton New Community include:

- A section of Dark Lane between the Canal and Hockley Road to be converted to a walking and cycling route except for access to existing properties.
- Realignment of Dark Lane within the site with enhanced route over the Hatton Canal;

— Retention of access route into the site from the south via Dark Lane;

— Main vehicle access provided via a signalised junction connecting onto Hockley Road;

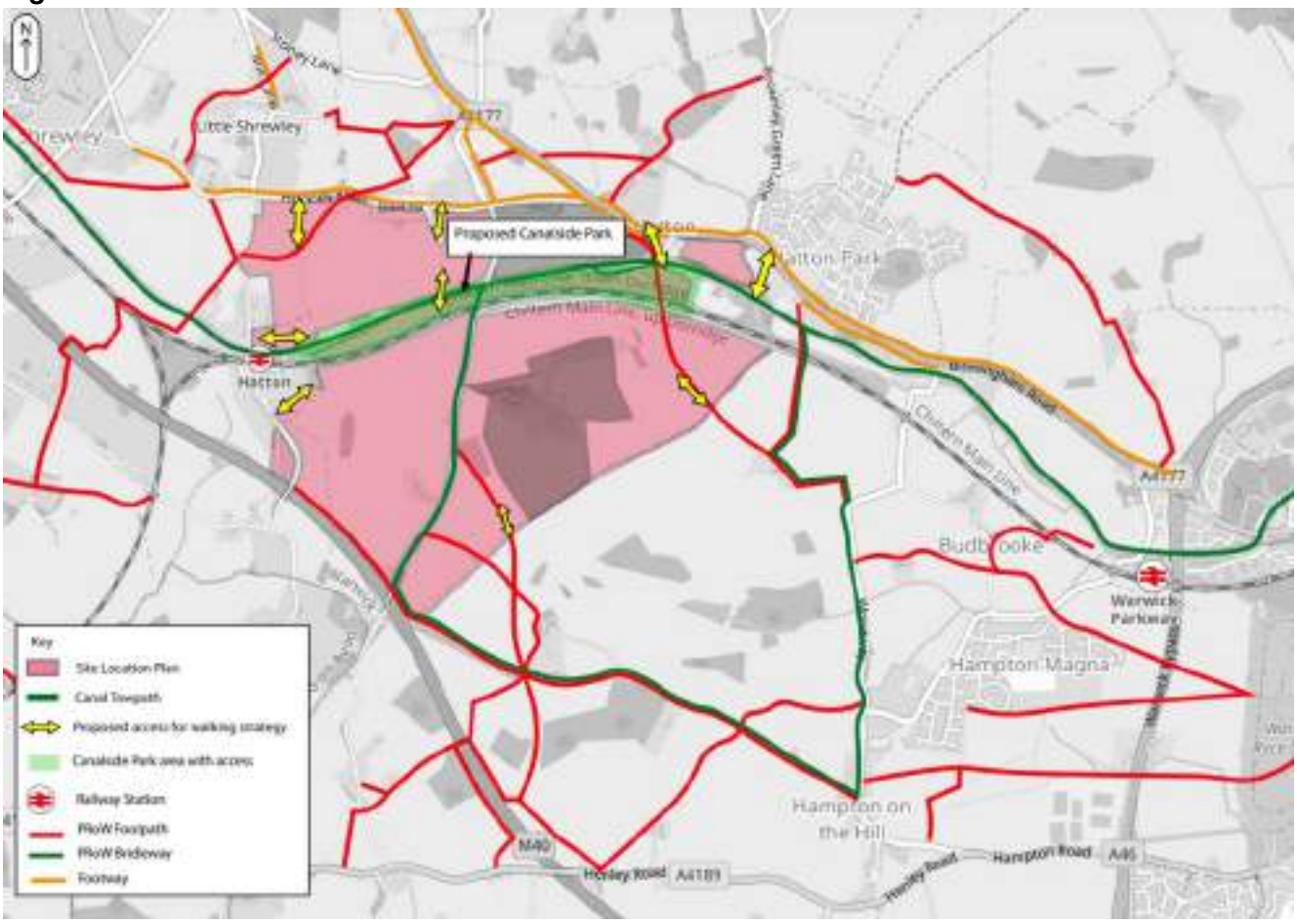
— Secondary vehicle access via a ghost island junction arrangement onto Hockley Road;

— T junction access provided onto Station Road north of Hatton Rail Station.

Walking and Cycling Access

5.5 **Figure 5.2** sets out the location of the key access locations for walking and cycling.

Figure 5.2 – Active Travel Access



5.6 The proposed development site is located within the immediate vicinity of the Hatton Locks Towpath, which provides an excellent opportunity to provide a direct active travel links to the east towards Warwick.

5.7 The development will provide a direct connections to the existing towpath, likely through the utilisation of the existing bridge along Dark Lane over the railway line. It is proposed that, if necessary, discussions are held with Network Rail with regards to the upgrade and improvement of the bridge.

5.8 The active travel links discussed within this document overlaps with the Warwickshire Local Walking and Cycling Infrastructure Plan (LWCIP) and will assist with district and the county authorities in delivering and funding these LCWIP schemes.

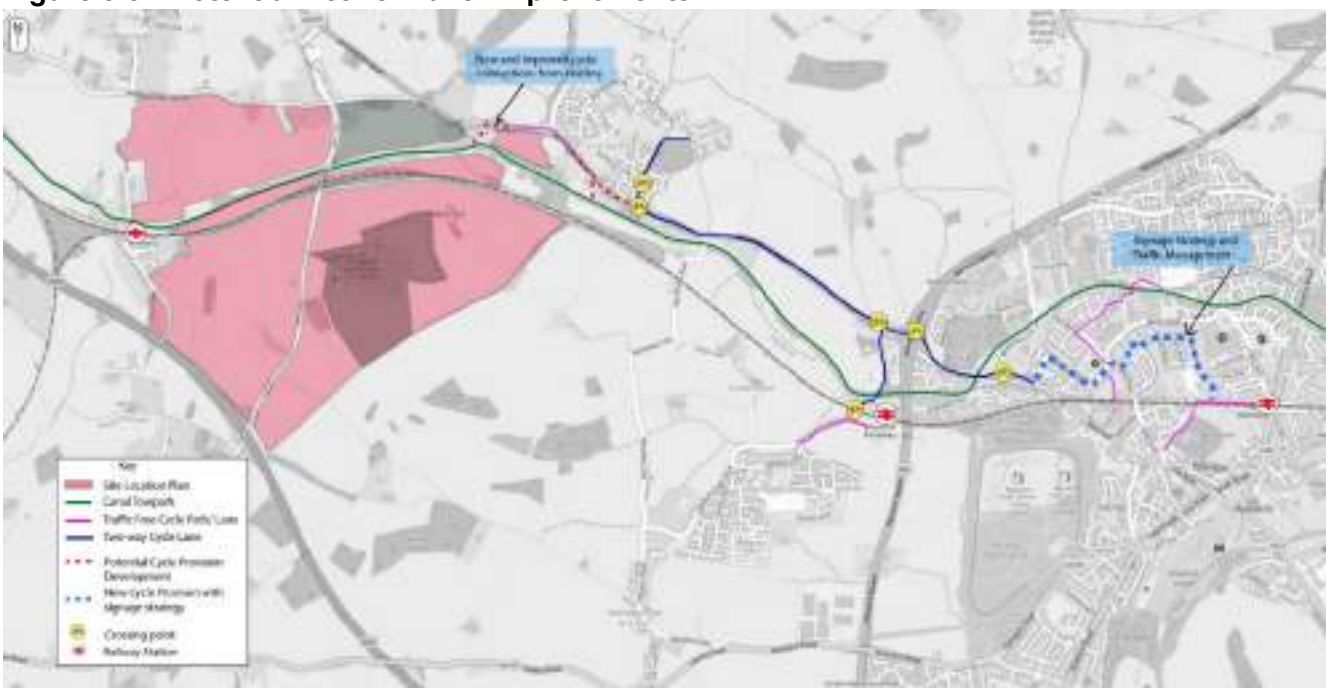
Walking and Cycling Wider Connections

5.9 The section of the report sets out the wider active travel connections, taking into account the existing active travel network surrounding the site and along key desire lines to key destinations. These key routes are discussed below.

Link to Warwick Town Centre

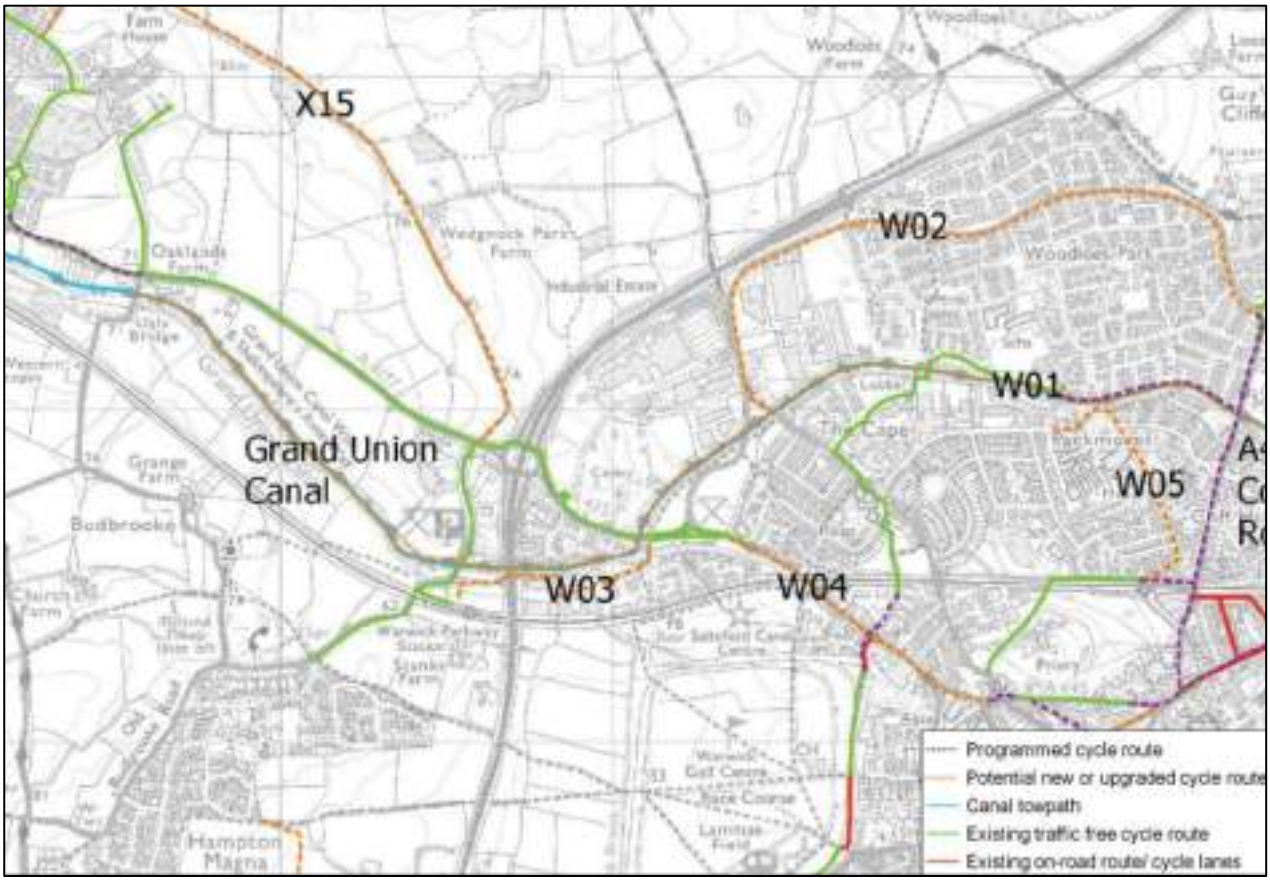
5.10 **Figure 5.3** shows the existing walking and cycling to Warwick Town Centre and Warwick Parkway station as well as the location of improvements to the network to ensure seamless linkages.

Figure 5.3 – Potential Active Travel Improvements



5.11 The proposals are broadly consistent with those set out within the stage 3 LCWIP proposals as summarised in **Figure 5.4**. In addition to the provision of the measures set out in **Figure 5.3**, the developer is committed to contribute financially to feasibility and implementation costs associated with the LCWIP proposal which would assists with lining the site with Warwick Parkway Station and Warwick Town Centre.

Figure 5.4 - Warwickshire Local Walking and Cycling Infrastructure Plan (LWCIP)



Link To Leamington Spa

5.12 The town of Royal Leamington Spa is a key commercial and employment destination to the east of Warwick. Whilst accessible from the centre of the site within a 30 minute cycle, it is just a 13 minute journey via train from Hatton railway station. In this context, both connections to the Canal Towpath and Hatton railway station are important and the site will be designed to focus on these connections over travel by private vehicle.

Link to Hatton Rail Station

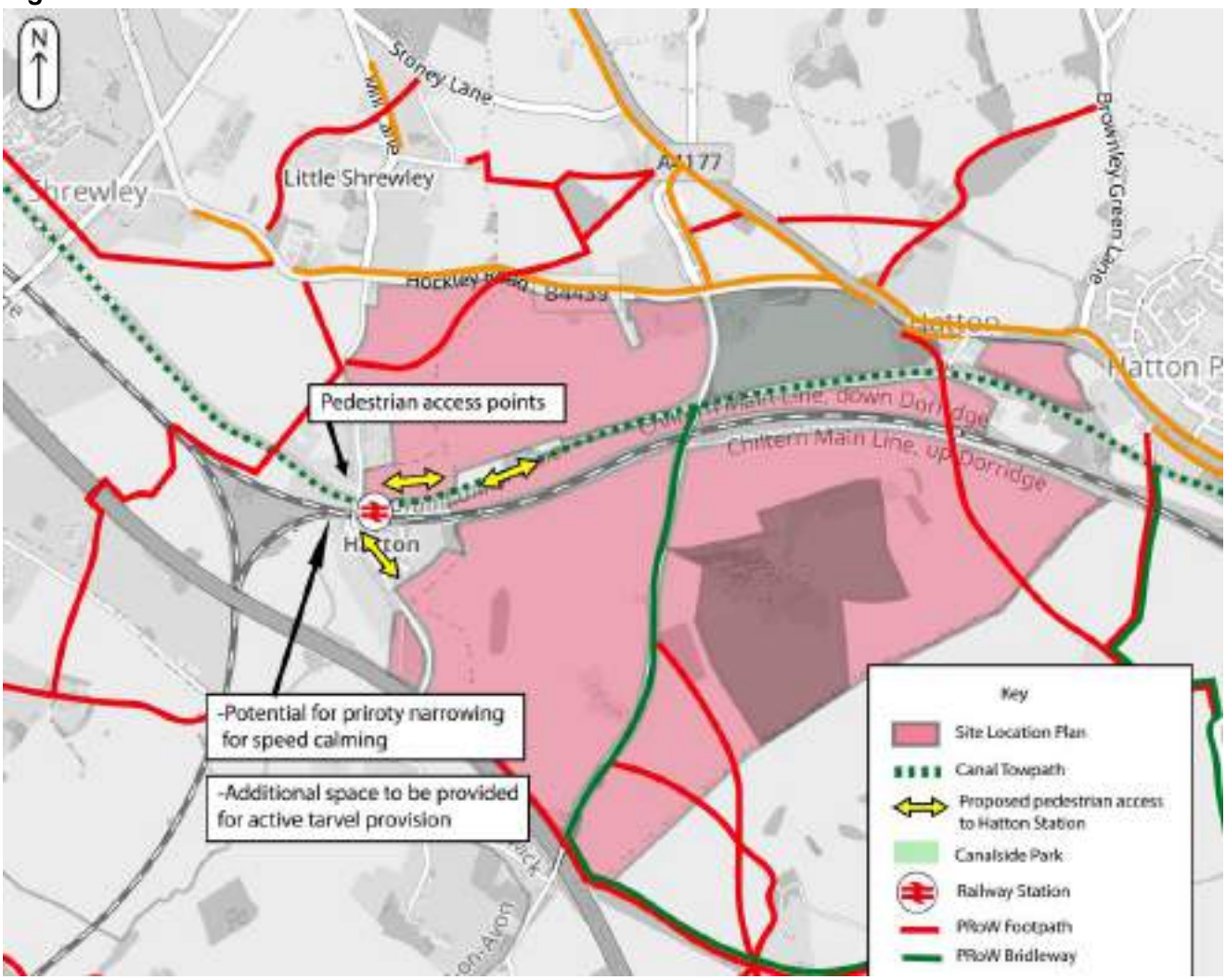
5.13 Hatton Rail station is located within the immediate vicinity of the site. The proposal includes a walking and cycling link which connect the site onto Station Road to a north and south of the rail station. A further connection is provided to Hatton Rail station via the existing Towpath. It is proposed that a series of measures can be implemented along the existing access to Station Road within the vicinity of Hatton Station to enhance the attractiveness of the route for pedestrians and cyclists. This could include:

- Priority narrowing for speed calming and introduction of active travel provision;
- Speed calming features and gateway to the built up area surrounding Hatton Station;
- Providing additional space or active travel and community use / public realm

— Implementation of home zone concept.

5.14 **Figure 5.5** shows the connection points between the site and the Station as well as the extent of Station Road subject to enhancements.

Figure 5.5 – Links to Hatton Station



5.15 The opportunity for improved rail connectivity has been discussed with representatives from West Midlands Rail Executive focussing on the region's plans for the Birmingham-Oxford-Marylebone. This includes increased capacity and frequency of services at Hatton Station.

5.16 Similarly, the WMRE confirmed that there are no capacity constraints at Warwick Parkway in terms of train paths and enabling more services to stop there. They are supportive of the creation of a new community at Hatton that would help support the business case for improved access to and at the stations.

5.17 The WMRE Rail Investment Strategy 2022-2050 was consulted on at the end of 2022. Key priorities include the recovery from COVID-19 (increased patronage), contribute to net zero, the development of high growth corridors of which Leamington Corridor is identified and to maximise access to the rail network. A new community at Hatton supports all of these key priorities.

Public Transport and Shared Transport

5.18 Shared travel includes buses, demand responsive transport, carpooling, and trains but is by no means restricted to these forms.

5.19 Hatton New Community has the potential to build upon best practice in terms of the movement hierarchy and can connect existing settlements to higher order centres where residents may be reliant on the car currently. Potential initiatives include:

- A semi-demand responsive transport (DRT) network, such as Zeelo, to local key areas such as Warwick, Royal Leamington Spa, Stratford upon Avon, and potentially Birmingham and Coventry etc depending on demand, at specific times to match staff clusters and travel and shift patterns;
- A substantial car club scheme, where the car is not owned by the individual and is available for hire; and
- Carpooling platforms, where the car is owned by the individual, and that individual shares rides with others, also benefitting from priority parking. This is particularly effective for permeating rural catchments.

5.20 Low occupancy buses are climate inefficient, even electric or hydrogen. Therefore, the idea with any shared travel network is to maximise occupancy, which in some cases means targeting demands, and being smart about the size and nature of the vehicles used.

Demand responsive transport (DRT

5.21 Demand responsive transport (DRT) is a modern, user-orientated form of public transport, with flexible routing, pick-up and drop-off locations, and timetabling matched to passenger needs.

5.22 DRT provides the potential to provide services as and when required without the need to provide a service throughout the day at times when demand may be less. This can lead to a more effective and a more efficient economic model for provided mobility, and a more responsive and reliable form of mobility.

5.23 This type of service would typically operate an executive minibus service with air con, WIFI, and table seats within a wide area, providing timely and convenient services connecting the site to locale employment areas and public transport hubs.

5.24 Much of the Warwickshire is rural in nature; rural Warwickshire is home to 169,000 residents and, economically, rural Warwickshire makes up 34% of the county's total output (3.9 billion), more than double the UK average. Semi-DRT (buses or smaller vehicles) is capable of maximising occupancy by

developing routes that pick up a string of towns and villages relative to the demand. These services are likely to be focussed on Hatton residents as well as employees who work within the site, and at the times at which they want or need to, travel.

5.25 Typically, DRT services are pre booked on a smart phone or computer. Over time, the system learns the likely locations of demand and adjusts routes and sizes of vehicle accordingly.

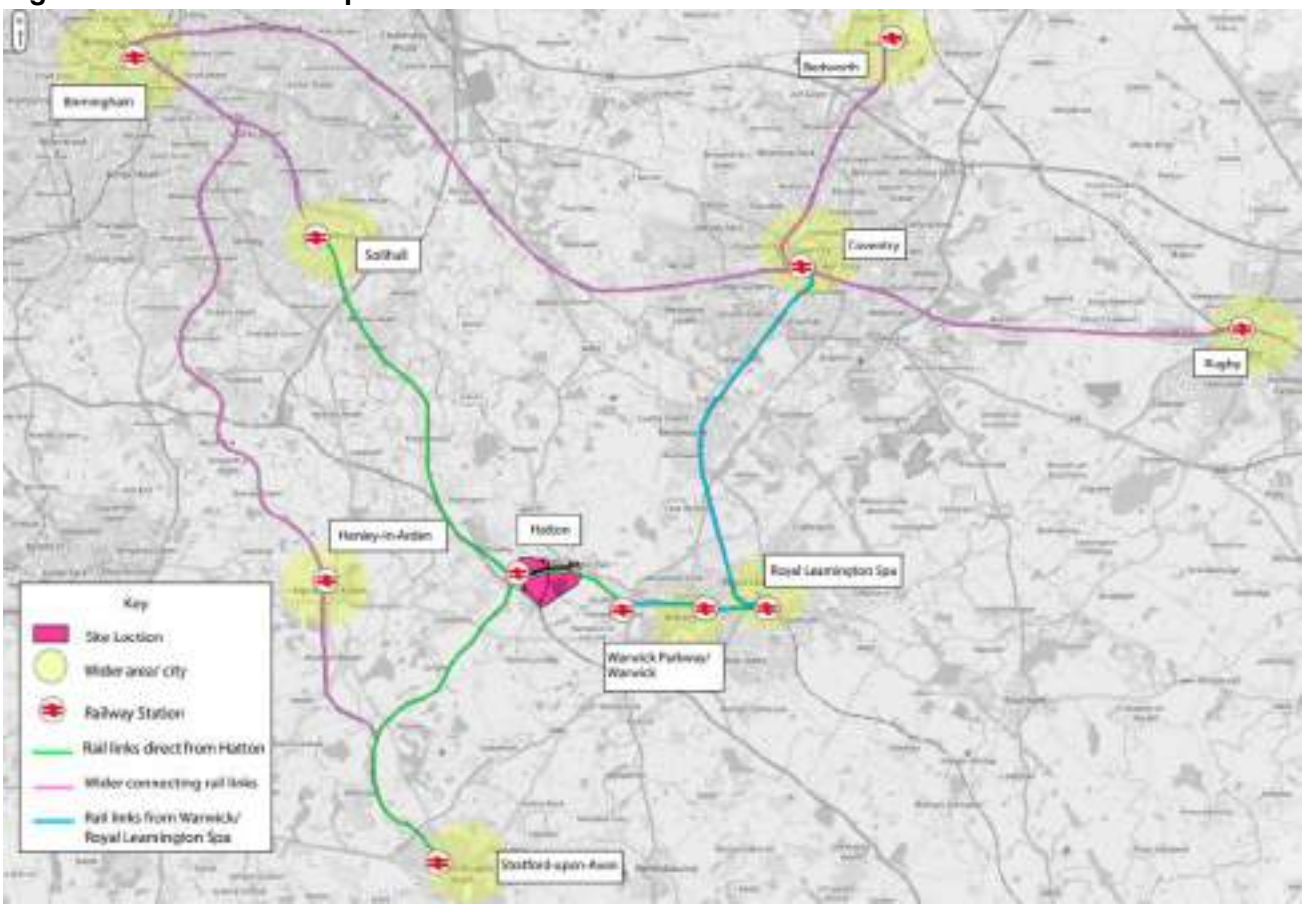
5.26 Arriva Click is one example of a successful and growing demand responsive service in the UK. A current example of Arriva Click's success following Section 106 funding is at Lubbesthorpe near Leicester where they are serving a new residential / mixed use settlement. There are now some 300 houses built including a mix of social housing, flats and houses. In first six months that the Arriva Click service has operated, 5,000 journeys were made to and from New Lubbesthorpe, including patronage from the adjacent communities.

Carpooling

5.27 Carpooling is where a car driver will use their own personal vehicle to give lifts to other passengers, usually whose origins and destinations are similar to their own. This works particularly well-coordinated from a workplace, where workers are likely to be travelling from similar areas to a single place of work. This will be utilised for the employment aspects of Hatton.

5.28 App-based carpooling is now taking off, and lifts can be booked on demand, reflecting modern lifestyles, removing the requirement to plan journeys well in advance to participate in an effective carpooling system.

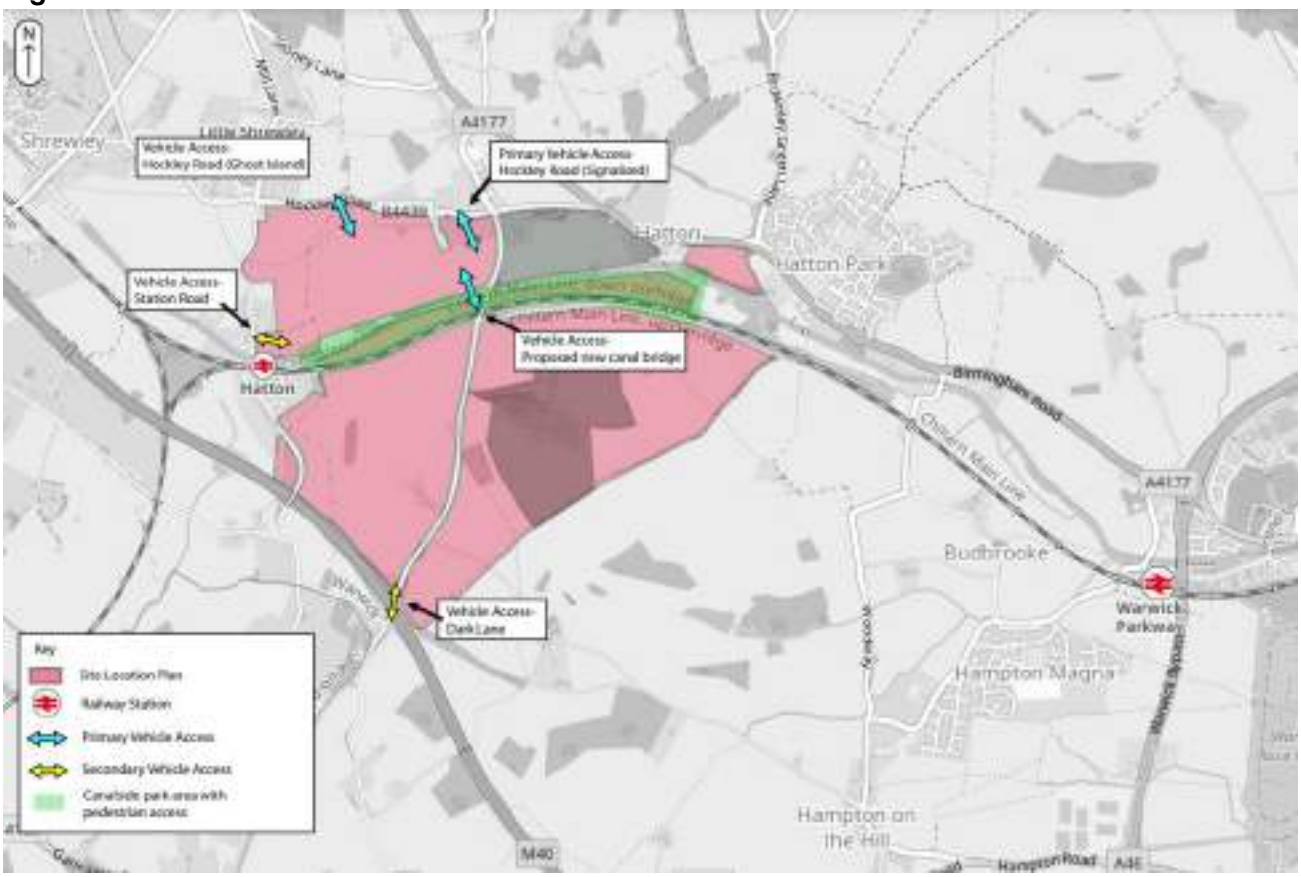
Figure 5.6 – Public Transport Connections to the wider area



Vehicle

5.29 **Figure 5.7** sets out the proposed vehicle access strategy. This includes four vehicle access points comprising of a main access onto Hockley Road and a series of minor accesses which connect to Hockley Road and Station Road.

Figure 5.7 – Vehicle Access Points



Primary Access and Hockley Road Secondary Access

5.30 The main vehicle access will be through either a roundabout or signalised junction which connects directly onto Hockley Road around 100m west of Hockley Road / Dark Lane Junction.

5.31 A second access is proposed on Hockley Road to the west which would take the form of a ghost island arrangement. It is expected that the majority of trips would utilise these accesses.

Station Road Access

5.32 A further vehicle access would be provided onto Station Road to the north of the Hatton Rail station. This would take the form of a simple priority t junction which would facilitate access to the site from the south Via Station Road.

Dark Lane

5.33 Dark Lane would remain open for traffic wanting to access the site from the south. This would facilitate access for only a small number of vehicles.

Vehicle Access Link – Grand Union Canal and Rail Bridge

5.34 The Dark Lane bridge over the Grand Union Canal is identified as a constraint to movement, particularly for active travel connectivity within the site itself – between the sections of the site north and south of

the railway lie and the canal. As such, a preliminary investigation has been undertaken into provision of a new bridge at this location crossing only the canal, maintaining the existing railway bridge crossing.

5.35 To address the constraint identified at the Dark Lane canal bridge, two sketches have been prepared to identify possible options to provide a new bridge for vehicular movement, keeping the existing canal bridge as a dedicated active travel link.

5.36 Structural details on both bridges have been requested from the relevant authorities but have not at this stage informed the initial sketches prepared to show potential location of a new canal bridge, and potential alignment of the road. Similarly, adopted highway extents are required to confirm usable land for any scheme, this has been requested from the Highway Authority. Detailed level data in this location is not currently available and topographical information will be required to confirm the bridge options are feasible. Further engineering details such as stats in this location will also need to be considered.

5.37 Two options for a new bridge alignment on Dark Lane have been identified at this initial stage, and are presented in **Appendix A**. These options are as follows:

- 215933_PD01 – diversion of Dark Lane over a new bridge west of the existing bridge, then re-joining Dark Lane to the north. The existing Dark Lane bridge and this section of road will serve as a dedicated active travel connection.
- 215933_PD02 – diversion of Dark Lane over a new bridge west of the existing bridge, then a new road is provided to connect with Hockley Road. The existing Dark Lane bridge and road north of the canal will become a cul-de-sac with pedestrian and cyclist connection at its southern end.

5.38 At this time no direct discussion has been had with the Highway Authority or the Canal & Rivers Trust which will be required to ensure any proposed design meets the standards required by each. Further technical data is also required to develop any potential bridge design and therefore these sketches are for high level information only at this stage.

5.39 **Figure 5.8** and **Figure 5.9** details these options.

Figure 5.8 – Option 215933_PD01

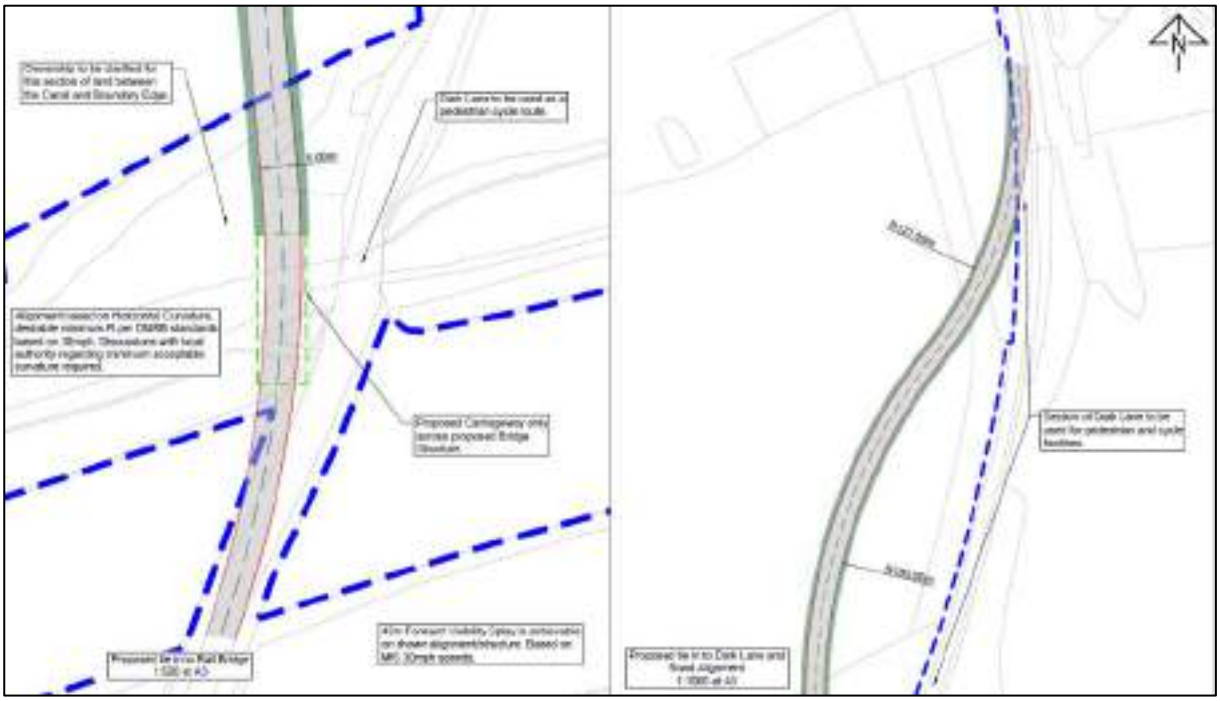
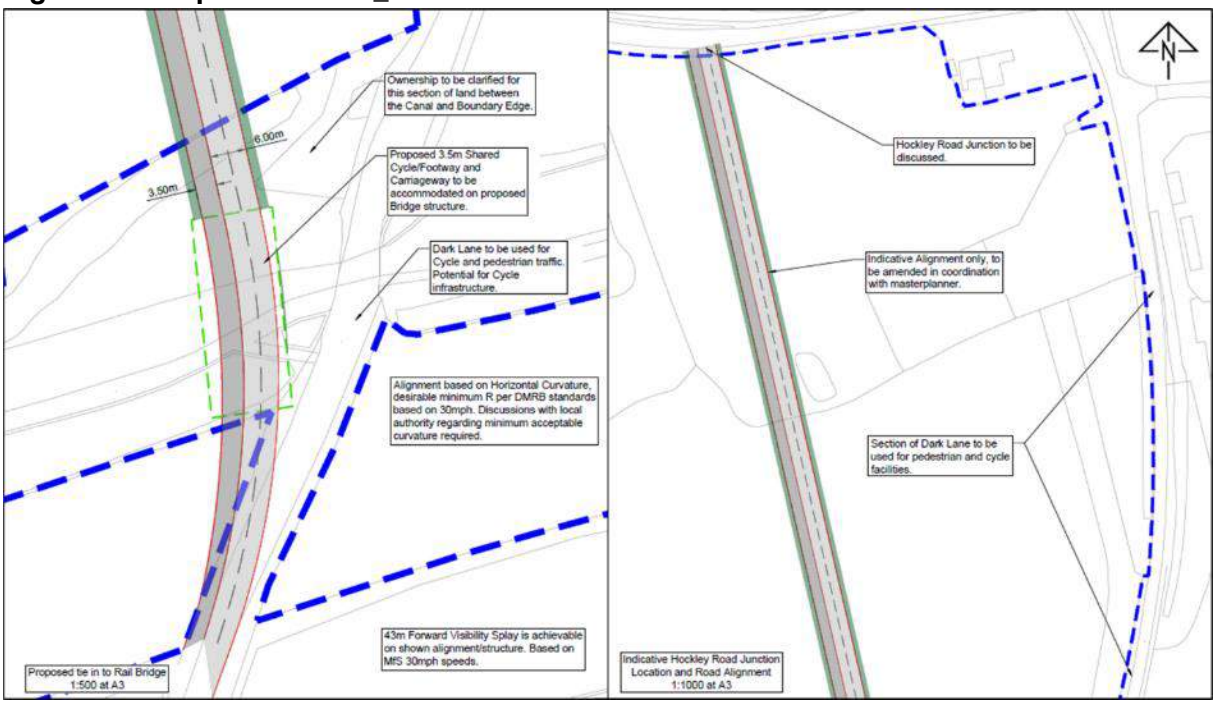


Figure 5.9 – Option 215933_PD02



6 Trip Forecast and Assessment

Introduction

6.1 This section sets out the trip generation forecast associated with the development proposals as well as the methodology for assessing the traffic impact of development. A meeting was held with WCC on 1 February 2023 to discuss the trip forecasts and distribution.

Trip Forecast

6.2 It was agreed that the initial assessment of the traffic impact of the development would be based on the WCC residential trip rates. However, it was agreed by WCC and Vectos that the WCC vehicle trip rates are outdated and, in reality, would overestimate traffic associated with the development. Running parallel to this is the Vectos has developed bespoke trip generation forecast which takes into account containment of trips associated with the mixed-use nature of the site, current trends with travelling and the reduction in car trips associated with a sustainable access strategy. This is set out within a Movement Analysis Paper (MAP) at **Appendix B**.

WCC Standard trip rates

6.3 **Table 6.1** provides a summary of the WCC trip rate and resultant vehicle tip generation forecast associated with 4,500 dwellings. As agreed with WCC these forecast are also based on outdated vehicle trip rates and, in reality, overestimate the traffic forecast.

Table 6.1 – Trip Rate Summary

Mode	Vehicle Trip Rates			Vehicle Trip Generation		
	Arrival	Departures	Total	Arrival	Departures	Total
0700 to 0800	0.078	0.329	0.407	351	1481	1832
0800 to 0900	0.120	0.480	0.600	540	2160	2700
0900 to 1000	0.122	0.221	0.343	549	995	1544
0700 to 1000 (3 hour peak)	**0.320**	**1.030**	**1.350**	**1440**	**4635**	**6075**
1600 to 1700	0.348	0.116	0.464	1566	522	2088
1700 to 1800	0.480	0.120	0.600	2160	540	2700
1800 to 1900	0.365	0.117	0.482	1643	527	2169
1600 to 1900 (3 hour peak)	**1.193**	**0.353**	**1.546**	**5369**	**1589**	**6957**

6.4 Based on the WCC residential trip rates the development could generate around 2,700 vehicle trips during the AM and PM peak hours. During the AM peak period (0700 to 1000) the scheme could generate around 6,075 vehicle trips. During the PM peak period (1600 to 1700) the scheme could generate around 6,957vehicle trips.

6.5 The traffic forecast set out within **Table 6.1** represents a wort case scenario as it does not fully take into account the containment of trips through provision of complementary land sues on site. it is considered unrealistic and it is not aligned with the wider council strategy in achieving Net Zero. The use of these trip rates which are unrealistically high to underpin growth proposals within the District

would not contribute towards minimising CO2 emissions. Traffic Forecast should take into account all components of devilment including complementary land uses which can contain trips within the site and reduce the overall need to travel off site as well as

6.6 The likely traffic forecasts is set out within a Bespoke Vectos Trip Forecast which provides a much more realistic prediction of trip forecasts.

Vectos Bespoke Trip Forecast

6.7 The full methodology for the calculation of this trip generation, including internalisation and the benefits of the sustainable access strategy can be found in the Movement Analysis Paper (MAP) attached as **Appendix B**. **Table 7.2** provides a summary of the resultant vehicle trip generation forecast.

6.8 Table 7.2: Bespoke Vectos Traffic Forecast

Mode	Vehicle Trip generation		
	Arrival	Departures	Total
0700 to 0800	217	839	1056
0800 to 0900	814	644	1458
0900 to 1000	505	360	865
0700 to 1000 (3 hour peak)	**1536**	**1843**	**3379**
1600 to 1700	529	558	1087
1700 to 1800	790	774	1564
1800 to 1900	596	468	1064
1600 to 1900 (3 hour peak)	**1915**	**1800**	**3715**

6.9 The likely traffic forecast associated with the development is in the region of 1,500 vehicle during the AM and PM peak hours.

6.10 **Table 7.3** provides a summary of the difference in traffic forecast between the WCC trip rates and the likely traffic forecast when taking into account the internalisation of trips.

Distribution

6.11 As part of the initial stages of the modelling assessment, VM have liaised with WCC with a view to deriving an appropriate trip distribution to assign to the site. WCC have advised that any distribution should make use of the WCC Mobile Network Database (MND), which provides distribution information at an LSOA level.

6.12 Following liaison with WCC, the MND outputs has been used to construct proxy distributions that are considered representative of the Hatton development proposals and travel patterns. The remainder of the note details the steps undertaken to develop these distributions and provides output plots to illustrate the distribution patterns to be assigned.

6.13 The Warwick 014D LSOA is largely rural in nature area, and on this basis, the distribution outputs for this LSOA alone is unlikely to provide a realistic proxy for the large development proposals concerned. On this basis, WCC has advised that a number of nearby LSOA areas should be selected to be

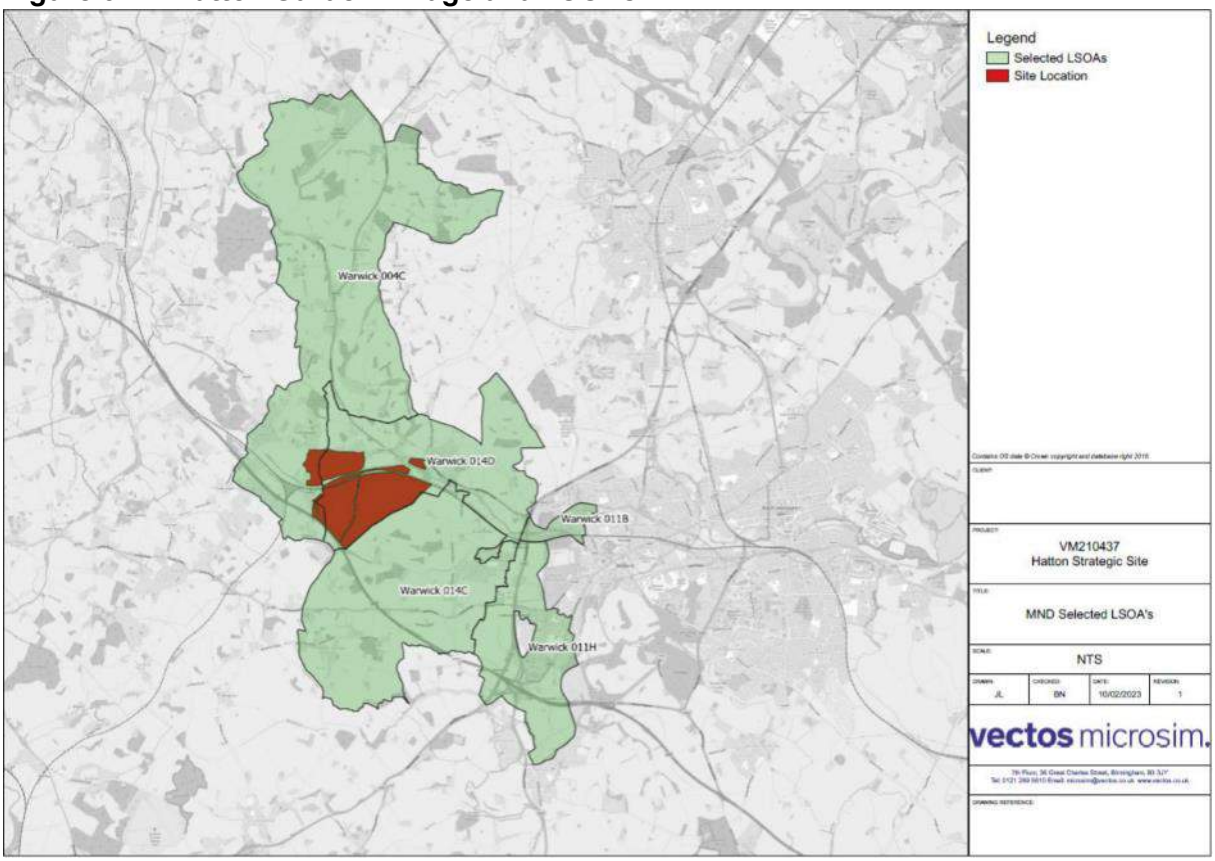
combined to derive a single distribution, which is based upon an average of nearby, representative output areas.

6.14 In line with this criteria, WCC have indicated that the following outputs area should be considered when deriving the distribution:

- Warwick 011B
- Warwick 011H
- Warwick 014C
- Warwick 014D

6.15 The location of these output areas relative to the site are indicated within Figure 6.1.

Figure 6.1 – Hatton Garden Village and LSOAs



Mobile Network Data Distribution (LSOA Level)

6.16 The distribution to be assigned has utilised the WCC MND tool, filtered by the LSOA's listed previously, as advised by WCC. A Technical Note is included at **Appendix C** setting out the methodology for this exercise.

6.17 The MND data was the further filtered as per the following:

- Period (AM period 07:00 to 10:00 or PM period 16:00 to 19:00)
- Average weekday (Tuesday to Thursday)
- Journey Purpose (Homebased Work)
- Direction of Travel (AM From Home, PM To Home)

6.18 Initially a distribution for each of the four identified LSOAs has been derived. However, it was not appropriate to simply assign an average of these four LSOA outputs, on the basis that some of the LSOAs contain more dwellings/development than others.

6.19 On this basis it was determined that a 'weighted' distribution would be derived, whereby instead of simply taking an average of the four output areas, the distributions would be combined, but with a weighting towards the LSOAs with the higher number of dwellings within them.

6.20 The number of dwellings within each of the LSOA output areas considered are listed in **Table 6.1**. The dwellings totals were derived from the NOMIS database.

Table 6.1 – LSOA's Number of Dwellings

LSOA Output Area	No. of Dwellings
Warwick 011B	880
Warwick 011H	654
Warwick 014C	752
Warwick 014D	1,108

6.21 In order to derive a 'weighted' distribution to be assigned to the development site, the number of dwellings within each of the LSOA's was divided by the total sum of the dwellings. The resultant weightings are outlined within **Table 6.2**.

Table 6.2 – LSOA's Weighted Distribution

LSOA Output Area	No. of Dwellings
Warwick 011B	25.9%
Warwick 011H	19.3%
Warwick 014C	22.2%
Warwick 014D	32.6%

6.22 These weightings have then been factored into the calculation when combining each of the LSOA outputs to derive a single distribution to be assigned to the development site.

Resultant Development Distribution

6.23 The resultant predicted trip patterns have been plotted as straight lines between LSOA centroids and the development site, along with a routed distribution plot showing the routes that development trips would likely traverse when travelling between the site and external model zones/destinations.

6.24 As there are a large number of destinations identified, and to provide clarity, the plots have excluded any travel pattern that had less than 1% of the total distribution. These 1% trips have been included within the analysis and have been summarised in the resultant trip distribution to development site, just not displayed on the supporting plots.

6.25 In addition to the plots provided, the key destinations have been summarised within **Table 6.3**.

Table 6.3 - Development Distribution Summary

Destination	Percentage of Trips	
	AM	PM
Warwick/Leamington Internal Zones	36.83%	44.88%
A46 Northbound (Towards Coventry)	19.00%	11.75%
A4177 Birmingham Road	13.73%	14.14%
A46 Stratford Road	6.97%	7.69%
M40 Northbound	6.83%	3.07%
A445 Leamington Road (Towards Rugby)	4.33%	1.98%
A429 Southbound (Towards Wellesbourne)	3.87%	3.69%
M40 Southbound	3.54%	8.06%
A425 Southam Road	1.40%	0.43%
Birches Lane (Towards Kenilworth SE)	1.33%	1.09%
B4113 Stoneleigh Road	0.60%	0.94%
A452 Warwick Road (Towards Kenilworth)	0.61%	0.66%
B4455 Fosse Way	0.30%	0.00%
B4100 SB (Towards Gaydon)	0.29%	1.45%
Rouncil Lane (Towards Kenilworth SW)	0.24%	0.19%
B4453 Rugby Road	0.12%	0.00%

6.26 The distribution has also indicated that the majority of trips will be considered 'internal', being assigned to zones within or around either Warwick or Leamington town centre areas (36% AM and 45% PM).

6.27 The distribution derived from the MND outputs has indicated that a high proportion of development trips would likely travel north of the site on the A46 north. In addition to this, a high proportion of trips are also predicted to route directly west out of the model network towards Birmingham on the A4177.

6.28 The distribution assumes that all traffic will route onto Birmingham Road. In reality, a small proportion of development traffic will route west on Hockley Road.

A46 Warwick Bypass/Birmingham Road Junction Observations

6.29 Further analysis has been undertaken specifically at the A46/A4177 'Stanks Island' junction, where in both periods, over 85% of the total development trips are predicted to route.

6.30 During the AM period, 29% of development trips entering the junction travel north in the Coventry direction. 22% of development trips route through the junction onto the A46 southbound, with the remaining trips (37%) travelling towards Warwick on the A425.

6.31 During the PM period, the distribution is similar to the AM where majority of trips are travelling between the site and Warwick on the A425 (45%). Within this period traffic travelling between the site and the A46 northbound and A46 southbound make up of 17% and 23% of development trips respectively.

6.32 On the basis of the above, the operation of the A46 / A4177 Stanks Island junction is predicted to form the primary focus of any development impact assessment at this stage.

Distribution Summary

6.33 Four LSOA output areas have been agreed with WCC and interrogated using the MND tool to derive the required distribution. A distribution has been extracted for each LSOA, before being combined, using a 'weighted' approach (dependent on the number of dwellings in each LSOA) to form one single distribution to assign to the development.

6.34 The resultant development trip distributions are set out in **Table 6.3**.

7 Traffic Impact and Modelling

Introduction

7.1 This section of the report sets out details of the operation of the adjacent road network. The methodology and results summary is set out within this chapter.

7.2 Detailed stand-alone models such as PICADY, ARCADY and LINSIG have been used to test the site accesses, and other local junctions where the WCC Paramics model does not cover. However, it is understood that the WCC model is being extended to include this part of the network in the near future.

7.3 The WCC microsimulation Paramics model has been used to test the wider impact of development on the adjacent road network. The microsimulation work identifies hotspots on the adjacent road network which can be used to infirm locations for highway mitigation. Work is ongoing with regards to what the off-site highway mitigation may include.

7.4 There are existing constraints on the highway network, therefore any proposed mitigation will be of a benefit to both existing and future road users.

Site Accesses

7.5 The site access arrangements have been informed by MCC and ATC surveys undertaken in April 2022. The surveys undertaken are illustrated in **Figure 7.1**.

Figure 7.1 – April 2022 Surveys

7.6 The MND distribution has been assumed that all traffic will route via Birmingham Road. In reality, a small proportion of development traffic will route west on Hockley Road.

7.7 Both accesses have been reviewed using the detailed modelling software to determine potential junctions at these locations.

7.8 Whilst the designs of the accesses are yet to be finalised, the conclusion is that the primary access will be either a roundabout or a signalised junction, and the secondary access will result in a ghost island priority junction.

Off Site – Junction Modelling

7.9 Detailed modelling has also been undertaken for a two key junctions where the Paramics model does not cover. This has been undertaken for the following junctions:

- B4439 Hockley Road / Dark Lane / The Green Crossroads
- A4177 Birmingham Road / B4439 Hockley Road

7.10 The detailed modelling outputs can be found in **Appendix D**.

7.11 The results of which conclude that improvements will need to be made at the A4177 Birmingham Road / B4439 Hockley Road junction. Options include a roundabout or signalised junction.

Off Site – Paramics

7.12 The WCC Paramics microsimulation model has been used to test the wider impacts of Hatton New Community on the surrounding highway network. The model can identify hotspots on the adjacent road network which can be used to infirm locations for further highway interventions that will need to consider all road users.

7.13 As agreed with WCC, the modelling has been undertaken within a 2037 Local Plan future year scenario (which is inclusive of all existing allocations within the model extent). The 2037 future year scenario reflects a very busy network, prior to development inclusion. Given the amount of traffic growth already captured in the model, it is expected that the level of growth likely to be required would have impacts on an already strained network, with the opportunity to contribute towards mitigation measures to alleviate these existing constraints, to the benefit of both existing and future road users.

7.14 An initial test was undertaken which included the development in line with the WCC STA trip rates, and immediately found that the model highlighted capacity issues around the A46 and M40, with the model ‘locking up’ in these areas. These results are expected as this is a known area of constraint at peak times, and any additional vehicle movements from the proposed development or indeed any development in the area would adversely affect the existing constraints.

7.15 This indicates that any form of ‘Predict & Provide’ assessment is no longer appropriate or viable for this quantum of housing to come forward, and instead the vision and validate approach aligns better with WCC’s vision for new development such as Hatton New Community. The ‘Predict & Provide’ approach would result in large-scale physical improvements, likely resulting in an unrealistic number

of lanes into Warwick, which would encourage car driver behaviour and would be counter intuitive to the Decarbonising Transport Strategy set by the UK Government.

7.16 Following this, the Vectos bespoke trip rates for Hatton New Community have been run through the Paramics model with a good level of stability.

7.17 The development trips (based upon the Vectos bespoke trip rates) have been distributed across the model network in line with the Mobile Network Database outputs, as advised by WCC. This has led to the running and reporting of the following two scenarios:

- 2037 Local Plan Reference Case – existing Local Plan model inclusive of all consented and allocated sites within the plan period; and
- 2037 Local Plan Development Case – inclusive of the Hatton Gardens development in line with the Vectos bespoke trip rates and MND distribution outputs.

7.18 At this stage of reporting the following headline outputs have been provided:

- Results Spreadsheet (Sp003) – inclusive of network wide statistics, queue impacts and journey time analysis.
- Queue Summary Plots (PDF005a and PDF005b) – peak hour queue length impact plots, which enable a quick visual summary of the key areas of impact associated with the site.
- Development Demand Routing Plots (PDF008a and PDF008b) – modelled development trip routing patterns, extracted from a 'demand' run (a 'demand' run is one which is run at 50% of the background demands, and hence contains little to no congestion on the network) The idea here is to demonstrate the routing patterns of the development trips should there be no re-assignment in response to congestion issues.
- A46 / A4177 Turning Flows (Sp004) – provision of the modelled and demand peak hour turning flows for the A46 / A4177 Stanks Island junction.

7.19 The results spreadsheet, queue, and demand routing plots are included in **Appendix E**. The results spreadsheet and A46 / A4177 turning flows are also available upon request.

7.20 The results spreadsheet shows that the development will have an impact at the A46 / A4177 Stanks Island junction, along with some notable impacts at junctions along the A425 Birmingham Road and A429 Stratford Road corridors into Warwick. Again, this is expected due to the existing constraints at peak times at this junction, and a development of the scale of Hatton New Community will be able to deliver a comprehensive package of mitigation measures to alleviate the existing constraints which are also affected by the additional vehicle trips associated with the proposed development and forecast growth already included in the model.

7.21 A visual review of the model performance has indicated that, when delay forms around various approach arms to the A46 / A4177, junction traffic is re-assigning to use alternative approaches to try and avoid the worst of the queuing.

7.22 For example, when queues form on the A46 NB off-slip to the junction, traffic will choose to route through Warwick and approach the A46 / A4177 junction from the A425 Birmingham Road approach which has queue impacts across the town. Although there are some development trips travelling directly into Warwick or Leamington, the development trips are predominantly focused on the SRN which is illustrated in the development routing plots (**Appendix E**).

7.23 The outputs from the modelling and the impacts on the wider network in and around Warwick are the consequential of the existing and future congestion occurring at the A46 / A4177 junction, and the impacts of re-assignment in response to this. It is not a result of development trips directly impacting on the identified junctions on this part of the network.

7.24 These highway concerns are not insurmountable and it is proposed that, as a part of the proposals for Hatton New Community, a comprehensive mobility strategy for Hatton will be developed that will be tested in all modelling work going forward using the WCC 2037 Local Plan Model.

7.25 As part of the wider package of mitigation measures for Hatton New Community, physical improvements should be considered at the A46 / A4177 junction. This in turn may reduce the consequential impacts of the development along the A425 Birmingham Road and A429 Stratford Road corridors into Warwick. This can be reviewed further following another run of the Paramics model with physical improvements at the A46 / A4177 junction.

Summary

7.26 Detailed modelling has been undertaken to determine which junctions will be needed to accommodate the traffic demands at the primary and secondary access. The primary access will be either a roundabout or signalised junction, and the secondary access will be a ghost island priority.

7.27 Detailed modelling was also undertaken for a couple junction where the Paramics model did not cover. This concluded that the A4117 Birmingham Road / B4439 Hockley Road junction will need improvements to accommodate the development. This will result in either a roundabout or signalised junction.

7.28 The WCC microsimulation Paramics model has been used to test the wider impact of development on the adjacent road network. This model can identify hotspots on the adjacent road network which can be used to infirm locations for highway mitigation. The future year scenario of 2037 reflects a congested network (prior to the development inclusion) and is a 'worst case', assuming no mitigation from the proposed development.

7.29 Using the WCC STA trip rates resulted in the Paramics model 'locking up' in some areas, as expected given the existing constraints during the peak hour assessments. This supports the Vision and Validate approach for the development, as it is demonstrated that the P&P approach will not be viable option to bring this quantum of housing anywhere in Warwick, as this would results in large-scale physical improvements and would be counter intuitive to the Decarbonising Transport Strategy set out by the UK Government.

7.30 Using the Vectos bespoke trip rates resulted in the Paramics model identifies congestion at the A46 / A4177 Stanks Island junction, as expected, as this is a known area of constraint at peak times. This

causes additional impacts in and around Warwick whereby existing traffic is re-routing and causing congestion elsewhere.

7.31 However, it is proposed that the delivery of a comprehensive package of mitigation measures, through a range of physical improvements , should be considered at the A46 / A4177 junction and run through the Paramics model to determine if the impacts are only limited to the one junction.

Conclusion

7.32 Hatton New Community and the suite of sustainable transport measures can contribute to reducing the reliance on the private car and promote the use of active travel and sustainable modes. As a part of the transport strategy for Hatton New Community, a package of transport and mobility measures will be developed and tested in the next rounds of the modelling that will consider all modes, as well as containment and internalisation. This forms part of the vision and seeks to achieve net zero in line with climate emergency policies that both authorities are fully supportive of.

8 Conclusions

Summary

8.1 This Transport Strategy has been prepared by Vectos on behalf of Hill Residential Ltd in relation to proposals for a large scale, mixed used development at Hatton.

8.2 This Transport Strategy sets out an approach to support this magnitude of development given the sites excellent location to the south of Warwick, with opportunities to build on the existing active travel network in the area, improve public transport, and meet the housing demand for the area.

8.3 It demonstrates how a different, yet contemporary approach to mobility should be developed for the site that aligns with nationally recognised transport user hierarchy and planning policy, thus avoiding a predict and provide approach to increasing highway capacity. The Transport Strategy also aligns well to the transport objectives of WCC and with support can set the foundations for a sustainable new community.

8.4 Detailed modelling has been undertaken for local junctions as well as using The WCC microsimulation Paramics model. It is proposed that the delivery of some form of mitigation, in part through physical improvements, should be considered at the A46 / A4177 junction and run through the Paramics model. This is to mitigate the effect of the existing constraints in this area at peak time as well as the additional effect of the proposed development for both existing and new road users.

8.5 Any highways constraints are not insurmountable, and will be addressed through a comprehensive package of mitigation measures, creating a better environment for existing and future road users, whilst the aim is not to create more road capacity, it is to improve on what is existing to allow for new development and improve existing infrastructure. This will be supported through a suite of measures aimed as changing the way we travel, with a shift to active travel and sustainable modes.

Conclusion

8.6 A multimodal access strategy has been set out, supporting access by sustainable modes and prioritising access by walking, cycling and public transport. The development would be supported by a next generation mobility strategy including key elements such as Demand Responsive (DR) bus services, futureproofing for autonomous vehicles. The provision of Active Travel Corridors such as along the canal towpath provide direct and safe routes into Warwick and beyond; this form of travel is an integral part of the masterplan and, again, aligns with local and WCC policy.

8.7 The investment for such a strategy would be significant and would need to be phased, ensuring that viable mobility options are available to residents / employees from the outset to engender travel behaviour from day one.

8.8 Hatton New Community and the suite of sustainable transport measures can contribute to reducing the reliance on the private car and promoting the use of active travel and sustainable modes. The vision-based strategy focuses on internalisation and containment in line with net-zero goals, and this will be considered in the package of transport and mobility measures to be developed in the next rounds of modelling.

8.9 Hatton New Community will be able to transfer trips from private vehicle to sustainable modes, including rail, given its proximity to two railway stations, which form part of the WM Rail Executive Rail Investment Strategy, designed to improve infrastructure and access to railway stations in the region.

8.10 This approach to large-scale development is pioneering and will assist Hill Residential Ltd and WCC in their aspirations to create a Carbon neutral development.

Appendix A

Vectos Drawings

Ownership to be clarified for this section of land between the Canal and Boundary Edge.

Dark Lane to be used as a pedestrian cycle route.

6.00m

Alignment based on Horizontal Curvature, desirable minimum R per DMRB standards based on 30mph. Discussions with local authority regarding minimum acceptable curvature required.

Proposed Carriageway only across proposed Bridge Structure.

43m Forward Visibility Splay is achievable on shown alignment/structure. Based on MfS 30mph speeds.

Proposed tie in to Rail Bridge
1:500 at A3

R127.00m

Section of Dark Lane to be used for pedestrian and cycle facilities.

R180.00m

Proposed tie in to Dark Lane and Road Alignment
1:1000 at A3

REV.	DETAILS	DRAWN	CHECKED	DATE
.	.	.	.	.

DRAFT

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.
3. Adopted Highway data to be confirmed.

KEY

Indicative Bridge/Structure Outline

Land Ownership Boundary

Land at Hatton, Warwickshire

Grosvenor

Indicative Alignment
Dark Lane - Change of Alignment

DRAWN:	CHECKED:	DATE:	SCALES:
KR	EH	03.06.21	As Shown at A3

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Ground Floor, Helmont House, Churchill Way, Cardiff CF10 2HE
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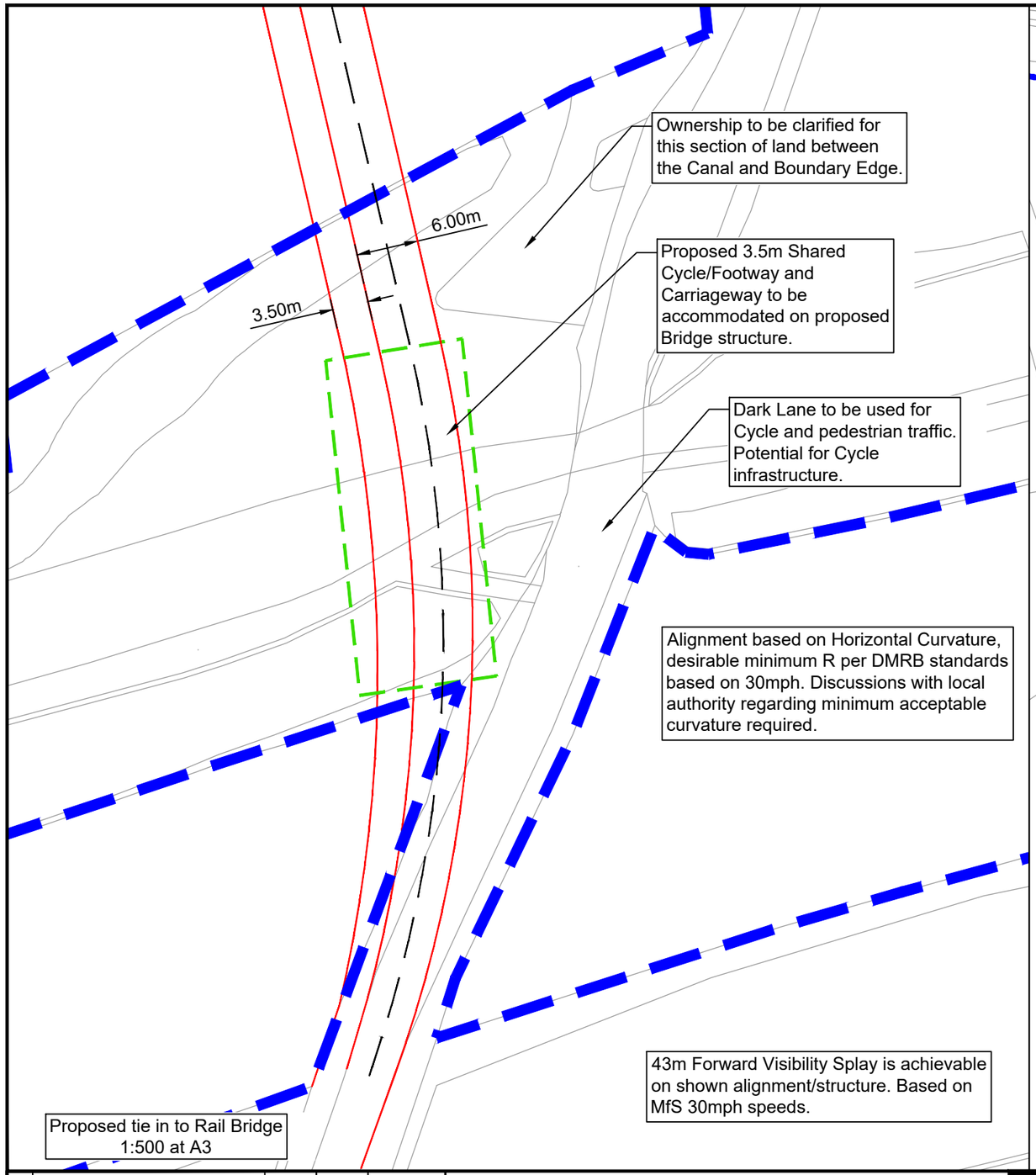
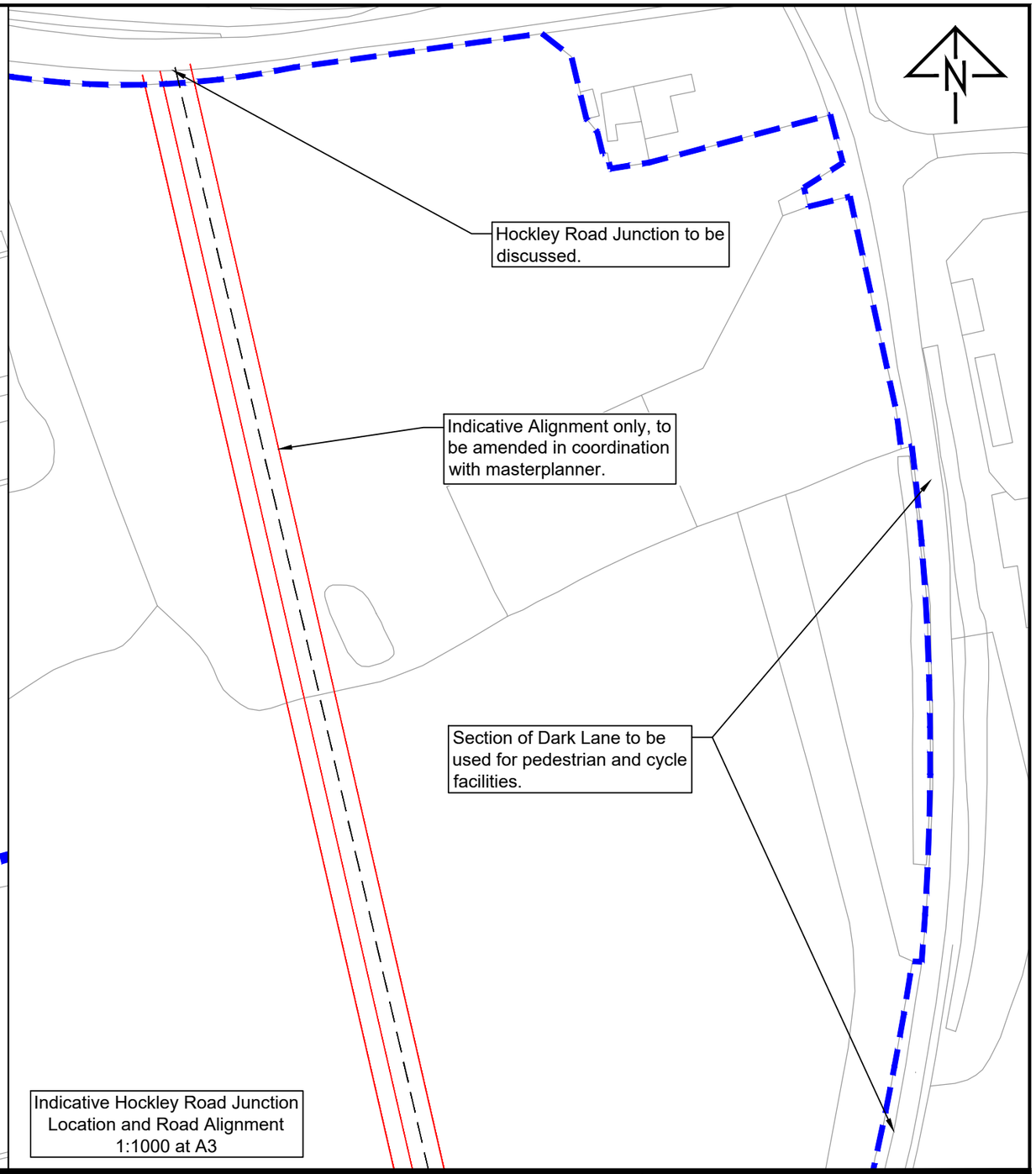
DRAWING NUMBER:	REVISION:
215933_PD01	·





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DRAFT

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.
3. Adopted Highway data to be confirmed.

KEY

Indicative Bridge/Structure Outline

Land Ownership Boundary

Land at Hatton, Warwickshire

Grosvenor

Indicative Alignment
Priority Junction - Dark Lane

DRAWN:	CHECKED:	DATE:	SCALES:
KR	EH	03.06.21	As Shown at A3

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Appendix B

Movement Analysis Paper

vectos.

MOVEMENT ANALYSIS PAPER

The Hill Group

Hatton New Community

January 2023

Contents

Appendices

1 Introduction

1.1 This Movement Analysis Paper (MAP) provides a summary of the likely, or potentially achievable under a guidance compliant Vision & Validate approach, trip patterns associated with the proposed new community in Hatton with reference to the overarching Transport Vision. The assessment covers the 4,500 units and the associated retail and employment land uses.

1.2 The MAP builds on work reported in the Transport Vision.

1.3 The strategy at Hatton starts with seeking to minimise the need to travel in the first instance. The SAM (Sustainable Accessibility and Mobility) Framework[1] is therefore relevant and should be utilised in the way it relates to new settlements, as shown in **Figure 1.1**.

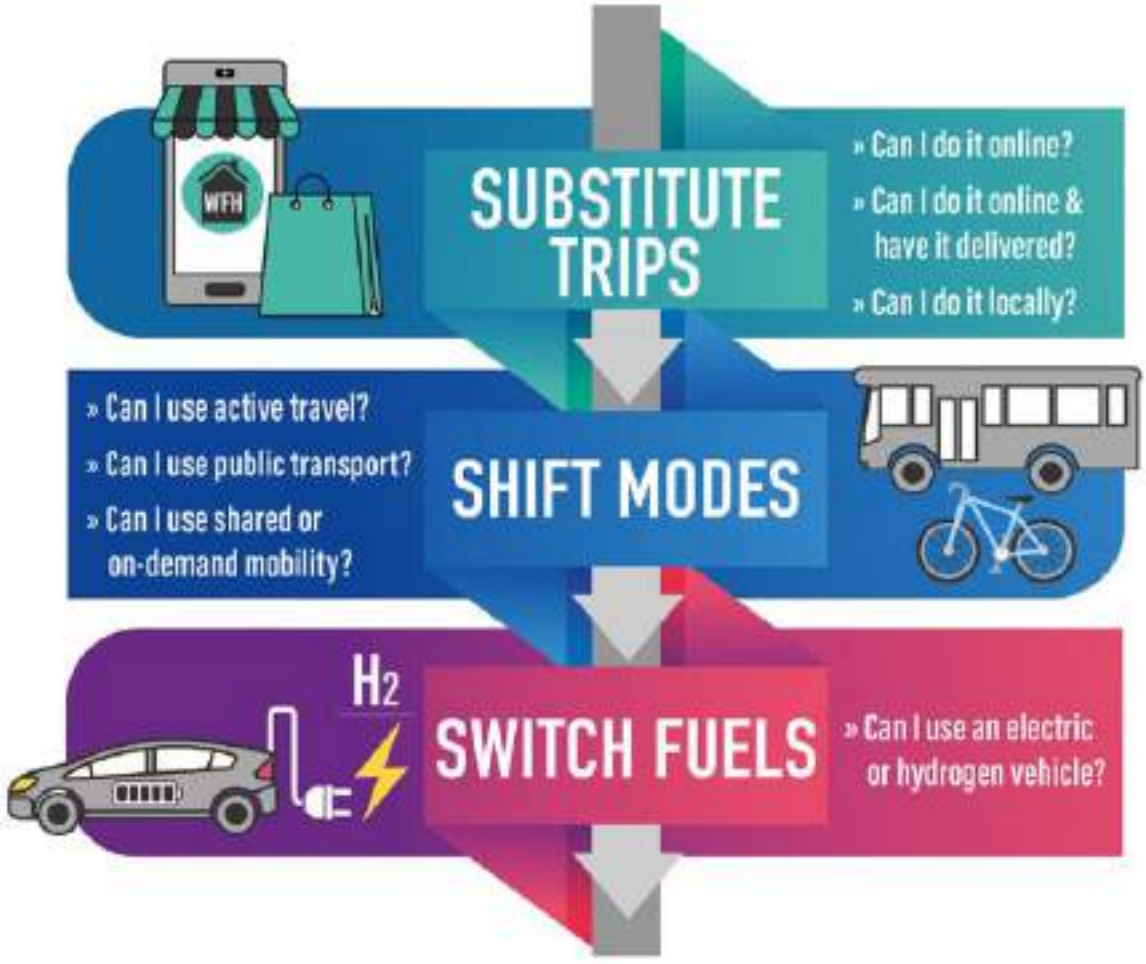


Figure 1.1 – SAM Framework for Community Planning

[1] RTPI Research Paper 'Net Zero Transport' (January 2021)

1.4 The SAM Framework advocates designing new communities in the most sustainable way whilst reducing the need to travel, supporting uptake in shared and active travel and advancing low emission vehicles; as follows:

- Substitute Trips (minimise trips): Minimise travel demand by applying 15-minute neighbourhood principles to site design. Maximise opportunities for living local with safe streets, amenities, superfast broadband, co-working spaces and micro-consolidation of freight;

- Shift Modes (minimise least sustainable modes): Make shared mobility the natural choice over private car with Demand Responsive Transport (DRT) and public transport enabled by Mobility as a Service applications, integrated mobility hubs offering communal bikes, e-bikes, cargo bikes and EV car clubs; and

- Switch Fuels (minimise most polluting fuels): Future-proofed charging infrastructure to enable growth in electric vehicles and hydrogen fuel cell vehicles.

1.5 The Vision is also underpinned by the fundamental objective of providing people with a choice in how to travel, in combination with prioritising socially inclusive, environmentally friendly, high-density modes of travel including walking, cycling, and public transport ahead of the private car.

1.6 Mobility is a function of placemaking and is about accessing day-to-day facilities such as schools, shops, friends, healthcare and the workplace. Large strategic sites allow a planned and coordinated approach to development, providing effective mobility infrastructure. The aim of this approach is first and foremost to reduce the need to travel, followed by supplying the means necessary to reduce the distance required to travel, and offering a range of choice in how to travel. Houses will be designed to accommodate working from home, with additional rooms to cater for this need along with high-speed broadband infrastructure.

1.7 The requirement for access to local shops and services has been amplified by the Covid-19 pandemic with an increased level of dependence on neighbourhoods and neighbourhood centres, rather than larger urban centres traditionally relied upon for access to jobs, shops and other community based services.

1.8 Hatton therefore has the opportunity to provide access to a varied transport network with priority towards active travel users and opportunities for future users to access leisure, retail, education and employment facilities on foot or by bicycle. Shared or public transport could provide connections to the wider area to which travel by bicycle or on foot may not be possible.

1.9 At Hatton therefore, in combination with the increasing attitudinal flexibility towards travel, ownership and sharing, as well as accommodation of generational changes in travel attitudes, a judgement has been made that providing effective Mobility as a Service at the site would minimise not only the need to travel for many, but also minimise the demand for, and need to provide for, the single occupancy car driver trips external to the site. Good design aids would aid this and by offering the key travel choices from the outset of the journey, instilling sustainable travel practice from the beginning.

2 Assessment Scenarios

2.1 This section of the MAP considers the allocated provision of 4,500 homes.

Development Quantum

2.2 The level of development is summarised in **Table 2.1**. This quantum of development has been used to inform a trip generation forecast for the development as well as the level of internalisation in terms of people movements that can be achieved by a new community. The provision of complementary land uses ensures that trips are contained within the site, reducing the overall need to travel off site. Further reductions to trips can be achieved through demand management measures such as sustainable travel measures and Travel Planning.

Land Use		Site Allocation
Residential	units	4,500
Primary School	FE	7
	Pupils	1,470
Secondary School (Including Sixth Form)	FE	7
	Pupils	1,260
E(g) employment	sqm	25,486
	Jobs	1,915

Table 2.1 - Development Quantum Summary

2.3 There is existing retail and leisure movements at the development location coming from Adventure World, Hatton Country World and Hatton shopping village. This in itself will contain some of the retail and leisure trips from the new community (i.e. future residents can use these facilities rather than traveling off site).

2.4 There will also be an element of new retail which will absorb the day-to-day needs of the new community and has been considered ancillary to the development. The additional retail is not expected to attract any trips external to the new community other than that already visiting the existing retail and leisure facilities.

Trip Patterns

2.5 Hatton has the potential to provide the opportunity to promote and facilitate local living through good design principles and where the masterplan is dominated by an active travel network, with a full and comprehensive walking and cycling network. This approach is contrasting to a 'Typical Town' which is traditionally road dominated with limited priority active travel provision.

2.6 In order to provide a comprehensive and robust assessment with regard to trip patterns, this MAP considers the mobility strategy for Hatton.

Hatton Mobility Strategy

2.7 Through implementation of the Vision, Hatton will be an exemplar modern development which promotes and facilitates local living. To reflect this, a more ambitious, but realistic, target model has

been determined. It is informed by the characteristics of a typical town, but with adjustments made to take into account the modern approach to masterplanning and mobility, which would be integral to Hatton from the outset.

2.8 The expectation for the Vision is that Hatton will be dominated by an active travel network, with a full and comprehensive walking and cycling network, providing priority over vehicles. The assumption is that the development will include hire bikes and e-bikes, with facilities built into public and private spaces. An excellent range of services and facilities (shops, schools, leisure, healthcare, third place work-hubs) would be provided, together with Mobility Hubs and community concierge facilities. Micro-consolidation centres will be contained within these hubs for commercial and private deliveries. Houses will be designed to be work from home ready, with additional rooms to facilitate working from home and high-speed broadband infrastructure.

2.9 There should be excellent accessibility across the town by active travel and shared travel, with constrained access, by design for private car access. To take account of these characteristics, the Hatton assessment for 4,500 units adjusts the working from home figure from 15.8% to 26.7% and includes a level of internalisation for local employment at 25%. A total of 91% of primary school pupil trips, 91% of secondary school pupil trips, and 45.5% of further education trips are forecast to be internal to the site. The proportion of local leisure trips is determined to be at 61.5% and retail at 90%. These judgments are considered somewhat conservative in the context of the expected, or achievable, characteristics of Hatton.

3 Residential Trip Assessment Methodology

3.1 This section summarises the data and judgements that have been used when considering residential trip patterns.

Trip Generation

3.2 The TRICS database has been consulted in order to derive weekday total person trips rates for the residential dwellings proposed at Hatton. The following parameters were used in selecting the trip rates:

- Land use: residential houses, privately owned
- Regions: UK (excluding Greater London, Republic of Ireland and Northern Ireland)
- Location: neighbourhood centre
- Date: 01/01/2012 to 01/01/2020 (pre-Covid-19)

3.3 The full TRICS output report is attached at **Appendix MAP A**, whilst the morning and evening peak periods and 24-hour AADT trip rates are summarised in **Table 3.1**. The 12-hour TRICS daily trip rates have been factored up to derive the 24-hour AADT trip rates based on a local DfT counter in Hatton Park (DfT ID: 806273) which equated to +16.3%.

Time Period	Trip Rate (per Dwelling)		
	Arrivals	Departures	Total
0700-0800	0.078	0.599	0.677
0800-0900	0.154	0.673	0.827
0900-1000	0.191	0.298	0.489
1600-1700	0.442	0.224	0.666
1700-1800	0.604	0.216	0.820
1800-1900	0.483	0.252	0.735
24hr AADT	3.973	4.027	8.000

Table 3.1 - Residential Trip Rates

Journey Purpose

3.4 The 2019 National Travel Survey (NTS) has been utilised to obtain a breakdown of the proportion of trips per journey purpose per hour. The NTS consists of face-to-face interviews and a seven-day self-completed written travel diary, thereby allowing trips to be broken down by journey purpose and in some instances, mode split of trips per purpose.

3.5 There is 2020 and 2021 NTS data available, however 2019 is more representative of a pre-Covid-19 scenario.

3.6 The NTS splits journeys into 8 categories as follows; commuting, business, education, escort education, shopping, other work / escort & personal business, visiting friends / entertainment / sport, and, holiday / day trip / other. As such, these journey purposes have been condensed into four more

general categories of commuting (commuting and business), education (education and escort education), retail (shopping), and leisure (all remaining journey purposes).

3.7 A summary of the proportional split of trips by journey purpose, based on the four categories outlined above, is provided in **Table 3.2** with reference to the morning and evening 3-hour peak periods and for a 24-hour period.

Time Period	Commuting	Education	Retail	Leisure
0700-0800	53%	20%	3%	24%
0800-0900	23%	51%	4%	22%
0900-1000	16%	10%	22%	52%
1600-1700	26%	11%	15%	48%
1700-1800	36%	5%	12%	47%
1800-1900	24%	2%	15%	59%
24-hour	22%	17%	17%	45%

Table 3.2 - Journey Purpose by Time Period

Internalisation

3.8 To achieve internalisation, the new community will provide a range of shops and services on-site including employment, education and leisure facilities, in line with the placemaking principles of the Vision.

3.9 The assessment in this report accounts for a quantum of on-site employment, education, shops and services which can be justified in terms of internalisation of total people trips.

Commuting

3.10 Complementary to the employment facilities proposed on-site, the hypothesis is that 'work-hubs' are offered which will be 'coffee shop' type premises to encourage remote working, yet in a social environment – 'third-place' working. The Covid-19 pandemic has provided the step-change in working habits when it comes to revealing to employers and employees alike, that working from home or from a 'third-place' is a viable and attractive option for every-day life. During the first Covid-19 lockdown in the UK, every worker who had the ability to work from home was required to do so. Working from home has become an acceptable way of working now for many employers, and the benefits of it are now apparent whether full or part time. For example:

— The Welsh Government has stated its long-term ambition to see around 30% of Welsh workers working from home or near home, post Covid-19[2]. In a development that is designed to accommodate remote working, 30% should be seen as a starting point target, with aspirations to have considerably higher levels of home workers at purpose built new settlements.

[2] https://gov.wales/aim-30-welsh-workforce-work-remotely

— HSBC has outlined plans to reduce office space by nearly 40% worldwide following the rise of homeworking during the pandemic. The plan sees a flexible divide between office and homeworking and will allow a reduction in office space and costs for the firm whilst providing employees with a hybrid style of working.

— A decision has been made at Lloyds Banking Group to reduce office space by 20% between 2021 and 2023 to reflect the 77% of employees who have stated they would want to work from home for three or more days per week in the future.

— A survey of workers from the City of London showed 45% would want to continue to work from home after the pandemic with a perceived improvement in work-life balance. In addition, 57% of London workers who responded said they would not want to return to full-time office working.

3.11 It is clear that flexibility in a place of work has emerged and many companies are offering a hybrid approach, providing staff with the opportunity to work from home full or part time. It is likely that many people will work from home 2 to 3 days a week post Covid-19, spread across the week. In a case where all workers worked from home just 2 days a week the proportion of work from home trips would be 40%. Of course, this doesn't account for those who are unable to work from home, and so taking a hybrid approach is reasonable to make a judgement for post Covid-19.

3.12 Vectos/SLR have developed a tool to collate data on pre-Covid (2019) levels of working from home at the LA District level and then estimate both variation in working from home according to area classification within Districts as well as to estimate future (2022+) working from home rates by district and area classification.

3.13 Based on the working from home rates combined with data on proportion of car commuters who drive to work and average distance of car commutes in each area, the tool then generates estimates of the number of car trips avoided due to working from home, the car vehicle-km saved, and the associated CO2 reductions this produces. The full methodology is included in **Appendix MAP B**.

3.14 Utilising the working from home tool above, the pre Covid-19 data shows 15.8% of people worked from home on an average day and the forecast data for post Covid-19 indicates 26.7% of people are working from home.

3.15 As TRICS total people trips only accounts for those travelling external to the surveyed locations, the existing working from home trips are not included in terms of movements. Therefore, the existing working from home trips have been added to the TRICS total people trip rates, and then the increase in working from home has been included within the TRICS total people trip rates.

3.16 Further to this, the Hatton model, based on a combination of the proposed quantum of employment and reasonable judgements, suggests that up to 25% of the residential commuting trips are likely to work at the proposed employment land uses.

3.17 The 25% employment internalisation is lower than any existing built-up areas indicated through the 2011 Census, as shown in **Table 3.3**.

Area	Employment Internalisation
Stratford-upon-Avon	55.2%
Evesham	43.5%
Warwick	45.0%
Coventry	69.2%
Leamington Spa	38.8%
Banbury	63.1%
Wellesbourne	25.3%
Moreton-in-Marsh	43.8%
Shipston-on-Stour	34.6%
Chipping Campden	47.4%
Kenilworth	29.3%
Redditch	55.6%
Southam	32.4%

Table 3.3 – Employment Internalisation of Local Built-Up Areas

Mode Split

3.18 During the Covid-19 pandemic there was a natural reluctance to use public transport to meet social distancing guidance, and this is expected to have a residual impact on public transport use in the future. However, bus companies and rail operators are addressing current concerns and expect levels to return closer to normal as restrictions and the concerns surrounding Covid-19 ease. This will be through investment in services to make them more attractive and to feel safer. Whilst it is anticipated that bus levels in particular may not return to pre Covid-19 levels, should a bus strategy be implemented to Hatton (and this could be DRT) it would be made convenient and attractive, and it is therefore anticipated that there would otherwise be an improvement on previously recorded levels of use in a pre-Covid-19 scenario.

3.19 The anticipated internal mode split for Hatton would primarily be walking and cycling, with a small proportion by public transport and car. This is in the order of what has been achieved in other modern, sustainable settlements, such as the 'French District' in Tubingen. The material difference from Tubingen is in the level of public transport use, as it is anticipated that at Hatton that active travel will dominate movement within the site given the design of pedestrian and cyclist networks.

3.20 The mode split of external commuting trips has been based on the 2011 Census as a starting point with data associated with method of travel to work by place of work relating to the residents of the Warwick 014 middle super output area (MSOA), within which the site is located. The Census data has been adjusted to reflect a reasonable mode split for the Hatton development considering the proposed mobility strategy.

3.21 In applying the mobility strategy and its various components, Hatton residents would have a plethora of travel options to undertake their external journeys. Therefore, a collective mode for bus, train, walking and cycling has been provided as a collective and coined 'Sustainable Travel Modes'.

3.22 It is acknowledged that commuters travelling from Warwick 014 MSOA for work are already surveyed to have a car passenger mode share of 5%, which is identified in the 2011 Census. A minimum of 10%

based on 2011 Census is considered highly achievable and therefore building on this and the ability to encourage residents through a Travel Plan (carpooling schemes).

3.23 Further to this, the 2011 Census for sustainable travel modes combined is at 11% which is based on 2011 levels of infrastructure and public transport. However, with enhanced infrastructure and a wider range of innovative modes on offer as indicated in the Vision, a judgement that up to 20% (1 in 5 people) of people will travel by sustainable travel modes for commuting purposes.

3.24 **Table 3.4** summarises the 2011 Census and adjusted mode splits that have been applied to external commuting trips in both development scenarios.

Mode	Census	Hatton
Sustainable Travel Modes	11%	20%
Taxi	0%	0%
Motorcycle, Scooter or Moped	1%	1%
Driving a Car or Van	82%	69%
Passenger in a Car or Van	5%	10%
Other Method of Travel	0%	0%
Total	**100%**	**100%**

Table 3.4 - External Mode Split – Commuting Trips

Education

3.25 NTS data from 2019 shows that the average length for a trip to education is just 3.1 miles. In more detail, NTS data demonstrates that in the morning peak hour (0800-0900) 51% of journeys are undertaken for the purpose of education, reducing to 5% in the evening peak hour (1700-1800).

3.26 Based on the child product and equivalent year groups within the 'Developers Guide to Contribution for Education and Early Years Provision (August 2019)', it is expected that 54% of the education trips would be associated with primary education (7 years), 38% with secondary education (5 years) and 8% with further education (2 years). These proportions have been applied to the trip generation in the following.

3.27 It is intended that both primary and secondary education facilities are provided at Hatton with sufficient capacity to serve all on-site school-aged residents and capacity for some external students.

3.28 Based on education statistics for Warwickshire on the government website, approximately 91% of students attend 'state funded' schools, with the other 9% attending 'independent' or 'special schools'. Therefore, 91% of primary and secondary students have been internalised for those using the recommended on-site education facilities. 45.5% of further education (sixth form/college) students have been internalised to account for student choosing to go to college elsewhere in Warwick.

3.29 The anticipated internal mode split for education in Hatton will primarily be walking and cycling, with a small proportion by car.

3.30 The external mode split of education trips has been determined based on NTS data regarding method of travel to school for journeys exceeding 5 miles and removing 'other', as education trips outside of

Hatton will have to travel over 5 miles to reach the nearest locations. **Table 3.5** summarises the expected external mode share of education trips.

Mode	Primary Education	Secondary Education	Further Education
Walking	0%	0%	0%
Cycling	0%	0%	0%
Car or Van	81%	40%	50%
Bus	19%	60%	50%
Total	**100%**	**100%**	**100%**

Table 3.5 - External Mode Split – Education Trips

Retail

3.31 The Hatton model, based on a combination of reasonable judgements and NTS data, suggests that 90% of retail trips could be internalised. In line with the vision, retail will be far more convenient within the site than outside, for many day-to-day needs. Additionally, since Covid-19 there has been more of a requirement and subsequent interest in local living which is expected to persist.

3.32 A review of the average distance for retail trips and level of internalisation expected as a result is provided in **Table 3.6**.

Journey Purpose	Proportion	Ave Distance (miles)	Internalisation	
			Expected	Total
Shopping	100%	3.9	90%	90%
Total	**100%**	**-**	**-**	**90%**

Table 3.6 - Retail – Internalisation

3.33 The mode split of internal retail trips will likely be by car to undertake a weekly food shop for example, with a proportion of walking and cycling.

3.34 The mode split of external retail trips has been based on the 2011 Census data associated with method of travel to work by place of work relating to the residents of the Warwick 014 MSOA, within which the site is located. Retail trips typically have a high number of car-users, and therefore compared to the commuting mode split has reduced sustainable travel modes but increased car passengers to account for families doing their weekly food shop for example.

3.35 The resultant mode splits for are presented in **Table 3.7**.

Mode	Census	Hatton
Sustainable Travel Modes	11%	13%
Taxi	0%	0%
Motorcycle, Scooter or Moped	1%	1%
Driving a Car or Van	82%	66%
Passenger in a Car or Van	5%	20%
Other Method of Travel	0%	0%
Total	**100%**	**100%**

Table 3.7 - External Mode Split – Retail Trips

Leisure

3.36 As with retail trips, a large proportion of trips for leisure and recreation purposes would be internalised within the site as many of the amenities required for day-to-day trips are contained within the development proposals. A review of the type of leisure trips undertaken, the proportion of total leisure trips each leisure trip type makes up, the average distance of each leisure trip type, and the level of internalisation associated with each trip type is provided in **Table 3.8**. This is applicable for all scenarios.

Journey Purpose	Breakdown of Leisure Trips	Ave Distance (miles)	Internalisation	
			Expected	Total
Other escort	17%	5.3	70%	12%
Personal business	18%	5.0	70%	13%
Visiting friends at private home	17%	10.7	40%	7%
Visiting friends elsewhere	10%	6.1	70%	7%
Entertainment / public activity	12%	6.9	70%	9%
Sport: participate	3%	7.4	70%	2%
Holiday: base	3%	45.4	0%	0%
Day trip	7%	13.8	0%	0%
Other including just walk	13%	0.9	95%	12%
Total	100%	-	-	62%

Table 3.8 - Leisure – Internalisation

3.37 Overall, allowing for the different leisure trip types it is expected that 62% of leisure trips will remain internal to the town.

3.38 Similar to retail, the proportion of car passengers are considered to be higher than commuting, although not as high as retail trips.

3.39 **Table 3.9** summarises the Census and adjusted mode splits that have been applied to external leisure trips in all development scenarios.

Mode	Census	Hatton
Sustainable Travel Modes	11%	16%
Taxi	0%	0%
Motorcycle, Scooter or Moped	1%	1%
Driving a Car or Van	82%	68%
Passenger in a Car or Van	5%	15%
Other Method of Travel	0%	0%
Total	**100%**	**100%**

Table 3.9 - External Mode Split – Leisure Trips

Summary

3.40 This section outlines the trip assessment methodology for the residential element of the development proposals. This has been used to assess the forecasted effect of the Hatton development as per the Vision, on the local transport networks.

4 Employment Trip Assessment Methodology

4.1 This section summarises the data used, and judgements made when considering the employment trip generation for application to Hatton as per the Vision.

Trip Generation

4.2 Employment provided at Hatton will attract trips in its own right, although it is anticipated that many of these will be drawn from Hatton itself as well as the local area, which will have a containment effect on existing trips that may currently travel further afield.

4.3 In reality, it is anticipated that the internalisation of on-site employment will be high in relation to the ratio of population to jobs, due to the appeal of working close to home, and given that the potential employment offering at Hatton will be extensive and varied.

4.4 Hatton has the opportunity to provide a range of employment opportunities including offices, managed workspaces, incubator units and manufacturing premises. In order to determine the likely trip generation therefore, the proposed employment uses comprise of E(g) office as a worst case.

4.5 To accommodate the level of internalisation included in the residential trip generation, the 1,915 new jobs has been used. It is acknowledged that an element of new jobs will be occupied by the proposed schools and using the Warwickshire pupil to teacher ratio of 21.7 students per teacher for primary schools and 17.3 students per teacher for secondary schools (and assumed the same for sixth form), gives a total of 141 teachers. The student population for the site is discussed in Section 5: Education Trip Assessment Methodology. Therefore, a total of 1,774 new office jobs has been used.

4.6 In addition to this, an employment density of 14.4 sqm (GFA) per employee which is based on the TRICS surveys for office. This is slightly higher than the withdrawn 'Employment Density Guide 3rd Edition (Nov 2015)' with an employment density of 10-13 sqm (NIA) per job for general office space. Note – GFA is approx. 5% higher than NIA. The office floorspace is shown in **Table 4.1**.

Table 4.1 – Proposed Employment Floor Area

Employment Type	GFA (sqm)
E(g)	25,486

4.7 The internal employment trips generated by the residential land use are then removed from the total employment trip generation based on the above floor areas and the remaining trips are considered external.

4.8 Industry standard trip rates have been obtained from TRICS for each land use, and these are shown in the following.

E(g) Employment

4.9 The TRICS database has been consulted in order to derive weekday total person trips rates for the E(g) office floor area proposed at Hatton. The following parameters were used in selecting the trip rates:

- Land use: employment, office
- Regions: UK (excluding Greater London, Republic of Ireland and Northern Ireland)
- Location: suburban area, edge of town
- Date: 01/01/2012 to 01/01/2020 (pre-Covid-19)

4.10 The full TRICS output report is attached at **Appendix MAP A**, whilst the morning and evening peak periods, and daily trip rates are summarised in **Table 4.2**.

Time Period	Trip Rate (per 100sqm)		
	Arrivals	Departures	Total
0700-0800	0.720	0.097	0.817
0800-0900	3.880	0.149	4.029
0900-1000	2.360	0.531	2.891
1600-1700	0.554	1.783	2.337
1700-1800	0.269	3.680	3.949
1800-1900	0.092	1.211	1.303
Daily	13.330	12.685	26.015

Table 4.2 - E(g) Person Trip Rates

Mode Split

4.11 In calculating the anticipated level of external demand for on-site employment opportunities, the level of internal residential commuting trips has been removed from the total employment trip generation. This approach removes any potential double or over counting of trips.

4.12 The mode split of external commuting trips has been based on the 2011 Census with data associated with method of travel to work by residency relating to the work place of the Warwick 014 MSOA, within which the site is located. The Census data has been adjusted to reflect a reasonable mode split for the Hatton development considering the proposed mobility strategy in the Vision.

4.13 Through implementation the Vision with regards to car sharing/carpooling, it is expected that car passengers would improve on the 2011 Census indicating a 6% mode split for car passengers. Therefore a judgement that up to 10% mode split for car passengers has been utilised.

4.14 Further to this, the 2011 Census for sustainable travel modes is at 7% which is based on 2011 infrastructure and public transport. However, with enhanced infrastructure and a wider range of modes as indicated in the Vision and supported by Travel Planning, a judgement that this will increase to 16% has been made.

4.15 **Table 4.3** summarises the Census and adjusted mode splits that have been applied to external commuting trips in all development scenarios.

Mode	Census	Hatton
Sustainable Travel Modes	7%	16%
Taxi	0%	0%
Motorcycle, Scooter or Moped	1%	1%
Driving a Car or Van	85%	72%
Passenger in a Car or Van	6%	10%
Other Method of Travel	0%	0%
Total	**100%**	100%

Table 4.3 - External Mode Split – Commuting Trips

Summary

4.16 This section outlines the trip assessment methodology for employment trips, which has been applied in assessing the potential effect of the Hatton development on the local transport networks.

5 Education Trip Assessment Methodology

5.1 This section summarises the data used, and judgements made when considering the education trip generation.

Trip Generation

5.2 Education facilities at Hatton will attract trips in its own right, although it is anticipated that the vast majority of these would be drawn from the Hatton development itself as well as the local area, which will have a containment effect on existing trips that may currently travel further afield.

5.3 The number of external students travelling to the site has been calculated based on the 'Developers' Guide to Contributions for Education and Early Years Provision (August 2019)'. This guidance provides a pupil yield for Warwick of 4.54 per year group per 100 units and the number of year groups per school. Further to this, an internalisation factor of 91% has been applied to school trips in the residential trip generation, except for Further Education where its 45.5% to account for half of students going to college instead of 6th Form. A summary of the total pupils expected to be generated by the residential aspect of the development and the resultant number of internal students across the 4,500 unit development is shown in **Table 5.1**.

School Type	Total	Internal
Primary	1430	1302
Secondary	1022	930
Further Education (6th Form)	204	93

Table 5.1 – Student Population for 4,500 Units

5.4 The education guidance also provides the capacity of each school type and is shown in **Table 5.2** with the minimum assumption required to accommodate the internal student population. Note that there is no set capacity of the Further Education facilities included in the education guidance, and therefore this has been factored using the proportion from the pupil yield from Secondary to Further Education students, which equates to 0.2 (or 20%).

School Type	School Capacity	Internal	External
Primary (7FE)	1470	1302	168
Secondary (7FE)	1050	930	120
Further Education (6th Form)	210	93	117

Table 5.2 – School Capacity and External Attraction (*20% of Secondary Education)

5.5 The table indicates that trips are likely to travel externally from the site to fill the minimum sized school within the education guidance. The number of external students has been applied to a further TRICS analysis based on the total people trips per pupil for each type of school.

5.6 Industry standard trip rates have been obtained from TRICS for each school, and these are shown in the following sections.

Primary School

5.7 The TRICS database has been consulted in order to derive weekday total person trips rates for the external students (168) for the primary schools proposed at Hatton. The following parameters were used in selecting these trip rates:

— Land use: education, primary

— Regions: UK (excluding Greater London, Republic of Ireland and Northern Ireland)

— Location: neighbourhood centre

5.8 The full TRICS output report is attached at **Appendix MAP A**, whilst the morning and evening peak periods, and daily trip rates are summarised in **Table 5.3**.

Time Period	Trip Rate (per student)		
	Arrivals	Departures	Total
0700-0800	0.107	0.037	0.144
0800-0900	1.149	0.288	1.437
0900-1000	0.101	0.128	0.229
1600-1700	0.114	0.421	0.535
1700-1800	0.035	0.073	0.108
1800-1900	0.078	0.031	0.109
Daily	2.127	2.057	4.184

Table 5.3 – Primary School Person Trip Rates

Secondary School

5.9 The TRICS database has been consulted in order to derive weekday total person trips rates for the external students (120) for the secondary schools proposed at Hatton. The following parameters were used in selecting the trip rates:

— Land use: education, secondary

— Regions: UK (excluding Greater London, Republic of Ireland and Northern Ireland)

— Location: suburban area, edge of town, neighbourhood centre

5.10 The full TRICS output report is attached at **Appendix MAP A**, whilst the morning and evening peak hour, and daily trip rates are summarised in **Table 5.4**.

Time Period	Trip Rate (per student)		
	Arrivals	Departures	Total
0700-0800	0.099	0.012	0.111
0800-0900	0.780	0.093	0.873
0900-1000	0.043	0.014	0.057
1600-1700	0.025	0.197	0.222
1700-1800	0.044	0.040	0.084
1800-1900	0.052	0.023	0.075
Daily	1.241	1.212	2.453

Table 5.4 – Secondary School Person Trip Rates

Further Education School

5.11 The TRICS database has been consulted in order to derive weekday total person trips rates for the external students (117) for the further education schools proposed at Hatton. The following parameters were used in selecting the trip rates:

— Land use: education, college/university

— Regions: UK (excluding Greater London, Republic of Ireland and Northern Ireland)

— Location: suburban area, edge of town

5.12 There are no sixth form specific trip rates on TRICS, however college/university trip rates are considered representative.

5.13 The full TRICS output report is attached at **Appendix MAP A**, whilst the morning and evening peak hour, and daily trip rates are summarised in **Table 5.5**.

Time Period	Trip Rate (per student)		
	Arrivals	Departures	Total
0700-0800	0.016	0.005	0.021
0800-0900	0.102	0.024	0.126
0900-1000	0.061	0.022	0.083
1600-1700	0.028	0.059	0.087
1700-1800	0.024	0.069	0.093
1800-1900	0.020	0.023	0.043
Daily	0.458	0.460	0.918

Table 5.5 – Further Education School Person Trip Rates

Mode Split

5.14 The same mode split as the residential trip generation for each school type has been applied here and is shown again in **Table 5.6** below.

Mode	Primary Education	Secondary Education	Further Education
Walking	0%	0%	0%
Cycling	0%	0%	0%
Car or Van	81%	40%	50%
Bus	19%	60%	50%
Total	**100%**	**100%**	**100%**

Table 5.6 - External Mode Split – Education Trips

Summary

5.15 This section outlines the trip assessment methodology for education trips, that has been applied in assessing the potential effect of the Hatton development on the local transport networks.

6 Retail Trip Assessment Methodology

6.1 There is existing retail and leisure movements at the development location coming from Adventure World, Hatton Country World and Hatton shopping village. This in itself will contain some of the retail and leisure trips from the new community.

6.2 There will also be an element of new retail which will absorb the day-to-day needs of the new community and has been considered ancillary to the development. The additional retail is not expected to attract any trips external to the new community other than that already visiting the existing retail and leisure facilities.

7 Total Trip Generation

7.1 This section summarises the trip generation for 4,500 dwellings and additional mix of land uses based on the data and judgements applied in previous sections.

7.2 The full calculations and individual hours are included in **Appendix MAP C**.

External Residential Trip Generation

7.3 The total residential trip generation has been calculated with the resulting external trips by mode summarised in **Table 7.1**.

Mode	External		
	AM (3hr)	PM (3hr)	Daily (24hr)
Sustainable Travel Modes	664	722	2,347
Taxi	4	5	16
Motorcycle, Scooter or Moped	31	43	128
Driving a Car or Van	2,152	2,702	8,384
Passenger in a Car or Van	344	503	1,540
Other Method of Travel	0	0	1
Total	**3,196**	**3,974**	**12,415**

Table 7.1 – External Residential Trip Generation by Mode

External Employment Trip Generation

7.4 The total employment trip generation has been calculated with the resulting external trips by mode summarised in **Table 7.2**.

Mode	External		
	AM (3hr)	PM (3hr)	Daily (24hr)
Sustainable Travel Modes	203	194	750
Taxi	2	2	8
Motorcycle, Scooter or Moped	18	17	66
Driving a Car or Van	917	880	3,394
Passenger in a Car or Van	127	121	469
Other Method of Travel	0	0	0
Total	**1,266**	**1,215**	**4,687**

Table 7.2 – External Residential Trip Generation by Mode

External Education Trip Generation

7.5 The total education trip generation has been calculated with the resulting external trips by mode summarised in **Table 7.3**.

Mode	External		
	AM (3hr)	PM (3hr)	Daily (24hr)
Sustainable Travel Modes	147	65	366
Taxi	0	0	0
Motorcycle, Scooter or Moped	0	0	0
Driving a Car or Van	309	133	739
Passenger in a Car or Van	0	0	0
Other Method of Travel	0	0	0
Total	456	198	1,106

Table 7.3 – External Education Trip Generation by Mode

Total External Trip Generation

7.6 The total external trip generation by mode for the entire site summarised in **Table 7.4**.

Mode	External		
	AM (3hr)	PM (3hr)	Daily (24hr)
Sustainable Travel Modes	1,014	981	3,463
Taxi	6	7	24
Motorcycle, Scooter or Moped	49	60	194
Driving a Car or Van	3,378	3,715	12,517
Passenger in a Car or Van	471	624	2,009
Other Method of Travel	0	0	1
Total	4,918	5,388	18,208

Table 7.4 – Total External Trip Generation by Mode

vectos.

Appendix MAP A

TRICS Outputs

Calculation Reference: AUDIT-152302-230110-0157

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
Category : C - COLLEGE/UNIVERSITY
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
04	EAST ANGLIA		
	PB	PETERBOROUGH	1 days
10	WALES		
	SW	SWANSEA	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: Number of students
Actual Range: 720 to 15500 (units:)
Range Selected by User: 360 to 16000 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 01/01/20

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	1 days
Tuesday	1 days
Wednesday	1 days
Thursday	1 days

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

Selected survey types:

Manual count	4 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)	3
Edge 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:

Residential Zone	3
Out of Town	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	X days - Selected
Servicing vehicles Excluded	4 days - Selected

Secondary Filtering selection:

Use Class:

F1(a)	4 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®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	2 days
20,001 to 25,000	1 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:

25,001 to 50,000	1 days
75,001 to 100,000	1 days
125,001 to 250,000	2 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	1 days
1.1 to 1.5	2 days
1.6 to 2.0	1 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	3 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	4 days

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

LIST OF SITES relevant to selection parameters

1	CW-04-C-04	UNIVERSITY		CORNWALL
	A394 TRELIEVER ROAD			
	NEAR FALMOUTH			
	PENRYN			
	Edge of Town			
	Out of Town			
	Total Number of students:		5091	
	Survey date: THURSDAY		*03/05/12*	*Survey Type: MANUAL*
2	ES-04-C-07	COLLEGE		EAST SUSSEX
	PARKER ROAD			
	HASTINGS			
	ORE			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of students:		720	
	Survey date: WEDNESDAY		*30/05/12*	*Survey Type: MANUAL*
3	PB-04-C-03	COLLEGE		PETERBOROUGH
	PARK CRESCENT			
	PETERBOROUGH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of students:		15500	
	Survey date: TUESDAY		*18/10/16*	*Survey Type: MANUAL*
4	SW-04-C-02	COLLEGE		SWANSEA
	WALTER ROAD			
	SWANSEA			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of students:		879	
	Survey date: MONDAY		*21/10/13*	*Survey Type: MANUAL*

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

TRIP RATE for Land Use 04 - EDUCATION/C - COLLEGE/UNIVERSITY
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 STUDEN
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 2.31

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. STUDEN	Trip Rate	No. Days	Ave. STUDEN	Trip Rate	No. Days	Ave. STUDEN	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									
06:00 - 07:00									
07:00 - 08:00	4	5548	0.010	4	5548	0.003	4	5548	0.013
08:00 - 09:00	4	5548	0.050	4	5548	0.012	4	5548	0.062
09:00 - 10:00	4	5548	0.027	4	5548	0.012	4	5548	0.039
10:00 - 11:00	4	5548	0.015	4	5548	0.009	4	5548	0.024
11:00 - 12:00	4	5548	0.011	4	5548	0.011	4	5548	0.022
12:00 - 13:00	4	5548	0.014	4	5548	0.017	4	5548	0.031
13:00 - 14:00	4	5548	0.013	4	5548	0.013	4	5548	0.026
14:00 - 15:00	4	5548	0.007	4	5548	0.014	4	5548	0.021
15:00 - 16:00	4	5548	0.009	4	5548	0.017	4	5548	0.026
16:00 - 17:00	4	5548	0.013	4	5548	0.027	4	5548	0.040
17:00 - 18:00	4	5548	0.011	4	5548	0.030	4	5548	0.041
18:00 - 19:00	3	7157	0.009	3	7157	0.009	3	7157	0.018
19:00 - 20:00	3	7157	0.005	3	7157	0.009	3	7157	0.014
20:00 - 21:00	3	7157	0.004	3	7157	0.012	3	7157	0.016
21:00 - 22:00	3	7157	0.001	3	7157	0.005	3	7157	0.006
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.199			0.200			0.399

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:	720 - 15500 (units:)
Survey date date range:	01/01/12 - 01/01/20
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 04 - EDUCATION/C - COLLEGE/UNIVERSITY
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 STUDEN
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 2.31

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. STUDEN	Trip Rate	No. Days	Ave. STUDEN	Trip Rate	No. Days	Ave. STUDEN	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									
06:00 - 07:00									
07:00 - 08:00	4	5548	0.016	4	5548	0.005	4	5548	0.021
08:00 - 09:00	4	5548	0.102	4	5548	0.024	4	5548	0.126
09:00 - 10:00	4	5548	0.061	4	5548	0.022	4	5548	0.083
10:00 - 11:00	4	5548	0.042	4	5548	0.022	4	5548	0.064
11:00 - 12:00	4	5548	0.029	4	5548	0.024	4	5548	0.053
12:00 - 13:00	4	5548	0.038	4	5548	0.041	4	5548	0.079
13:00 - 14:00	4	5548	0.034	4	5548	0.033	4	5548	0.067
14:00 - 15:00	4	5548	0.020	4	5548	0.035	4	5548	0.055
15:00 - 16:00	4	5548	0.023	4	5548	0.042	4	5548	0.065
16:00 - 17:00	4	5548	0.028	4	5548	0.059	4	5548	0.087
17:00 - 18:00	4	5548	0.024	4	5548	0.069	4	5548	0.093
18:00 - 19:00	3	7157	0.020	3	7157	0.023	3	7157	0.043
19:00 - 20:00	3	7157	0.010	3	7157	0.023	3	7157	0.033
20:00 - 21:00	3	7157	0.008	3	7157	0.028	3	7157	0.036
21:00 - 22:00	3	7157	0.003	3	7157	0.010	3	7157	0.013
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.458			0.460			0.918

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-152302-230110-0133

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	KC	KENT	1 days
	MW	MEDWAY	1 days
	WS	WEST SUSSEX	1 days
03	SOUTH WEST		
	SM	SOMERSET	2 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
	SF	SUFFOLK	1 days
05	EAST MIDLANDS		
	LE	LEICESTERSHIRE	1 days
06	WEST MIDLANDS		
	WM	WEST MIDLANDS	1 days
08	NORTH WEST		
	AC	CHESHIRE WEST & CHESTER	1 days
09	NORTH		
	DH	DURHAM	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: No of Dwellings
Actual Range: 8 to 1817 (units:)
Range Selected by User: 6 to 1817 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 01/01/20

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	4 days
Thursday	3 days
Friday	2 days

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

Selected survey types:

Manual count	11 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:

Neighbourhood Centre (PPS6 Local Centre)	11

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.

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	7 days - Selected
Servicing vehicles Excluded	4 days - Selected

Secondary Filtering selection:

Use Class:

C3	11 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®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	7 days
5,001 to 10,000	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	3 days
50,001 to 75,000	2 days
75,001 to 100,000	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	3 days
1.1 to 1.5	6 days
1.6 to 2.0	2 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	2 days
No	9 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	11 days

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

LIST OF SITES relevant to selection parameters

1 AC-03-A-03 SEMI-DETACHED & TERRACED CHESHIRE WEST & CHESTER
MEADOW DRIVE
NORTHWICH
BARNTON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 40
Survey date: TUESDAY *04/06/19* *Survey Type: MANUAL*

2 DH-03-A-02 MIXED HOUSES DURHAM
LEAZES LANE
BISHOP AUCKLAND
ST HELEN AUCKLAND
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total No of Dwellings: 125
Survey date: MONDAY *27/03/17* *Survey Type: MANUAL*

3 KC-03-A-08 MIXED HOUSES KENT
MAIDSTONE ROAD
CHARING

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 159
Survey date: TUESDAY *22/05/18* *Survey Type: MANUAL*

4 LE-03-A-02 DETACHED & OTHERS LEICESTERSHIRE
MELBOURNE ROAD
IBSTOCK

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 85
Survey date: THURSDAY *28/06/18* *Survey Type: MANUAL*

5 MW-03-A-01 DETACHED & SEMI-DETACHED MEDWAY
ROCHESTER ROAD
NEAR CHATHAM
BURHAM
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 8
Survey date: FRIDAY *22/09/17* *Survey Type: MANUAL*

6 NF-03-A-08 MIXED HOUSES & FLATS NORFOLK
SIR ALFRED MUNNINGS RD
NEAR NORWICH
COSTESSEY
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 1817
Survey date: THURSDAY *19/09/19* *Survey Type: MANUAL*

7 SF-03-A-06 DETACHED & SEMI-DETACHED SUFFOLK
BURY ROAD
KENTFORD

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 38
Survey date: FRIDAY *22/09/17* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8	SM-03-A-02	MIXED HOUSES		SOMERSET
	HYDE LANE			
	NEAR TAUNTON			
	CREECH SAINT MICHAEL			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total No of Dwellings:		42	
	Survey date: TUESDAY		*25/09/18*	*Survey Type: MANUAL*
9	SM-03-A-03	MIXED HOUSES		SOMERSET
	HYDE LANE			
	NEAR TAUNTON			
	CREECH ST MICHAEL			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total No of Dwellings:		41	
	Survey date: TUESDAY		*25/09/18*	*Survey Type: MANUAL*
10	WM-03-A-04	TERRACED HOUSES		WEST MIDLANDS
	OSBORNE ROAD			
	COVENTRY			
	EARLSDON			
	Neighbourhood Centre (PPS6 Local Centre)			
	Residential Zone			
	Total No of Dwellings:		39	
	Survey date: MONDAY		*21/11/16*	*Survey Type: MANUAL*
11	WS-03-A-07	BUNGALOWS		WEST SUSSEX
	EMMS LANE			
	NEAR HORSHAM			
	BROOKS GREEN			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total No of Dwellings:		57	
	Survey date: THURSDAY		*19/10/17*	*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 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.83

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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									
06:00 - 07:00									
07:00 - 08:00	11	223	0.055	11	223	0.317	11	223	0.372
08:00 - 09:00	11	223	0.100	11	223	0.324	11	223	0.424
09:00 - 10:00	11	223	0.115	11	223	0.150	11	223	0.265
10:00 - 11:00	11	223	0.106	11	223	0.118	11	223	0.224
11:00 - 12:00	11	223	0.101	11	223	0.104	11	223	0.205
12:00 - 13:00	11	223	0.112	11	223	0.118	11	223	0.230
13:00 - 14:00	11	223	0.129	11	223	0.113	11	223	0.242
14:00 - 15:00	11	223	0.142	11	223	0.129	11	223	0.271
15:00 - 16:00	11	223	0.181	11	223	0.132	11	223	0.313
16:00 - 17:00	11	223	0.217	11	223	0.129	11	223	0.346
17:00 - 18:00	11	223	0.315	11	223	0.122	11	223	0.437
18:00 - 19:00	11	223	0.284	11	223	0.144	11	223	0.428
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.857			1.900			3.757

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:	8 - 1817 (units:)
Survey date date range:	01/01/12 - 01/01/20
Number of weekdays (Monday-Friday):	11
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 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.83

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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									
06:00 - 07:00									
07:00 - 08:00	11	223	0.078	11	223	0.599	11	223	0.677
08:00 - 09:00	11	223	0.154	11	223	0.673	11	223	0.827
09:00 - 10:00	11	223	0.191	11	223	0.298	11	223	0.489
10:00 - 11:00	11	223	0.183	11	223	0.223	11	223	0.406
11:00 - 12:00	11	223	0.182	11	223	0.183	11	223	0.365
12:00 - 13:00	11	223	0.208	11	223	0.197	11	223	0.405
13:00 - 14:00	11	223	0.224	11	223	0.186	11	223	0.410
14:00 - 15:00	11	223	0.286	11	223	0.185	11	223	0.471
15:00 - 16:00	11	223	0.381	11	223	0.226	11	223	0.607
16:00 - 17:00	11	223	0.442	11	223	0.224	11	223	0.666
17:00 - 18:00	11	223	0.604	11	223	0.216	11	223	0.820
18:00 - 19:00	11	223	0.483	11	223	0.252	11	223	0.735
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.416			3.462			6.878

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-152302-230110-0128

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
Category : B - SECONDARY
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	DV	DEVON	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	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: Number of pupils
Actual Range: 520 to 839 (units:)
Range Selected by User: 520 to 1913 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 01/01/20

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	1 days
Tuesday	1 days
Wednesday	1 days
Friday	1 days

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

Selected survey types:

Manual count	4 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	1
Neighbourhood Centre (PPS6 Local Centre)	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:

Residential Zone	3
Village	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	3 days - Selected
Servicing vehicles Excluded	1 days - Selected

Secondary Filtering selection:

Use Class:

F1(a)	4 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®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
20,001 to 25,000	2 days

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

Population within 5 miles:

25,001 to 50,000	3 days
125,001 to 250,000	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	3 days
1.1 to 1.5	1 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	4 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	4 days

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

LIST OF SITES relevant to selection parameters

1 DV-04-B-04 SECONDARY ACADEMY DEVON
EARL RICHARD ' SRD SOUTH
EXETER

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of pupils: 835
Survey date: TUESDAY *02/04/19* *Survey Type: MANUAL*

2 NE-04-B-01 SECONDARY SCHOOL NORTH EAST LINCOLNSHIRE
FOXHILLS ROAD
SCUNTHORPE

Edge of Town
Residential Zone
Total Number of pupils: 520
Survey date: MONDAY *19/05/14* *Survey Type: MANUAL*

3 NY-04-B-03 GIRLS' HIGH SCHOOL NORTH YORKSHIRE
GARGRAVE ROAD
SKIPTON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of pupils: 800
Survey date: FRIDAY *08/03/19* *Survey Type: MANUAL*

4 WK-04-B-01 SECONDARY SCHOOL WARWICKSHIRE
BANBURY ROAD
KINETON

Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of pupils: 839
Survey date: WEDNESDAY *25/09/19* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 2.76

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	749	0.054	4	749	0.018	4	749	0.072
08:00 - 09:00	4	749	0.145	4	749	0.123	4	749	0.268
09:00 - 10:00	4	749	0.016	4	749	0.013	4	749	0.029
10:00 - 11:00	4	749	0.014	4	749	0.013	4	749	0.027
11:00 - 12:00	4	749	0.013	4	749	0.012	4	749	0.025
12:00 - 13:00	4	749	0.015	4	749	0.020	4	749	0.035
13:00 - 14:00	4	749	0.011	4	749	0.012	4	749	0.023
14:00 - 15:00	4	749	0.025	4	749	0.036	4	749	0.061
15:00 - 16:00	4	749	0.041	4	749	0.074	4	749	0.115
16:00 - 17:00	4	749	0.066	4	749	0.086	4	749	0.152
17:00 - 18:00	4	749	0.025	4	749	0.020	4	749	0.045
18:00 - 19:00	3	825	0.026	3	825	0.014	3	825	0.040
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.451			0.441			0.892

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:	520 - 839 (units:)
Survey date date range:	01/01/12 - 01/01/20
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 2.76

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	749	0.099	4	749	0.012	4	749	0.111
08:00 - 09:00	4	749	0.780	4	749	0.093	4	749	0.873
09:00 - 10:00	4	749	0.043	4	749	0.014	4	749	0.057
10:00 - 11:00	4	749	0.023	4	749	0.023	4	749	0.046
11:00 - 12:00	4	749	0.019	4	749	0.017	4	749	0.036
12:00 - 13:00	4	749	0.024	4	749	0.037	4	749	0.061
13:00 - 14:00	4	749	0.032	4	749	0.035	4	749	0.067
14:00 - 15:00	4	749	0.051	4	749	0.244	4	749	0.295
15:00 - 16:00	4	749	0.049	4	749	0.477	4	749	0.526
16:00 - 17:00	4	749	0.025	4	749	0.197	4	749	0.222
17:00 - 18:00	4	749	0.044	4	749	0.040	4	749	0.084
18:00 - 19:00	3	825	0.052	3	825	0.023	3	825	0.075
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.241			1.212			2.453

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-152302-230110-0119

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
Category : A - PRIMARY
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	SC	SURREY	1 days
03	SOUTH WEST		
	SM	SOMERSET	1 days
	WL	WILTSHIRE	1 days
08	NORTH WEST		
	BP	BLACKPOOL	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: Number of pupils
Actual Range: 199 to 449 (units:)
Range Selected by User: 92 to 538 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 01/01/20

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	1 days
Wednesday	1 days
Thursday	2 days

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

Selected survey types:

Manual count	4 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:

Neighbourhood Centre (PPS6 Local Centre)	4

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

Selected Location Sub Categories:

Residential Zone	1
Village	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	2 days - Selected
Servicing vehicles Excluded	2 days - Selected

Secondary Filtering selection:

Use Class:

F1(a)	4 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®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	1 days
50,001 to 100,000	1 days

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

Population within 5 miles:

25,001 to 50,000	1 days
75,001 to 100,000	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	2 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	3 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	4 days

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

LIST OF SITES relevant to selection parameters

1	BP-04-A-01	PRIMARY SCHOOL		BLACKPOOL
	SEVERN ROAD			
	BLACKPOOL			
	SOUTH SHORE			
	Neighbourhood Centre (PPS6 Local Centre)			
	Residential Zone			
	Total Number of pupils:		449	
	Survey date: TUESDAY		*27/09/16*	*Survey Type: MANUAL*
2	SC-04-A-01	PRIMARY SCHOOL		SURREY
	SCHOOL LANE			
	NEAR WOKING			
	PIRBRIGHT			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total Number of pupils:		414	
	Survey date: THURSDAY		*22/11/12*	*Survey Type: MANUAL*
3	SM-04-A-01	PRIMARY SCHOOL		SOMERSET
	BRIDGWATER ROAD			
	NEAR TAUNTON			
	BATHPOOL			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total Number of pupils:		407	
	Survey date: THURSDAY		*27/09/18*	*Survey Type: MANUAL*
4	WL-04-A-02	C OF E PRIMARY ACADEMY		WILTSHIRE
	HIGH STREET			
	ROWDE			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total Number of pupils:		199	
	Survey date: WEDNESDAY		*03/04/19*	*Survey Type: MANUAL*

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

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 2.32

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	367	0.050	4	367	0.025	4	367	0.075
08:00 - 09:00	4	367	0.343	4	367	0.275	4	367	0.618
09:00 - 10:00	4	367	0.041	4	367	0.039	4	367	0.080
10:00 - 11:00	4	367	0.017	4	367	0.012	4	367	0.029
11:00 - 12:00	4	367	0.016	4	367	0.012	4	367	0.028
12:00 - 13:00	4	367	0.012	4	367	0.015	4	367	0.027
13:00 - 14:00	4	367	0.025	4	367	0.039	4	367	0.064
14:00 - 15:00	4	367	0.057	4	367	0.027	4	367	0.084
15:00 - 16:00	4	367	0.192	4	367	0.247	4	367	0.439
16:00 - 17:00	4	367	0.100	4	367	0.144	4	367	0.244
17:00 - 18:00	3	423	0.023	3	423	0.030	3	423	0.053
18:00 - 19:00	3	423	0.041	3	423	0.026	3	423	0.067
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.917			0.891			1.808

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:	199 - 449 (units:)
Survey date date range:	01/01/12 - 01/01/20
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 2.32

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	367	0.107	4	367	0.037	4	367	0.144
08:00 - 09:00	4	367	1.149	4	367	0.288	4	367	1.437
09:00 - 10:00	4	367	0.101	4	367	0.128	4	367	0.229
10:00 - 11:00	4	367	0.027	4	367	0.019	4	367	0.046
11:00 - 12:00	4	367	0.029	4	367	0.019	4	367	0.048
12:00 - 13:00	4	367	0.025	4	367	0.039	4	367	0.064
13:00 - 14:00	4	367	0.037	4	367	0.068	4	367	0.105
14:00 - 15:00	4	367	0.095	4	367	0.063	4	367	0.158
15:00 - 16:00	4	367	0.330	4	367	0.871	4	367	1.201
16:00 - 17:00	4	367	0.114	4	367	0.421	4	367	0.535
17:00 - 18:00	3	423	0.035	3	423	0.073	3	423	0.108
18:00 - 19:00	3	423	0.078	3	423	0.031	3	423	0.109
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.127			2.057			4.184

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-152302-230110-0110

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	1 days
08	NORTH WEST		
	BB	BLACKBURN WITH DARWEN	1 days
09	NORTH		
	DH	DURHAM	1 days
	TW	TYNE & WEAR	1 days
10	WALES		
	CO	CONWY	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: 186 to 6186 (units: sqm)
Range Selected by User: 178 to 70291 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 01/01/20

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	4 days
Wednesday	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)	3
Edge of Town	4

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	1
Commercial Zone	2
Residential Zone	2
Built-Up Zone	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.

Secondary Filtering selection:

Use Class:

Not Known	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

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	3 days
15,001 to 20,000	1 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:

50,001 to 75,000	1 days
75,001 to 100,000	1 days
100,001 to 125,000	1 days
125,001 to 250,000	3 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	2 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 BB-02-A-02 OFFICES BLACKBURN WITH DARWEN
FURTHERGATE
BLACKBURN

Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Gross floor area: 2600 sqm
Survey date: TUESDAY 04/06/13 *Survey Type: MANUAL*

2 CO-02-A-01 GOVERNMENT OFFICES CONWY
NARROW LANE
LLANDUDNO JUNCTION

Edge of Town
Commercial Zone
Total Gross floor area: 6186 sqm
Survey date: WEDNESDAY 28/03/18 *Survey Type: MANUAL*

3 DH-02-A-02 CONSTRUCTION COMPANY DURHAM
DURHAM ROAD
NEAR DURHAM
BOWBURN
Edge of Town
Industrial Zone
Total Gross floor area: 2000 sqm
Survey date: TUESDAY 27/11/12 *Survey Type: MANUAL*

4 ES-02-A-11 HOUSING COMPANY EAST SUSSEX
THE SIDINGS
HASTINGS
ORE VALLEY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 186 sqm
Survey date: TUESDAY 17/11/15 *Survey Type: MANUAL*

5 NF-02-A-04 BUILDING CONSULTANT NORFOLK
WHITING ROAD
NORWICH

Edge of Town
Commercial Zone
Total Gross floor area: 500 sqm
Survey date: WEDNESDAY 13/11/19 *Survey Type: MANUAL*

6 TW-02-A-08 HOUSING ASSOCIATION OFFICE TYNE & WEAR
BENTON PARK ROAD
NEWCASTLE UPON TYNE
LONGBENTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 4800 sqm
Survey date: FRIDAY 19/10/18 *Survey Type: MANUAL*

7 WY-02-A-05 OFFICES WEST YORKSHIRE
PIONEER WAY
CASTLEFORD
WHITWOOD
Edge of Town
No Sub Category
Total Gross floor area: 1230 sqm
Survey date: TUESDAY 23/05/17 *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/A - OFFICE
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.97

	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									
06:00 - 07:00									
07:00 - 08:00	7	2500	0.434	7	2500	0.086	7	2500	0.520
08:00 - 09:00	7	2500	1.874	7	2500	0.137	7	2500	2.011
09:00 - 10:00	7	2500	1.063	7	2500	0.297	7	2500	1.360
10:00 - 11:00	7	2500	0.491	7	2500	0.269	7	2500	0.760
11:00 - 12:00	7	2500	0.309	7	2500	0.309	7	2500	0.618
12:00 - 13:00	7	2500	0.628	7	2500	0.628	7	2500	1.256
13:00 - 14:00	7	2500	0.640	7	2500	0.429	7	2500	1.069
14:00 - 15:00	7	2500	0.343	7	2500	0.383	7	2500	0.726
15:00 - 16:00	7	2500	0.257	7	2500	0.451	7	2500	0.708
16:00 - 17:00	7	2500	0.331	7	2500	1.011	7	2500	1.342
17:00 - 18:00	7	2500	0.171	7	2500	1.925	7	2500	2.096
18:00 - 19:00	6	2712	0.043	6	2712	0.694	6	2712	0.737
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			6.584			6.619			13.203

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:	186 - 6186 (units: sqm)
Survey date date range:	01/01/12 - 01/01/20
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
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/A - OFFICE
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.97

	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									
06:00 - 07:00									
07:00 - 08:00	7	2500	0.720	7	2500	0.097	7	2500	0.817
08:00 - 09:00	7	2500	3.880	7	2500	0.149	7	2500	4.029
09:00 - 10:00	7	2500	2.360	7	2500	0.531	7	2500	2.891
10:00 - 11:00	7	2500	1.131	7	2500	0.549	7	2500	1.680
11:00 - 12:00	7	2500	0.668	7	2500	0.537	7	2500	1.205
12:00 - 13:00	7	2500	1.063	7	2500	1.577	7	2500	2.640
13:00 - 14:00	7	2500	1.531	7	2500	1.097	7	2500	2.628
14:00 - 15:00	7	2500	0.651	7	2500	0.720	7	2500	1.371
15:00 - 16:00	7	2500	0.411	7	2500	0.754	7	2500	1.165
16:00 - 17:00	7	2500	0.554	7	2500	1.783	7	2500	2.337
17:00 - 18:00	7	2500	0.269	7	2500	3.680	7	2500	3.949
18:00 - 19:00	6	2712	0.092	6	2712	1.211	6	2712	1.303
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			13.330			12.685			26.015

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.*

vectos.

Appendix MAP B

Working From Home Tool Methodology

Understanding the implications of greater working from home on local traffic generation from proposed developments – practical tools to support planners

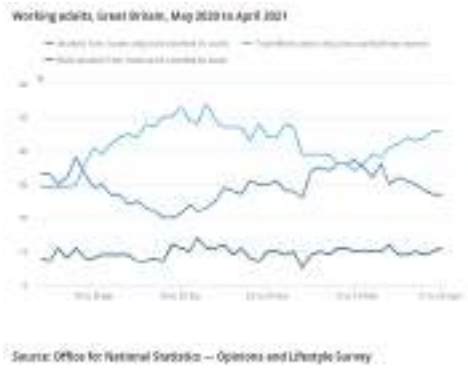
The Problem

Covid-19 pandemic has changed the way people live, including substantial changes to work and travel behaviour. As a result of periods of lockdown large proportions of the working population have had to work from home (WfH). Many employers and employees have realised that this is something that they would like to continue to some degree.

Typically, levels of WfH have increased by over 50% compared to 2019 pre Covid levels, and in some locations the increase is much higher.

Understanding the changes in WfH rates as a result of Covid, the variations in WfH by location and type of employment, and the intentions for WfH after Covid restrictions and concerns are fully lifted is important in order to calculate the impacts on traffic during peak hours and the associated reductions in carbon emissions.

This is of particular relevance for new housing developments where peak hour car traffic generated by new housing will now be substantially lower in some areas due to higher WfH rates.



Source: Office for National Statistics – Opinions and Lifestyle Survey

What we are doing

VECTOS/SLR have developed a tool to collate data on pre-Covid (2019) levels of working from home at the LA District level and then estimate both variation in WfH according to area classification within Districts as well as to estimate future WfH rates by district and area classification.

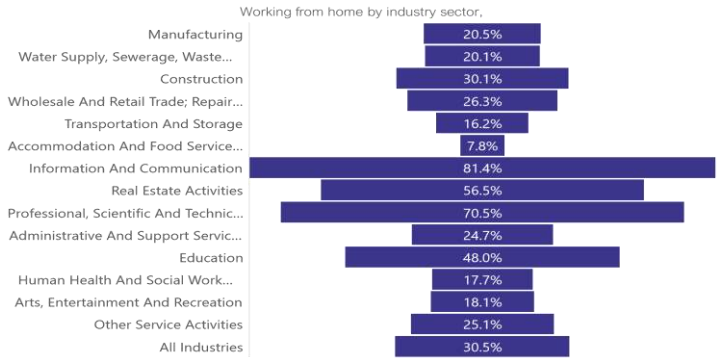
Based on the WfH rates combined with data on proportion of car commuters who drive to work and average distance of car commutes in each area, the tool then generates estimates of the number of car trips avoided due to working from home, the car veh-km saved, and the associated CO2 reductions this produces.

The 2019 data is published by ONS and has been created from the 2019 January to December Annual Population Survey (APS) datasets. The published data reflects average WfH rates from 5 waves of the survey across the year.

For the post-Covid estimates, the tool takes current measured WfH rates by industry sector at the national level[1] (updated every 2 weeks) and combines this with data on employment by industry sector by area classification within Districts to provide estimates of current WfH rates at the local level. This provides estimates of current WfH rates for 2022 by LA District and area classification within Districts, taking account of the industry sectors in which people are employed in each area.

This enables planners to obtain an estimate, based on industry sectors in which local residents are likely to work, of the WfH rates associated with a new development in any urban / rural area type within any District of England and Wales.

This is supported by data on car commuting and average commuting distance for car commuters for the area to allow estimates of the peak hour reductions in traffic generation and reductions in CO2 emissions that can be attributed to WfH amongst residents in the new development.



Wave 29 of the Office for National Statistics' (ONS') Business Insights and Conditions Survey (BICS), 5-18 April 2021

How can it be applied?

Software tools used to estimate the traffic generated by new housing include:

- TRICS based on historic survey data from similar types of developments, or
- TEMPRO which provides estimates of traffic levels based on the national trip end model (NTEM) established from an aggregation of several years of National Travel Survey data and DfT approved forecast growth scenarios.

Because both these approaches are based on historic data which can be many years old, they suffer from inherent shortcomings in reflecting reality when travel behaviours dramatically change.

WfH rates represented in the traffic flows generated by these models and software are therefore pre-Covid and aften date from pre-2015 when WfH rates were very much lower. E.g. The recorded average WfH rates from the multiple years of NTS data used in the NTEM range from 3% to 6.2% according to year. Whereas, the post Covid average is 26% (or around 18% excluding those who state home is their base but may often work outside the home; e.g. site workers, farmers, some tradespeople).

The data output from the tool can therefore aid planners in negotiations/discussions with Local Authorities and Highway Authorities in accepting adjustments to traffic data estimates that better reflects the new post Covid reality.

This can potentially help secure approvals for the proposed developments or reduce the developer contributions to expensive road network capacity improvements.

1. Current WfH rates by industry sector are derived from final weighted results, Wave 57 of the Office for National Statistics' (ONS') Business Impact of Coronavirus (COVID-19) Survey (BICS). Businesses were asked for their experiences for the reference period 1 to 30 Apr 2022. Note that this data can be updated as subsequent Waves of this survey are completed every 4 weeks. https://www.ons.gov.uk/economy/economicoutputandproductivity/output/datasets/businessinsightsandimpactontheukeconomy

Technical note on Working from Home (WfH) tool methodology and data

VECTOS/SLR have developed a tool to collate data on pre-Covid (2019) levels of working from home at the LA District level and then estimate both variation in WfH according to area classification within Districts as well as to estimate future (2022+) WfH rates by district and area classification.

Based on the WfH rates combined with data on proportion of car commuters who drive to work and average distance of car commutes in each area, the tool then generates estimates of the number of car trips avoided due to working from home, the car veh-km saved, and the associated CO2 reductions this produces.

The methodology applied in the tool for calculation of WfH rates is as follows:

1. 2019 WfH rates obtained for each Local Authority district from published ONS Annual Population Survey (APS) datasets[i].

   The Annual population survey is conducted in 5 waves throughout the year and the results aggregated to annual average values.

   Respondents answer if they

   a) 'mainly' work within their home;
   b) 'mainly' work in the same grounds or buildings of their home or who use their home as a base but may work at different locations day to day;
   c) Haven't answered a) or b) and don't 'mainly' work from home but have worked from home in the week prior to the interview;
   d) Haven't answered a), b) or c) but have 'ever' worked from home

   From this a WfH rate is calculated assuming those who 'mainly' work from home do so on average 4 days per week and those who worked from home in the week prior to the interview dd so on average 2 days per week. While not all of those working from home in the week prior to the interview will do so 2 days a week, it is also likely that a large proportion 'mainly' working from home will do so 5 days a week, and so any overestimation of the former is likely to be balanced by underestimation of the latter. Furthermore, no account is taken of those that hadn't worked from home in the week prior to the interview but do WfH sometimes. Overall, these assumptions are thought to give a fair and balanced overall rate for WfH taking account of the different frequencies that WfH occurs.

2. WfH rates are known to vary considerably according to the urban/rural classification of an area[ii]. While this variation is not published by ONS at the LA District level, it is available at the Regional level[iii]. Applying 4 area classifications (Urban Conurbation; Urban City and Town; Rural Town and Fringe; Rural Village, Hamlet and Dispersed) the Regional WfH area classification variations are applied to each of the LA Districts within the Region. Of course, not all Districts in a Region will have the same variation in WfH rates according to area classification – it depends on the industry sectors in which people are employed. The employment by industry sector for each area classification in each District is then used to calibrate the Regional level WfH rates by area classification to District level WfH rates by area classification based on employment within the District. This gives variations in WfH rates by area classification that are more reflective of the employment in each individual District within a Region.

3. 2020 WfH rates obtained for each Local Authority district from published ONS Annual Population Survey (APS) datasets[iv] as well as Regional variation in WfH rates by area classification[v]. The

published data reflects average WfH rates collected from 5 waves of the survey across the year. As a result, it does not fully reflect the changes in WfH resulting from the Covid pandemic since some of the data is pre Covid and some post Covid. It is also worth noting that the wording of the question may have caused under-reporting of those 'mainly' working from home during the Covid pandemic - responders were asked to consider "where they would mainly work in their main job prior to the Covid-19 pandemic". While this data for 2020 needs to be treated with caution due to the issues mentioned, it is still useful in reflecting changes in geographical distribution of WfH influenced by the pandemic.

4. Current levels of WfH are not available at the LA District level. What is available through the ONS Business Insights and Conditions Survey (BICS)[vi] is, for each industry sector, the proportion of workforce mainly working from home, instead of where they were working before the pandemic. This increase in 'mainly' WfH resulting from the pandemic is added to the 2019 'mainly' WfH data (with adjustments made to account for those previously WfH who now are furloughed or have other working arrangements) to give a current level of WfH by industry sector. This data is updated every 2 weeks. Another source of up-to-date data on WfH comes from the Decision Makers Panel survey[vii], which captures the % of the workforce WfH 5 days/4 days/3 days/2 days/1 day per week. This gives a total current WfH rate which is used to calibrate the industry sector WfH data from the BICS survey. Both the BICS survey and the DMP survey responses are weighted by employment to provide data that is representative of the mix of industries / employers across the country.

5. The Decision Makers Panel survey also asks respondents about the expected proportion of full-time workers working from home in 2022+. This is captured by number of days per week and so a WfH rate can be established for 2022+. The 2022 WfH rate is compared to current WfH rate from the DMP surveys, and the change is then applied to the WfH rates by industry sector to give estimates of nationwide WfH rate by industry sector for 2022+.

6. The nationwide WfH rate by industry sector for 2022+ are applied to the industry sector employment at district level (and for different area classifications within districts) to ascertain the estimates of 2022+ WfH rates by LA District (and for different area classifications within districts).

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[i] Table 12: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/homeworkingintheuklabourmarket

[ii] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984921/Home_Working_Dec_2020_final_with_cover_page.pdf

[iii] Table 2: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/adhocs/13284homeworkinginthelabourmarketbyregionofresidenceandurbanruralclassificationenglandandwales2019and2020

[iv] Table 11: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/homeworkingintheuklabourmarket

[v] Table 1: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/adhocs/13284homeworkinginthelabourmarketbyregionofresidenceandurbanruralclassificationenglandandwales2019and2020

[vi] Worksheet 'Proportion Furloughed TS (WTD)'
Business insights and impact on the UK economy - Office for National Statistics (ons.gov.uk) (9000 responses from businesses surveyed every month)

[vii] https://decisionmakerpanel.co.uk/data/ (3000+ responses from businesses surveyed every month)

vectos.

Appendix MAP C

4,500 Units Trip Generation

Total Internal	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Work from Home (existing & not included in total TRICS data)	35	270	30	130	26	40	97	49	181	65	97	51	724	734
Work from Home	24	186	21	90	18	27	67	34	125	45	67	35	500	506
Internal	169	1295	469	2051	556	867	1177	597	1449	518	1252	653	11214	11365
Total	228	1751	520	2271	599	934	1342	680	1756	628	1416	739	12438	12606

Total External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Sustainable Travel	63	250	253	227	126	95	147	153	217	190	158	117	1738	1725
Taxi	0	2	1	1	1	1	1	1	2	2	1	1	12	12
Motorcycle, scooter or moped	3	13	11	8	9	5	8	9	12	14	9	8	98	96
Driving a car or van	217	839	814	644	505	360	529	558	790	774	596	468	6291	6226
Passenger in a car or van	29	129	85	85	78	65	94	79	141	116	113	81	1007	1002
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	313	1232	1164	965	719	525	778	800	1162	1096	877	674	9146	9062

Total People Trip Rates			
Time Period	Arrivals	Departures	Totals
07:00 – 08:00	0.078	0.599	0.677
08:00 – 09:00	0.154	0.673	0.827
09:00 – 10:00	0.191	0.298	0.489
16:00 – 17:00	0.442	0.224	0.666
17:00 – 18:00	0.604	0.216	0.820
18:00 – 19:00	0.483	0.252	0.735
Daily (24hrs)	3.973	4.027	8.000

*Factored using DfT ATC in Hatton Park

Time Period	Arrivals	Departures	Totals
07:00 – 08:00	351	2696	3047
08:00 – 09:00	693	3029	3722
09:00 – 10:00	860	1341	2201
16:00 – 17:00	1989	1008	2997
17:00 – 18:00	2718	972	3690
18:00 – 19:00	2174	1134	3308
Daily (24hrs)	17880	18121	36001

4500	units

Time Period	Commuting	Education	Leisure / Recreation	Retail	Total
07:00 – 08:00	53%	20%	24%	3%	100%
08:00 – 09:00	23%	51%	22%	4%	100%
09:00 – 10:00	16%	10%	52%	22%	100%
16:00 – 17:00	26%	11%	48%	15%	100%
17:00 – 18:00	36%	5%	47%	12%	100%
18:00 – 19:00	24%	2%	59%	15%	100%
Daily (24hrs)	22%	17%	45%	17%	100%

Time Period	Commuting		Education		Leisure / Recreation		Retail	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
07:00 – 08:00	187	1437	70	534	84	645	10	80
08:00 – 09:00	159	693	356	1557	149	651	29	127
09:00 – 10:00	136	212	86	134	448	698	190	297
16:00 – 17:00	518	263	222	113	951	482	298	151
17:00 – 18:00	966	345	140	50	1284	459	327	117
18:00 – 19:00	516	269	42	22	1291	673	324	169
Daily (24hrs)	3860	3912	2955	2995	8067	8175	2998	3038

Commuting

Time Period	Internal		External		Work from Home	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
07:00 – 08:00	47	359	116	891	24	186
08:00 – 09:00	40	173	98	430	21	90
09:00 – 10:00	34	53	84	132	18	27
16:00 – 17:00	130	66	321	163	67	34
17:00 – 18:00	242	86	599	214	125	45
18:00 – 19:00	129	67	320	167	67	35
Daily (24hrs)	965	978	2395	2428	500	506

Internal	25.0%
External	62.1%
WFH	12.9%
Total	100.0%

Work from Home (existing / not included in TRICS)	
Arrivals	Departures
35	270
30	130
26	40
97	49
181	65
97	51
724	734

WfH (existing)	+19%

Internal (incl WFH)	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Work from Home (existing / not included in TRICS)	35	270	30	130	26	40	97	49	181	65	97	51	724	734
Work from Home	24	186	21	90	18	27	67	34	125	45	67	35	500	506
Internal	47	359	40	173	34	53	130	66	242	86	129	67	965	978
Total	106	815	90	393	77	120	294	149	548	196	293	153	2189	2219

Internal	
Method of Travel to Work	Mode Split
Work from Home (existing / not included in TRICS)	
WFH	
Internal	100%
Total	100%

External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Sustainable Travel	23	178	20	86	17	26	64	33	120	43	64	33	479	486
Taxi	0	1	0	1	0	0	0	0	1	0	0	0	3	3
Motorcycle, scooter or moped	1	10	1	5	1	1	4	2	7	2	4	2	26	27
Driving a car or van	80	613	68	296	58	91	221	112	412	147	220	115	1647	1669
Passenger in a car or van	12	89	10	43	8	13	32	16	60	21	32	17	240	243
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	116	891	98	430	84	132	321	163	599	214	320	167	2395	2428

External	
Method of Travel to Work	Mode Split
Sustainable Travel	20%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	69%
Passenger in a Car or Van	10%
Other Method of Travel to Work	0%
Total	100%

Total	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Work from Home (existing / not included in TRICS)	35	270	30	130	26	40	97	49	181	65	97	51	724	734
Work from Home	24	186	21	90	18	27	67	34	125	45	67	35	500	506
Internal	47	359	40	173	34	53	130	66	242	86	129	67	965	978
Sustainable Travel	23	178	20	86	17	26	64	33	120	43	64	33	479	486
Taxi	0	1	0	1	0	0	0	0	1	0	0	0	3	3
Motorcycle, scooter or moped	1	10	1	5	1	1	4	2	7	2	4	2	26	27
Driving a car or van	80	613	68	296	58	91	221	112	412	147	220	115	1647	1669
Passenger in a car or van	12	89	10	43	8	13	32	16	60	21	32	17	240	243
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	222	1706	188	823	162	252	615	312	1147	410	613	320	4585	4646

Education

Time Period	Primary		Secondary		Higher/Further Education	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
07:00 – 08:00	37	288	27	205	5	41
08:00 – 09:00	192	838	137	599	27	120
09:00 – 10:00	46	72	33	51	7	10
16:00 – 17:00	120	61	85	43	17	9
17:00 – 18:00	76	27	54	19	11	4
18:00 – 19:00	23	12	16	8	3	2
Daily (24hrs)	1591	1613	1137	1152	227	230

	Primary	Secondary	FE
Internal	91%	91%	45.5%
External	9%	9%	54.5%

Time Period	Primary - Internal		Primary - External		Secondary - Internal		Secondary - External		Higher/Further - Internal		Higher/Further - External	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
07:00 – 08:00	34	262	3	26	24	187	2	18	2	19	3	22
08:00 – 09:00	175	763	17	75	125	545	12	54	12	55	15	65
09:00 – 10:00	42	65	4	6	30	47	3	5	3	5	4	6
16:00 – 17:00	109	55	11	5	78	39	8	4	8	4	9	5
17:00 – 18:00	69	25	7	2	49	18	5	2	5	2	6	2
18:00 – 19:00	21	11	2	1	15	8	1	1	1	1	2	1
Daily (24hrs)	1448	1468	143	145	1035	1049	102	103	103	105	124	126

Primary - Internal	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Total	34	262	175	763	42	65	109	55	69	25	21	11	1448	1468

Primary - Internal	
Mode	Mode Split
Total	100%

Primary - External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Bus, minibus or coach	1	5	3	15	1	1	2	1	1	0	0	0	28	28
Driving a car or van	3	21	14	61	3	5	9	4	5	2	2	1	115	117
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On foot	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	26	17	75	4	6	11	5	7	2	2	1	143	145

Primary - External	
Mode	Mode Split
Bus, minibus or coach	19%
Driving a car or van	81%
Bicycle	0%
On foot	0%
Total	100%

Secondary - Internal	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Total	24	187	125	545	30	47	78	39	49	18	15	8	1035	1049

Secondary - Internal	
Mode	Mode Split
Total	100%

Secondary - External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Bus, minibus or coach	1	11	7	32	2	3	5	2	3	1	1	0	61	62
Driving a car or van	1	7	5	21	1	2	3	2	2	1	1	0	41	41
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On foot	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	18	12	54	3	5	8	4	5	2	1	1	102	103

Secondary - External	
Mode	Mode Split
Bus, minibus or coach	60%
Driving a car or van	40%
Bicycle	0%
On foot	0%
Total	100%

Higher/Further - Internal	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Total	2	19	12	55	3	5	8	4	5	2	1	1	103	105

Higher/Further - Internal	
Mode	Mode Split
Total	100%

Higher/Further - External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Bus, minibus or coach	1	11	7	33	2	3	5	2	3	1	1	0	62	63
Driving a car or van	1	11	7	33	2	3	5	2	3	1	1	0	62	63
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On foot	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	22	15	65	4	6	9	5	6	2	2	1	124	126

Higher/Further - External	
Mode	Mode Split
Bus, minibus or coach	50%
Driving a car or van	50%
Bicycle	0%
On foot	0%
Total	100%

Total	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Internal	61	468	312	1363	75	117	194	99	123	44	37	19	2587	2621
Bus, minibus or coach	4	27	18	80	4	7	11	6	7	3	2	1	151	153
Driving a car or van	5	39	26	115	6	10	16	8	10	4	3	2	218	221
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On foot	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	70	534	356	1557	86	134	222	113	140	50	42	22	2955	2995

Leisure

Time Period	Internal		External	
	Arrivals	Departures	Arrivals	Departures
07:00 – 08:00	52	397	32	248
08:00 – 09:00	92	401	57	250
09:00 – 10:00	276	430	172	269
16:00 – 17:00	585	297	366	185
17:00 – 18:00	790	283	494	177
18:00 – 19:00	794	414	496	259
Daily (24hrs)	4965	5032	3102	3144

Internal	62%
External	38%

Internal	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Total	52	397	92	401	276	430	585	297	790	283	794	414	4965	5032

Internal	
Method of Travel to Work	Mode Split
Total	100%

External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Sustainable Travel	5	40	9	40	28	43	58	30	79	28	79	41	496	503
Taxi	0	0	0	0	0	0	1	0	1	0	1	0	4	4
Motorcycle, scooter or moped	0	3	1	3	2	3	4	2	5	2	5	3	34	34
Driving a car or van	22	168	39	170	117	182	248	126	335	120	336	175	2102	2130
Passenger in a car or van	5	37	9	38	26	40	55	28	74	26	74	39	465	472
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	32	248	57	250	172	269	366	185	494	177	496	259	3102	3144

External	
Method of Travel to Work	Mode Split
Sustainable Travel	16%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	68%
Passenger in a Car or Van	15%
Other Method of Travel to Work	0%
Total	100%

Total	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Internal	52	397	92	401	276	430	585	297	790	283	794	414	4965	5032
Sustainable Travel	5	40	9	40	28	43	58	30	79	28	79	41	496	503
Taxi	0	0	0	0	0	0	1	0	1	0	1	0	4	4
Motorcycle, scooter or moped	0	3	1	3	2	3	4	2	5	2	5	3	34	34
Driving a car or van	22	168	39	170	117	182	248	126	335	120	336	175	2102	2130
Passenger in a car or van	5	37	9	38	26	40	55	28	74	26	74	39	465	472
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	84	645	149	651	448	698	951	482	1284	459	1291	673	8067	8175

Retail

Time Period	Internal		External	
	Arrivals	Departures	Arrivals	Departures
07:00 – 08:00	9	72	1	8
08:00 – 09:00	26	115	3	13
09:00 – 10:00	171	267	19	30
16:00 – 17:00	268	136	30	15
17:00 – 18:00	295	105	33	12
18:00 – 19:00	292	152	32	17
Daily (24hrs)	2698	2734	300	304

Internal	90%
External	10%

Internal	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Total	9	72	26	115	171	267	268	136	295	105	292	152	2698	2734

Internal	
Method of Travel to Work	Mode Split
Total	100%

External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Sustainable Travel	0	1	0	2	2	4	4	2	4	2	4	2	39	39
Taxi	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle, scooter or moped	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Driving a car or van	1	5	2	8	12	19	20	10	21	8	21	11	197	199
Passenger in a car or van	0	2	1	3	4	6	6	3	7	2	6	3	60	61
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	8	3	13	19	30	30	15	33	12	32	17	300	304

External	
Method of Travel to Work	Mode Split
Sustainable Travel	13%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	66%
Passenger in a Car or Van	20%
Other Method of Travel to Work	0%
Total	100%

Total	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Internal	9	72	26	115	171	267	268	136	295	105	292	152	2698	2734
Sustainable Travel	0	1	0	2	2	4	4	2	4	2	4	2	39	39
Taxi	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle, scooter or moped	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Driving a car or van	1	5	2	8	12	19	20	10	21	8	21	11	197	199
Passenger in a car or van	0	2	1	3	4	6	6	3	7	2	6	3	60	61
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	80	29	127	190	297	298	151	327	117	324	169	2998	3038

Total Residential

Internal	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Work from Home (existing / not included in TRICS)	35	270	30	130	26	40	97	49	181	65	97	51	724	734
Work from Home	24	186	21	90	18	27	67	34	125	45	67	35	500	506
Internal	169	1295	469	2051	556	867	1177	597	1449	518	1252	653	11214	11365
Total	228	1751	520	2271	599	934	1342	680	1756	628	1416	739	12438	12606

External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Sustainable Travel	32	246	47	207	51	80	138	70	210	75	150	78	1165	1181
Taxi	0	2	0	1	0	1	1	1	2	1	1	1	8	8
Motorcycle, scooter or moped	2	13	2	8	3	5	8	4	12	4	9	5	63	64
Driving a car or van	108	826	135	588	193	302	505	256	779	278	581	303	4164	4220
Passenger in a car or van	17	128	19	83	38	59	93	47	141	50	113	59	765	775
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	158	1214	203	887	286	447	745	377	1144	409	854	446	6166	6249

External Mode Split						
Method of Travel to Work	7-8	8-9	9-10	16-17	17-18	18-19
Sustainable Travel	20%	23%	18%	19%	18%	18%
Taxi	0%	0%	0%	0%	0%	0%
Motorcycle, Scooter or Moped	1%	1%	1%	1%	1%	1%
Driving a Car or Van	68%	66%	68%	68%	68%	68%
Passenger in a Car or Van	11%	9%	13%	12%	12%	13%
Other Method of Travel to Work	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Total	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Work from Home (existing / not included in TRICS)	35	270	30	130	26	40	97	49	181	65	97	51	724	734
Work from Home	24	186	21	90	18	27	67	34	125	45	67	35	500	506
Internal	169	1295	469	2051	556	867	1177	597	1449	518	1252	653	11214	11365
Sustainable Travel	32	246	47	207	51	80	138	70	210	75	150	78	1165	1181
Taxi	0	2	0	1	0	1	1	1	2	1	1	1	8	8
Motorcycle, scooter or moped	2	13	2	8	3	5	8	4	12	4	9	5	63	64
Driving a car or van	108	826	135	588	193	302	505	256	779	278	581	303	4164	4220
Passenger in a car or van	17	128	19	83	38	59	93	47	141	50	113	59	765	775
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	386	2965	723	3159	885	1381	2086	1057	2899	1037	2270	1185	18604	18855

Total Mode Split						
Method of Travel to Work	7-8	8-9	9-10	16-17	17-18	18-19
Work from Home (existing / not included in TRICS)	9%	4%	3%	5%	6%	4%
Work from Home	6%	3%	2%	3%	4%	3%
Internal	44%	65%	63%	56%	50%	55%
Sustainable Travel	8%	7%	6%	7%	7%	7%
Taxi	0%	0%	0%	0%	0%	0%
Motorcycle, scooter or moped	0%	0%	0%	0%	0%	0%
Driving a car or van	28%	19%	22%	24%	27%	26%
Passenger in a car or van	4%	3%	4%	4%	5%	5%
Other method of travel to work	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Office - Total People Trip Rates (per 100sqm)			
Time Period	Arrivals	Departures	Totals
07:00 – 08:00	0.720	0.097	0.817
08:00 – 09:00	3.880	0.149	4.029
09:00 – 10:00	2.360	0.531	2.891
16:00 – 17:00	0.554	1.783	2.337
17:00 – 18:00	0.269	3.680	3.949
18:00 – 19:00	0.092	1.211	1.303
Daily (24hrs)	13.330	12.685	26.015

Resi Commuting - Internal			
	Arrivals	Departures	Totals
07:00 – 08:00	47	359	406
08:00 – 09:00	40	173	213
09:00 – 10:00	34	53	87
16:00 – 17:00	130	66	195
17:00 – 18:00	242	86	328
18:00 – 19:00	129	67	196
Daily (24hrs)	965	978	1943

Taken from residential calcs and applied to the employment profile

25,486	sqm

Office - Total People Trips			
Time Period	Arrivals	Departures	Totals
07:00 – 08:00	183	25	208
08:00 – 09:00	989	38	1027
09:00 – 10:00	601	135	737
16:00 – 17:00	141	454	596
17:00 – 18:00	69	938	1006
18:00 – 19:00	23	309	332
Daily (24hrs)	3397	3233	6630

Employment Profile			
	Arrivals	Departures	Totals
07:00 – 08:00	12%	10%	
08:00 – 09:00	19%	56%	
09:00 – 10:00	68%	34%	
16:00 – 17:00	27%	61%	
17:00 – 18:00	55%	29%	
18:00 – 19:00	18%	10%	
Daily (24hrs)	100%	100%	

Employment - Total People Trips			
Time Period	Arrivals	Departures	Totals
07:00 – 08:00	183	25	208
08:00 – 09:00	989	38	1027
09:00 – 10:00	601	135	737
16:00 – 17:00	141	454	596
17:00 – 18:00	69	938	1006
18:00 – 19:00	23	309	332
Daily (24hrs)	3397	3233	6630

External				Internal			
	Arrivals	Departures	Totals		Arrivals	Departures	Totals
07:00 – 08:00	123	10	133	07:00 – 08:00	61	15	76
08:00 – 09:00	662	15	677	08:00 – 09:00	326	23	349
09:00 – 10:00	403	53	456	09:00 – 10:00	198	82	281
16:00 – 17:00	8	321	329	16:00 – 17:00	133	134	266
17:00 – 18:00	4	662	666	17:00 – 18:00	64	276	340
18:00 – 19:00	1	218	219	18:00 – 19:00	22	91	113
Daily (24hrs)	2419	2268	4687	Daily (24hrs)	978	965	1943

Internal	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Total	61	15	326	23	198	82	133	134	64	276	22	91	978	965

Internal	
Method of Travel to Work	Mode Split
Total	100%

External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Sustainable Travel	20	2	106	2	64	8	1	51	1	106	0	35	387	363
Taxi	0	0	1	0	1	0	0	1	0	1	0	0	4	4
Motorcycle, scooter or moped	2	0	9	0	6	1	0	5	0	9	0	3	34	32
Driving a car or van	89	7	480	11	292	38	6	232	3	480	1	158	1752	1642
Passenger in a car or van	12	1	66	1	40	5	1	32	0	66	0	22	242	227
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	123	10	662	15	403	53	8	321	4	662	1	218	2419	2268

External	
Method of Travel to Work	Mode Split
Sustainable Travel	16%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	72%
Passenger in a Car or Van	10%
Other Method of Travel to Work	0%
Total	100%

Total	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Internal	61	15	326	23	198	82	133	134	64	276	22	91	978	965
Sustainable Travel	20	2	106	2	64	8	1	51	1	106	0	35	387	363
Taxi	0	0	1	0	1	0	0	1	0	1	0	0	4	4
Motorcycle, scooter or moped	2	0	9	0	6	1	0	5	0	9	0	3	34	32
Driving a car or van	89	7	480	11	292	38	6	232	3	480	1	158	1752	1642
Passenger in a car or van	12	1	66	1	40	5	1	32	0	66	0	22	242	227
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	183	25	989	38	601	135	141	454	69	938	23	309	3397	3233

Primary - Total People Trip Rates (per pupil)				Secondary - Total People Trip Rates (per pupil)				Further Education - Total People Trip Rates (per pupil)			
Time Period	Arrivals	Departures	Totals	Time Period	Arrivals	Departures	Totals	Time Period	Arrivals	Departures	Totals
07:00 – 08:00	0.107	0.037	0.144	07:00 – 08:00	0.099	0.012	0.111	07:00 – 08:00	0.016	0.005	0.021
08:00 – 09:00	1.149	0.288	1.437	08:00 – 09:00	0.780	0.093	0.873	08:00 – 09:00	0.102	0.024	0.126
09:00 – 10:00	0.101	0.128	0.229	09:00 – 10:00	0.043	0.014	0.057	09:00 – 10:00	0.061	0.022	0.083
16:00 – 17:00	0.114	0.421	0.535	16:00 – 17:00	0.025	0.197	0.222	16:00 – 17:00	0.028	0.059	0.087
17:00 – 18:00	0.035	0.073	0.108	17:00 – 18:00	0.044	0.040	0.084	17:00 – 18:00	0.024	0.069	0.093
18:00 – 19:00	0.078	0.031	0.109	18:00 – 19:00	0.052	0.023	0.075	18:00 – 19:00	0.020	0.023	0.043
Daily (24hrs)	2.127	2.057	4.184	Daily (24hrs)	1.241	1.212	2.453	Daily (24hrs)	0.458	0.460	0.918

	168	Pupils			120	Pupils			117	Pupils	
Primary - Total People Trips				Secondary - Total People Trips				Further Education - Total People Trips			
Time Period	Arrivals	Departures	Totals	Time Period	Arrivals	Departures	Totals	Time Period	Arrivals	Departures	Totals
07:00 – 08:00	18	6	24	07:00 – 08:00	12	1	13	07:00 – 08:00	2	1	2
08:00 – 09:00	193	49	242	08:00 – 09:00	93	11	105	08:00 – 09:00	12	3	15
09:00 – 10:00	17	22	39	09:00 – 10:00	5	2	7	09:00 – 10:00	7	3	10
16:00 – 17:00	19	71	90	16:00 – 17:00	3	24	27	16:00 – 17:00	3	7	10
17:00 – 18:00	6	12	18	17:00 – 18:00	5	5	10	17:00 – 18:00	3	8	11
18:00 – 19:00	13	5	18	18:00 – 19:00	6	3	9	18:00 – 19:00	2	3	5
Daily (24hrs)	358	346	705	Daily (24hrs)	149	145	294	Daily (24hrs)	53	54	107

Primary - External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Bus, minibus or coach	3	1	37	9	3	4	4	14	1	2	3	1	69	67
Driving a car or van	15	5	156	39	14	17	15	57	5	10	11	4	289	280
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On foot	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	18	6	193	49	17	22	19	71	6	12	13	5	358	346

Primary - External	
Mode	Mode Split
Bus, minibus or coach	19%
Driving a car or van	81%
Bicycle	0%
On foot	0%
Total	100%

Secondary - External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Bus, minibus or coach	7	1	56	7	3	1	2	14	3	3	4	2	89	87
Driving a car or van	5	1	37	4	2	1	1	9	2	2	2	1	59	58
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On foot	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	12	1	93	11	5	2	3	24	5	5	6	3	149	145

Secondary - External	
Mode	Mode Split
Bus, minibus or coach	60%
Driving a car or van	40%
Bicycle	0%
On foot	0%
Total	100%

Higher/Further - External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Bus, minibus or coach	1	0	6	1	4	1	2	3	1	4	1	1	27	27
Driving a car or van	1	0	6	1	4	1	2	3	1	4	1	1	27	27
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On foot	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	1	12	3	7	3	3	7	3	8	2	3	53	54

Higher/Further - External	
Mode	Mode Split
Bus, minibus or coach	50%
Driving a car or van	50%
Bicycle	0%
On foot	0%
Total	100%

Total - External	AM (0700-0800)		AM (0800-0900)		AM (0900-1000)		PM (1600-1700)		PM (1700-1800)		PM (1800-1900)		Daily (24hrs)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Sustainable Travel	12	2	99	17	10	6	7	31	6	9	7	4	185	181
Taxi	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle, scooter or moped	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Driving a car or van	20	6	199	45	19	19	18	70	8	16	14	7	375	364
Passenger in a car or van	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other method of travel to work	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	32	8	299	62	29	26	25	101	14	25	22	11	560	545

Appendix C

Distribution Note

February 2023

Hatton Strategic Site
Distribution Analysis Note

VM210437.TN001

Introduction

1. Vectos Microsim (VM) has been commissioned to undertake traffic modelling in support of a proposed Local Plan allocation at the Hatton Garden Village strategic site. The proposals consist of delivering up to 5000 dwellings at the site which lies to the east of the village of Hatton, Warwickshire.

2. As part of the initial stages of the modelling assessment, VM have liaised with Warwickshire County Council (WCC) with a view to deriving an appropriate trip distribution to assign to the site. WCC have advised that any distribution should make use of the WCC Mobile Network Database (MND), which provides distribution information at an LSOA level.

3. Following liaison with WCC, the MND outputs has been used to construct proxy distributions that are considered representative of the Hatton development proposals and travel patterns. The remainder of the note details the steps undertaken to develop these distributions and provides output plots to illustrate the distribution patterns to be assigned.

Site Location

4. The proposed Hatton Garden Village lies immediately west of the existing residential area of Hatton village and Hatton Park, and straddles the boundary between two Middle Layer Super Output Areas (MSOA), namely Warwick 004 and Warwick 014. The site lies within LSOA Warwick 014D.

5. The Warwick 014D LSOA is largely rural in nature area, and on this basis, the distribution outputs for this LSOA alone is unlikely to provide a realistic proxy for the large development proposals concerned. On this basis, WCC has advised that a number of nearby LSOA areas should be selected to be combined to derive a single distribution, which is based upon an average of nearby, representative output areas.

6. In line with this criteria, WCC have indicated that the following outputs area should be considered when deriving the distribution:

   - Warwick 011B
   - Warwick 011H
   - Warwick 014C
   - Warwick 014D

7. The location of these output areas relative to the site are indicated within **Figure 1**.

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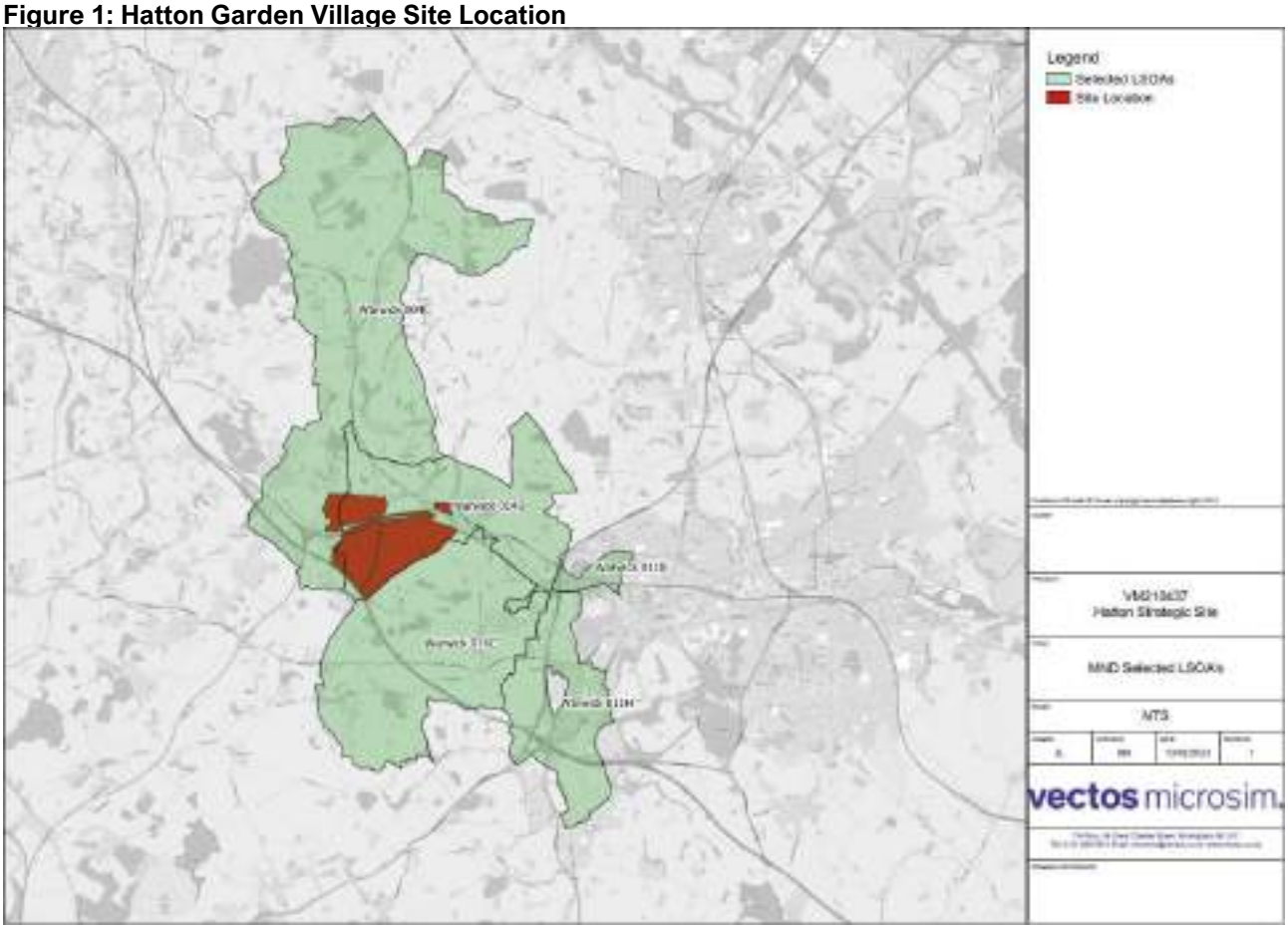
Figure 1: Hatton Garden Village Site Location



Mobile Network Data Distribution (LSOA Level)

8. The distribution to be assigned has utilised the WCC MND tool, filtered by the LSOA's listed previously, as advised by WCC.

9. The MND data was the further filtered as per the following:

- Period (AM period 07:00 to 10:00 or PM period 16:00 to 19:00)
- Average weekday (Tuesday to Thursday)
- Journey Purpose (Homebased Work)
- Direction of Travel (AM From Home, PM To Home)

10. Initially a distribution for each of the four identified LSOAs has been derived. However, it was not appropriate to simply assign an average of these four LSOA outputs, on the basis that some of the LSOAs contain more dwellings/development than others.

11. On this basis it was determined that a 'weighted' distribution would be derived, whereby instead of simply taking an average of the four output areas, the distributions would be combined, but with a weighting towards the LSOAs with the higher number of dwellings within them.

12. The number of dwellings within each of the LSOA output areas considered are listed in **Table 1**. The dwellings totals were derived from the NOMIS database.

Table 1: LSOA's Number of Dwellings

LSOA's Output Area	No. of Dwellings
Warwick 011B	880
Warwick 011H	654
Warwick 014C	752
Warwick 014D	1,108

13. In order to derive a 'weighted' distribution to be assigned to the development site, the number of dwellings within each of the LSOA's was divided by the total sum of the dwellings. The resultant weightings are outlined within **Table 2**.

Table 2: LSOA's Weighted Distribution

LSOA's Output Area	Weighting %
Warwick 011B	25.9%
Warwick 011H	19.3%
Warwick 014C	22.2%
Warwick 014D	32.6%

14. These weightings have then been factored into the calculation when combining each of the LSOA outputs to derive a single distribution to be assigned to the development site.

Resultant Development Distribution

15. The resultant predicted trip patterns have been plotted as straight lines between LSOA centroids and the development site, and provided within **Appendix A**, along with a routed distribution plot showing the routes that development trips would likely traverse when travelling between the site and external model zones/destinations. This is provided within **Appendix B**.

16. As there are a large number of destinations identified, and to provide clarity, the plots have excluded any travel pattern that had less than 1% of the total distribution. These 1% trips have been included within the analysis and have been summarised in the resultant trip distribution to development site, just not displayed on the supporting plots.

17. In addition to the plots provided, the key destinations have been summarised within the following table:

Table 3 Development Distribution Summary

Destination	% of Trips	
	AM	PM
Warwick/Leamington Internal Zones	36.83%	44.88%
A46 Northbound (Towards Coventry)	19.00%	11.75%
A4177 Birmingham Road	13.73%	14.14%
A46 Stratford Road	6.97%	7.69%
M40 Northbound	6.83%	3.07%
A445 Leamington Road (Towards Rugby)	4.33%	1.98%
A429 Southbound (Towards Wellesbourne)	3.87%	3.69%
M40 Southbound	3.54%	8.06%
A425 Southam Road	1.40%	0.43%
Birches Lane (Towards Kenilworth SE)	1.33%	1.09%
B4113 Stoneleigh Road	0.60%	0.94%
A452 Warwick Road (Towards Kenilworth)	0.61%	0.66%
B4455 Fosse Way	0.30%	0.00%
B4100 SB (Towards Gaydon)	0.29%	1.45%
Rouncil Lane (Towards Kenilworth SW)	0.24%	0.19%
B4453 Rugby Road	0.12%	0.00%

18. The distribution has also indicated that the majority of trips will be considered 'internal', being assigned to zones within or around either Warwick or Leamington town centre areas (36% AM and 45% PM).

19. The distribution derived from the MND outputs has indicated that a high proportion of development trips would likely travel north of the site on the A46 north. In addition to this, a high proportion of trips are also predicted to route directly west out of the model network towards Birmingham on the A4177.

A46 Warwick Bypass/Birmingham Road Junction Observations

20. Further analysis has been undertaken specifically at the A46/A4177 'Stanks Island' junction, where in both periods, over 85% of the total development trips are predicted to route. **Appendix C** presents the distribution of development trips at the A46 junction across each exit arm.

21. During the AM period, 29% of development trips entering the junction travel north in the Coventry direction. 22% of development trips route through the junction onto the A46 southbound, with the remaining trips (37%) travelling towards Warwick on the A425.

22. During the PM period, the distribution is similar to the AM where majority of trips are travelling between the site and Warwick on the A425 (45%). Within this period traffic travelling between the site and the A46 northbound and A46 southbound make up of 17% and 23% of development trips respectively.

23. On the basis of the above, the operation of the A46/A4177 Stanks Island junction is predicted to form the primary focus of any development impact assessment at this stage.

Summary

24. Vectos Microsim (VM) has been commissioned to undertake traffic modelling in support of a proposed Local Plan allocation at the Hatton Garden Village strategic site. The proposals consist of delivering up to 5000 dwellings at the site which lies to the east of the village of Hatton, Warwickshire.

25. As part of the initial stages of the modelling assessment, VM have liaised with Warwickshire County Council (WCC) with a view to deriving an appropriate trip distribution to assign to the site. WCC have advised that any distribution should make use of the WCC Mobile Network Database (MND), which provides distribution information at an LSOA output level.

26. Following these discussions, 4 LSOA output areas were agreed with WCC and interrogated using the MND tool to derive the required distribution. A distribution has been extracted for each LSOA, before being combined, using a 'weighted' approach (dependent on the number of dwellings in each LSOA) to form one single distribution to assign to the development.

27. The resultant development trip distributions have been summarised in **Table 3** and presented within **Appendix A-C**.

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Appendix A:

MND Development Trip Distribution Plots

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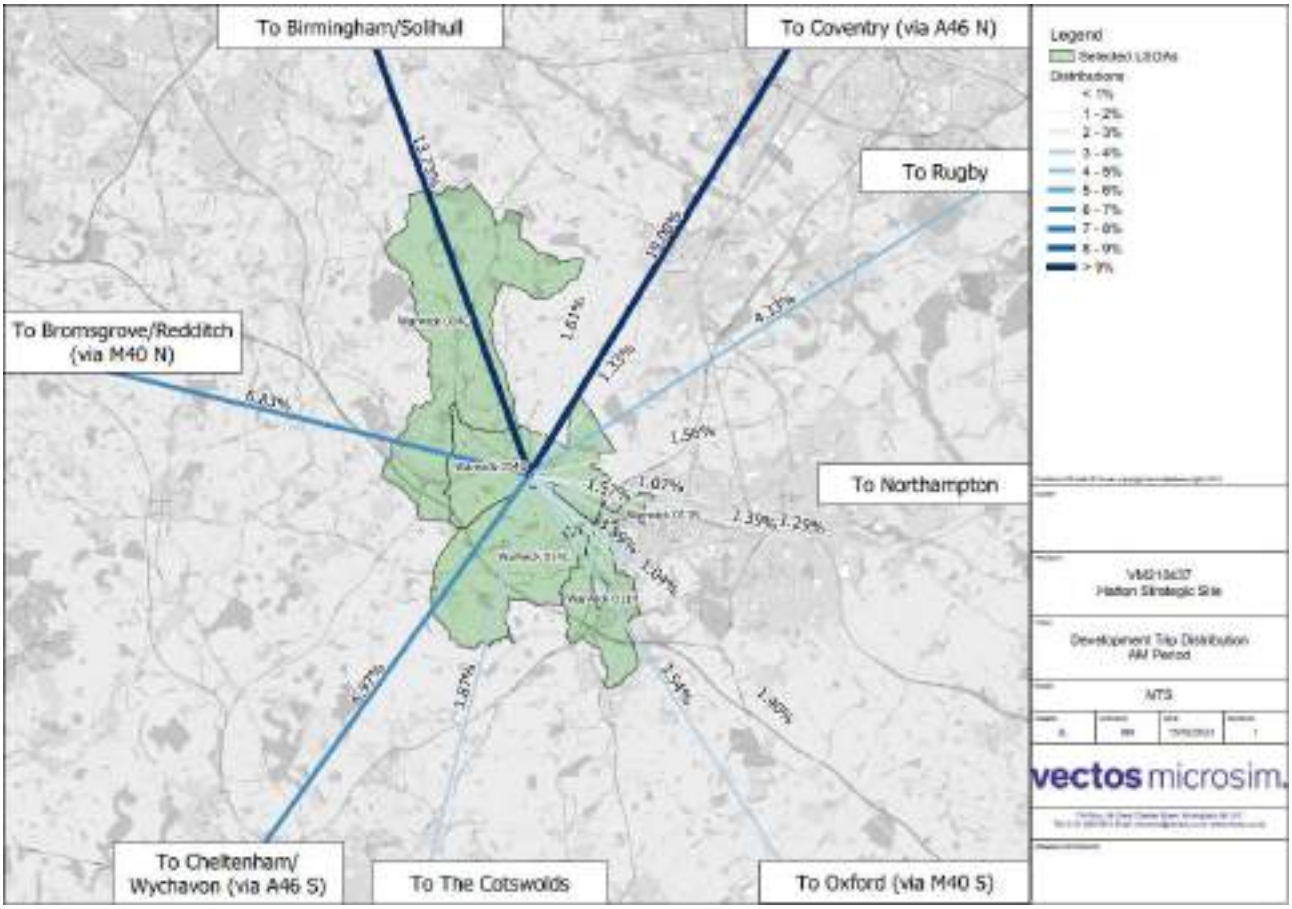
AM Period



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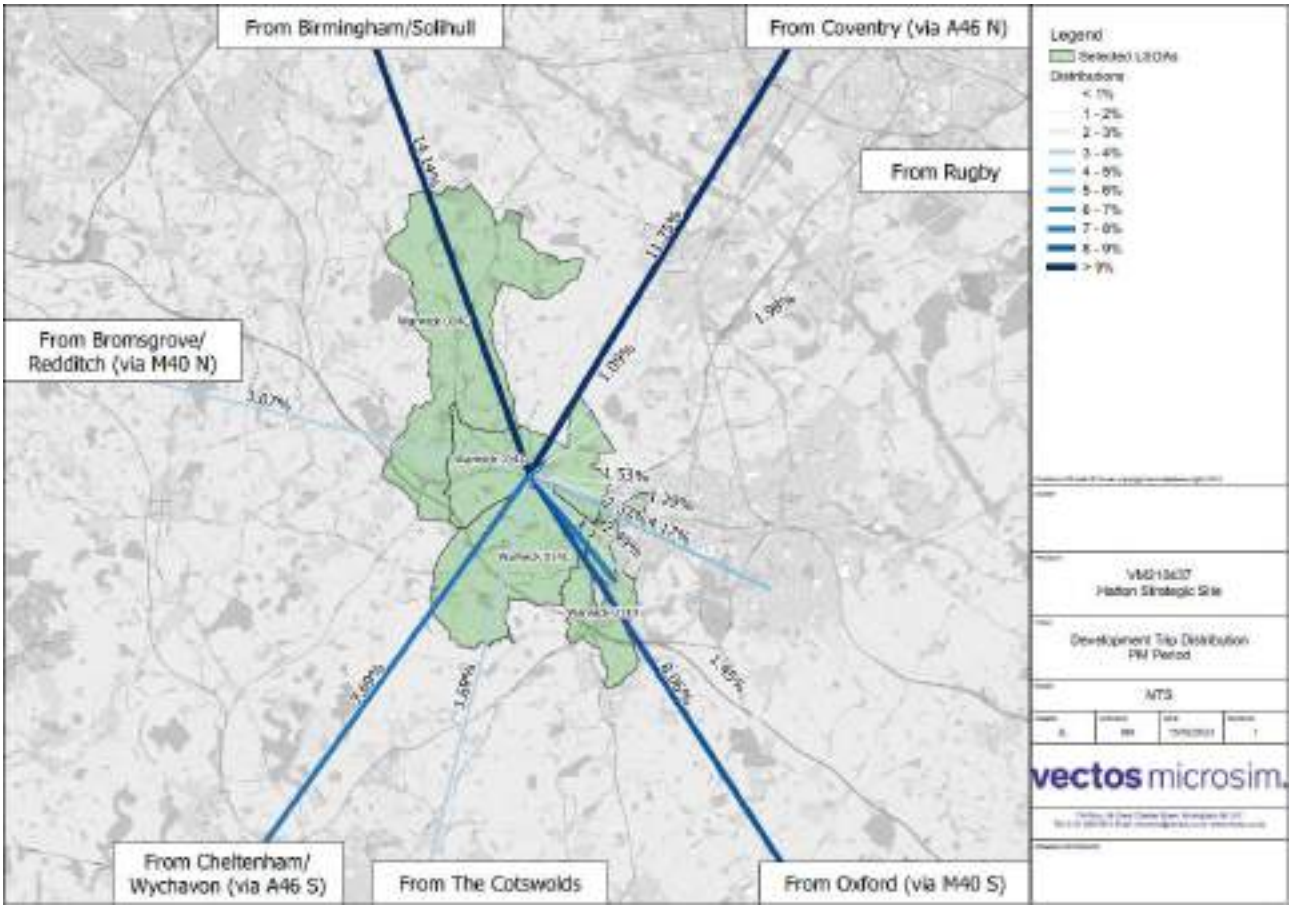
PM Period



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Appendix B:

MND Routed Development Trip Distribution to External Zone Plots

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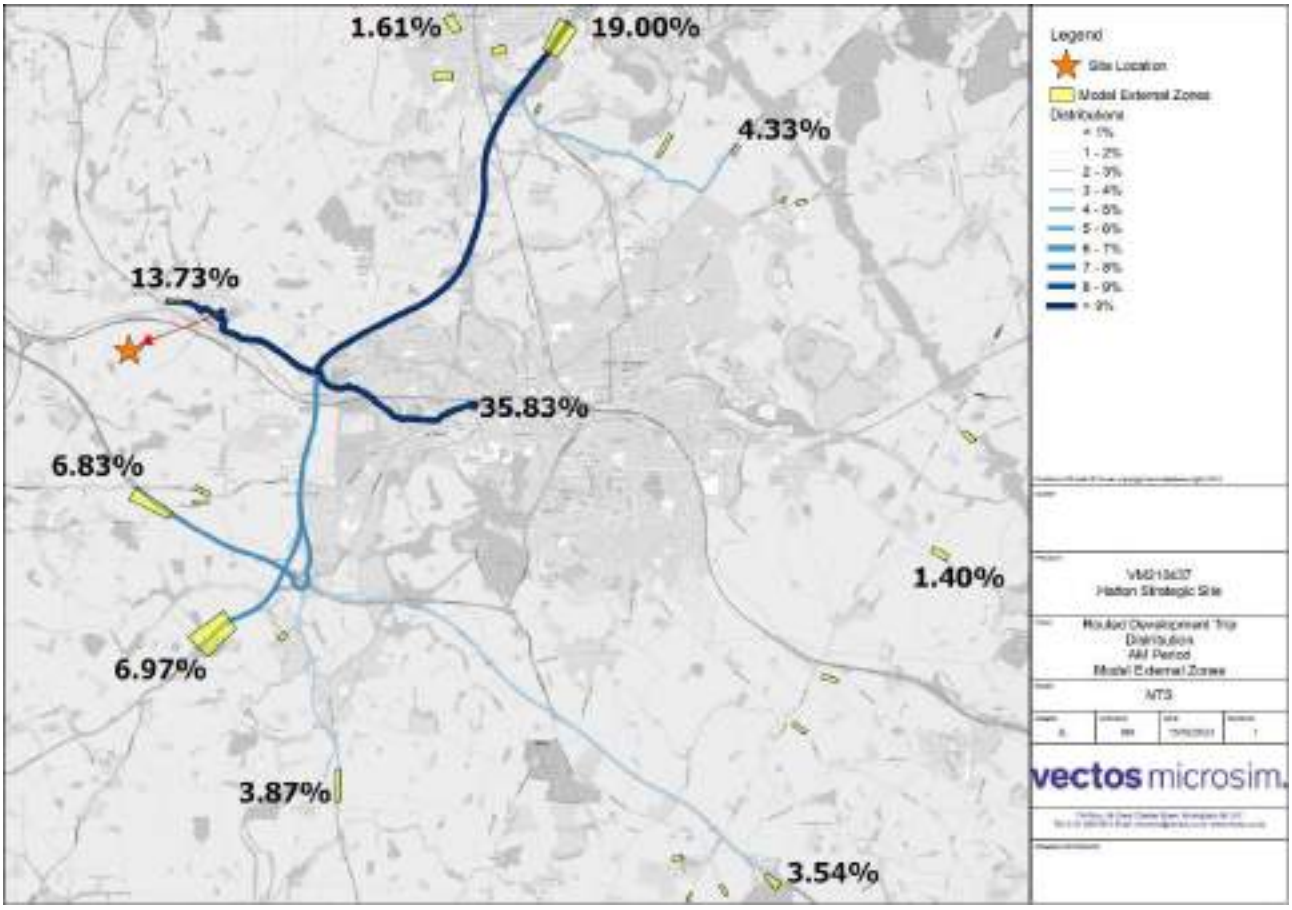
AM Period



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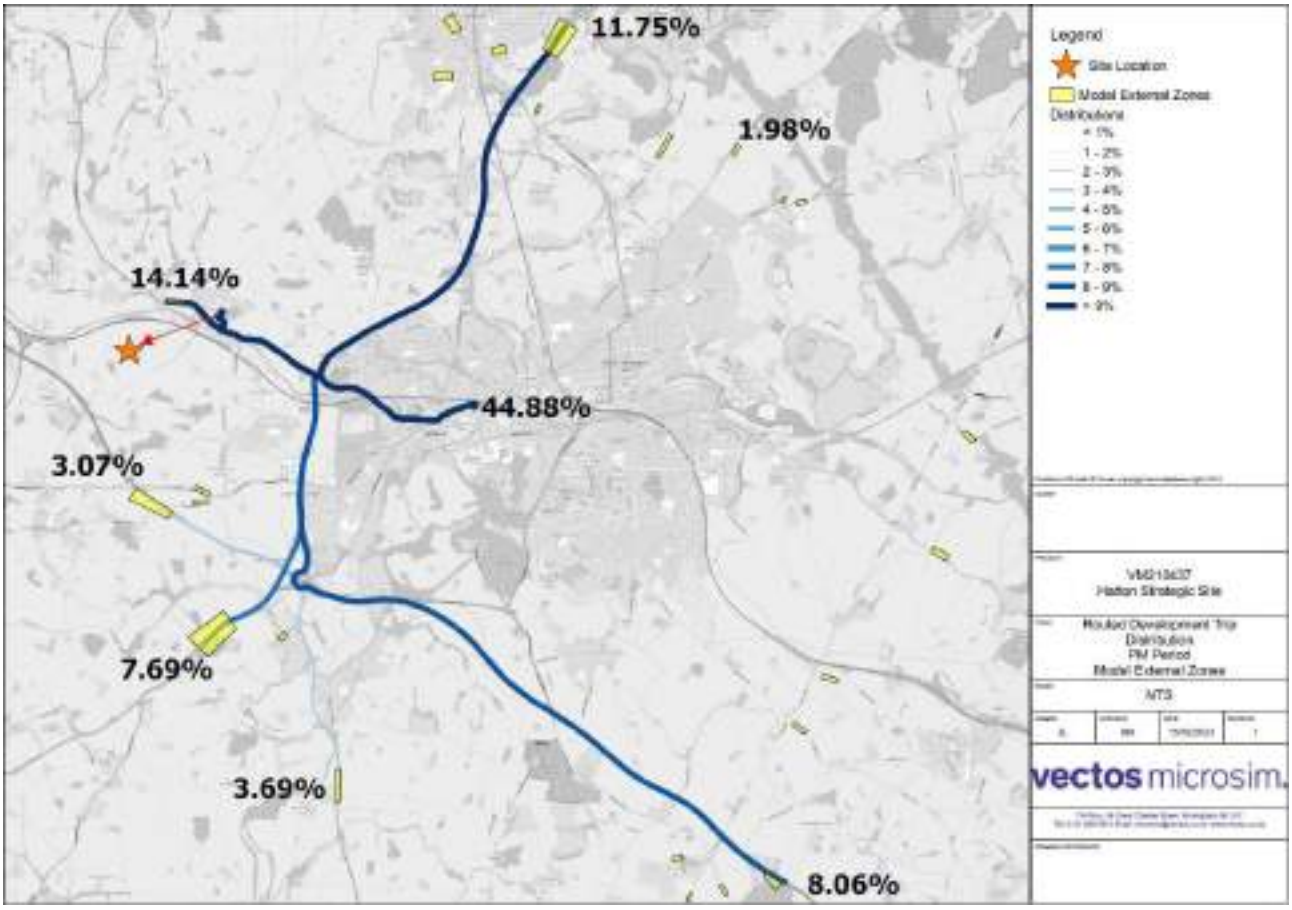
PM Period



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Appendix C:

MND Routed Development Trip Distribution A46 Junction Focus Plots

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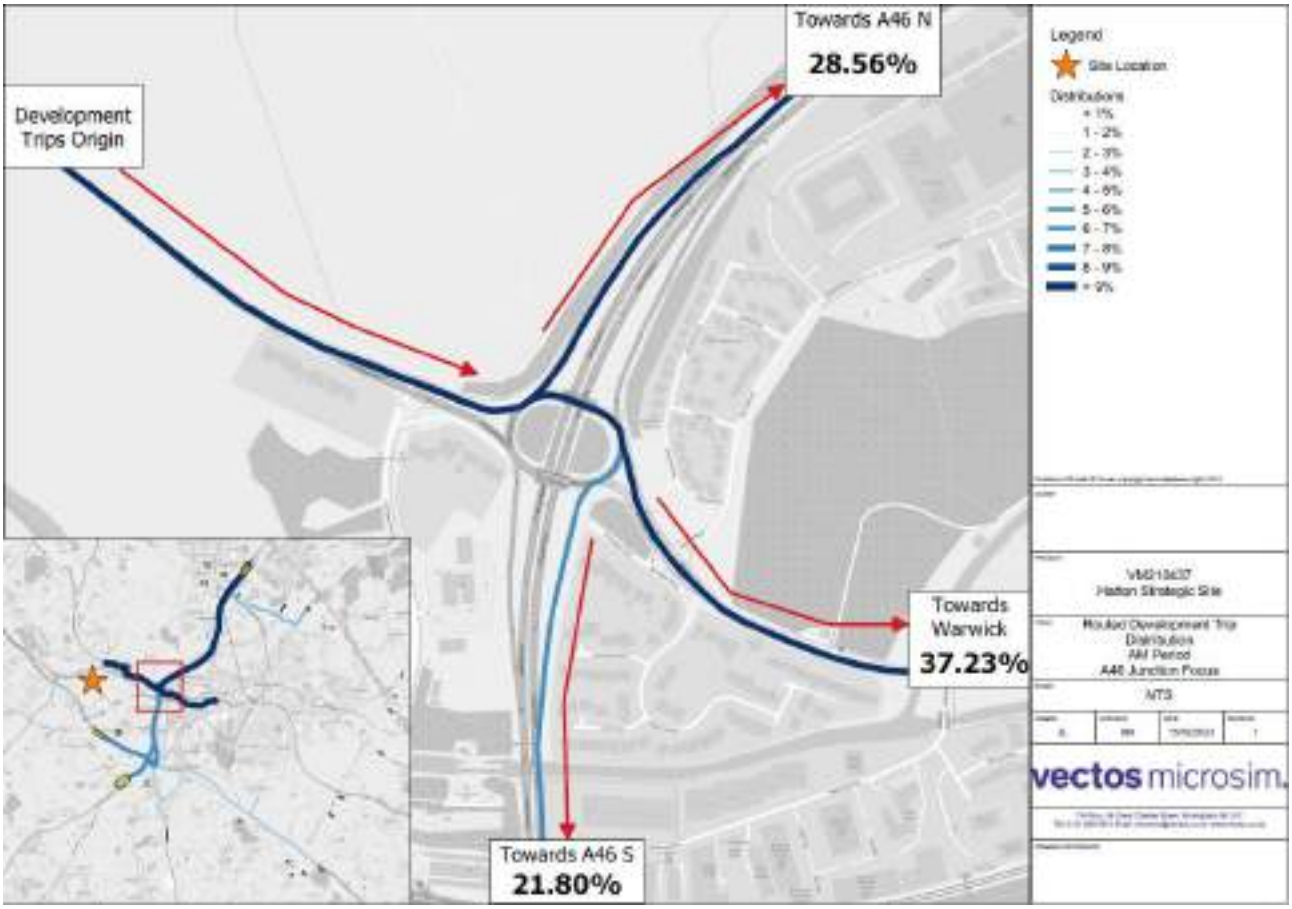
AM Period



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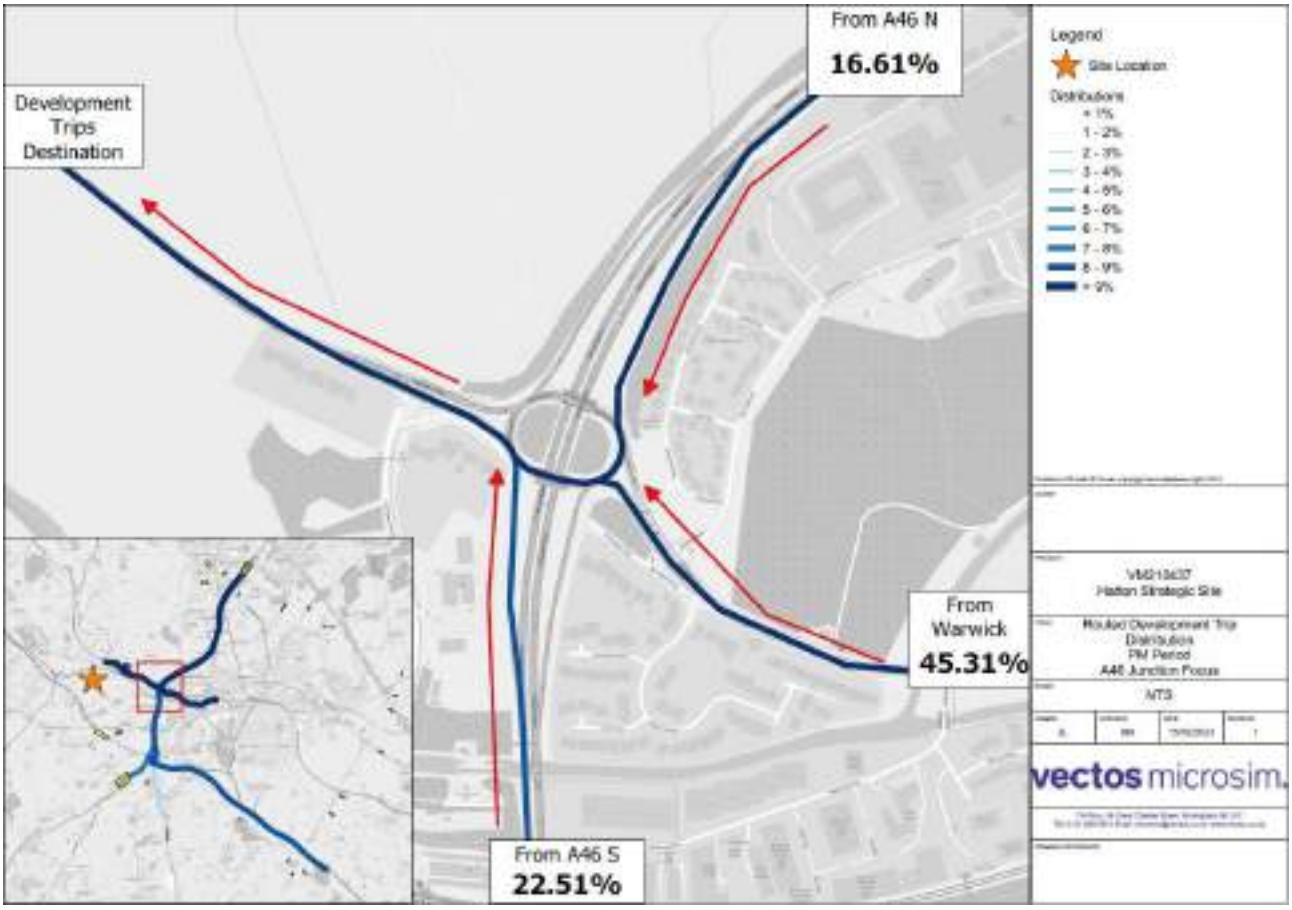
PM Period



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Appendix D

Detailed Modelling Outputs

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: 215933 - Birmingham Road_Hockley Road - V2.j10
Path: H:\Projects\W210000\215933 - Hatton, Warwick\Technical\C - Vision Document January 2023\Modelling\Picady
Report generation date: 22/02/2023 10:28:27

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2022 Observed					
Stream B-C	0.0	17.05	0.02	0.0	33.46	0.04
Stream B-A	2.9	41.10	0.76	4.3	64.48	0.84
Stream C-AB	0.1	4.38	0.06	0.1	5.02	0.04
	2022 + Dev					
Stream B-C	66.6	5214.44	2.78	97.5	7570.83	3.73
Stream B-A	576.4	5132.54	2.81	772.6	7492.42	3.75
Stream C-AB	1.1	6.18	0.38	1.0	7.04	0.38
	2022 + Dev (WCC)					
Stream B-C	336.3	20063.83	7.04	68.6	6914.58	4.22
Stream B-A	2354.1	20007.12	7.05	594.8	6811.45	4.27
Stream C-AB	0.7	5.24	0.27	17.1	69.85	0.96

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	
Location	
Site number	

Date	13/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\ellen.hill
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	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

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
D3	2022 Observed	AM	ONE HOUR	07:30	09:00	15	✓
D4	2022 Observed	PM	ONE HOUR	16:30	18:00	15	✓
D5	2022 + Dev	AM	ONE HOUR	07:30	09:00	15	✓
D6	2022 + Dev	PM	ONE HOUR	16:30	18:00	15	✓
D7	2022 + Dev (WCC)	AM	ONE HOUR	07:30	09:00	15	✓
D8	2022 + Dev (WCC)	PM	ONE HOUR	16:30	18:00	15	✓

Analysis Set Details

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

2022 Observed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Hockley Road - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		9.23	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.23	A

Arms

Arms

Arm	Name	Description	Arm type
A	Birmingham Road (S)		Major
B	Hockley Road		Minor
C	Birmingham Road (N)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Birmingham Road (N)	6.95			160.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Hockley Road	One lane plus flare	10.00	5.22	3.70	3.55	3.55	✓	1.00	37	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	559	0.098	0.247	0.155	0.352
B-C	613	0.090	0.228	-	-
C-B	667	0.248	0.248	-	-

The slopes and intercepts shown above include custom intercept adjustments only.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

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	2022 Observed	AM	ONE HOUR	07:30	09:00	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 - Birmingham Road (S)		ONE HOUR	✓	337	100.000
B - Hockley Road		ONE HOUR	✓	249	100.000
C - Birmingham Road (N)		ONE HOUR	✓	532	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	0	337
	B - Hockley Road	245	0	4
	C - Birmingham Road (N)	510	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	1	4
	B - Hockley Road	3	0	0
	C - Birmingham Road (N)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.02	17.05	0.0	C	4	6
B-A	0.76	41.10	2.9	E	225	337
C-AB	0.06	4.38	0.1	A	44	65
C-A					445	667
A-B					0	0
A-C					309	464

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	3	0.75	449	0.007	3	0.0	0.0	8.072	A
B-A	184	46	414	0.445	181	0.0	0.8	15.262	C
C-AB	30	8	853	0.035	30	0.0	0.0	4.373	A
C-A	370	93			370				
A-B	0	0			0				
A-C	254	63			254				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	0.90	377	0.010	4	0.0	0.0	9.627	A
B-A	220	55	389	0.566	218	0.8	1.2	20.830	C

C-AB	41	10	893	0.046	41	0.0	0.1	4.221	A
C-A	437	109			437				
A-B	0	0			0				
A-C	303	76			303				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	1	230	0.019	4	0.0	0.0	15.977	C
B-A	270	67	355	0.760	264	1.2	2.7	37.303	E
C-AB	60	15	949	0.063	59	0.1	0.1	4.042	A
C-A	526	132			526				
A-B	0	0			0				
A-C	371	93			371				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	1	216	0.020	4	0.0	0.0	17.045	C
B-A	270	67	355	0.760	269	2.7	2.9	41.100	E
C-AB	60	15	949	0.063	60	0.1	0.1	4.047	A
C-A	526	132			526				
A-B	0	0			0				
A-C	371	93			371				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	0.90	365	0.010	4	0.0	0.0	9.969	A
B-A	220	55	389	0.566	226	2.9	1.4	22.863	C
C-AB	41	10	893	0.046	41	0.1	0.1	4.235	A
C-A	437	109			437				
A-B	0	0			0				
A-C	303	76			303				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	3	0.75	443	0.007	3	0.0	0.0	8.177	A
B-A	184	46	414	0.445	187	1.4	0.8	15.964	C
C-AB	30	8	853	0.035	30	0.1	0.0	4.380	A
C-A	370	93			370				
A-B	0	0			0				
A-C	254	63			254				

2022 Observed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Hockley Road - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		12.08	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	12.08	B

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	2022 Observed	PM	ONE HOUR	16:30	18:00	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 - Birmingham Road (S)		ONE HOUR	✓	596	100.000
B - Hockley Road		ONE HOUR	✓	238	100.000
C - Birmingham Road (N)		ONE HOUR	✓	431	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	0	596
	B - Hockley Road	234	0	4
	C - Birmingham Road (N)	418	13	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	2	3
	B - Hockley Road	2	0	0
	C - Birmingham Road (N)	2	8	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.04	33.46	0.0	D	4	6
B-A	0.84	64.48	4.3	F	215	322
C-AB	0.04	5.02	0.1	A	25	37
C-A					371	556
A-B					0	0
A-C					547	820

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	3	0.75	407	0.007	3	0.0	0.0	8.911	A
B-A	176	44	384	0.459	173	0.0	0.8	16.839	C
C-AB	17	4	735	0.023	17	0.0	0.0	5.015	A
C-A	307	77			307				
A-B	0	0			0				
A-C	449	112			449				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	0.90	322	0.011	4	0.0	0.0	11.292	B
B-A	210	53	352	0.598	208	0.8	1.4	24.625	C
C-AB	23	6	762	0.030	23	0.0	0.0	4.879	A
C-A	364	91			364				
A-B	0	0			0				
A-C	536	134			536				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	1	138	0.032	4	0.0	0.0	26.847	D
B-A	258	64	308	0.837	248	1.4	3.8	53.398	F
C-AB	34	8	802	0.042	34	0.0	0.1	4.694	A
C-A	441	110			441				
A-B	0	0			0				
A-C	656	164			656				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	1	112	0.039	4	0.0	0.0	33.458	D
B-A	258	64	308	0.837	256	3.8	4.3	64.481	F
C-AB	34	8	802	0.042	34	0.1	0.1	4.687	A
C-A	441	110			441				
A-B	0	0			0				
A-C	656	164			656				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	0.90	300	0.012	4	0.0	0.0	12.157	B
B-A	210	53	352	0.598	221	4.3	1.6	29.441	D
C-AB	23	6	762	0.030	23	0.1	0.0	4.860	A
C-A	364	91			364				
A-B	0	0			0				
A-C	536	134			536				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	3	0.75	400	0.008	3	0.0	0.0	9.063	A
B-A	176	44	384	0.459	179	1.6	0.9	17.818	C
C-AB	17	4	735	0.023	17	0.0	0.0	5.005	A
C-A	307	77			307				
A-B	0	0			0				
A-C	449	112			449				

2022 + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Hockley Road - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		2425.48	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2425.48	F

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	2022 + Dev	AM	ONE HOUR	07:30	09:00	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 - Birmingham Road (S)		ONE HOUR	✓	337	100.000
B - Hockley Road		ONE HOUR	✓	893	100.000
C - Birmingham Road (N)		ONE HOUR	✓	644	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Birmingham Road (S)	**B - Hockley Road**	**C - Birmingham Road (N)**
From	**A - Birmingham Road (S)**	0	0	337
	B - Hockley Road	801	0	92
	C - Birmingham Road (N)	510	134	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Birmingham Road (S)	**B - Hockley Road**	**C - Birmingham Road (N)**
From	**A - Birmingham Road (S)**	0	0	4
	B - Hockley Road	1	0	0
	C - Birmingham Road (N)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	2.78	5214.44	66.6	F	84	127
B-A	2.81	5132.54	576.4	F	735	1103
C-AB	0.38	6.18	1.1	A	266	399
C-A					325	488
A-B					0	0
A-C					309	464

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	69	17	44	1.559	39	0.0	7.5	426.297	F
B-A	603	151	387	1.559	380	0.0	55.8	284.613	F
C-AB	183	46	853	0.215	182	0.0	0.4	5.358	A
C-A	301	75			301				
A-B	0	0			0				
A-C	254	63			254				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	83	21	43	1.945	42	7.5	17.7	1293.020	F
B-A	720	180	356	2.024	356	55.8	146.9	1122.326	F
C-AB	249	62	893	0.279	248	0.4	0.6	5.583	A
C-A	330	83			330				
A-B	0	0			0				
A-C	303	76			303				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	101	25	37	2.758	37	17.7	33.8	2638.077	F
B-A	882	220	314	2.810	314	146.9	288.9	2485.696	F
C-AB	363	91	950	0.382	362	0.6	1.1	6.129	A
C-A	346	86			346				
A-B	0	0			0				
A-C	371	93			371				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	101	25	36	2.782	36	33.8	50.1	3710.498	F
B-A	882	220	314	2.813	314	288.9	431.0	3607.725	F
C-AB	364	91	951	0.383	364	1.1	1.1	6.175	A
C-A	345	86			345				
A-B	0	0			0				
A-C	371	93			371				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	83	21	41	2.010	41	50.1	60.5	4617.123	F
B-A	720	180	355	2.026	355	431.0	522.2	4526.007	F
C-AB	250	62	894	0.279	252	1.1	0.7	5.644	A
C-A	329	82			329				
A-B	0	0			0				
A-C	303	76			303				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	69	17	45	1.552	45	60.5	66.6	5214.435	F
B-A	603	151	386	1.562	386	522.2	576.4	5132.540	F
C-AB	185	46	854	0.216	185	0.7	0.5	5.410	A
C-A	300	75			300				
A-B	0	0			0				
A-C	254	63			254				

2022 + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Hockley Road - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		3496.31	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3496.31	F

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	2022 + Dev	PM	ONE HOUR	16:30	18:00	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 - Birmingham Road (S)		ONE HOUR	✓	596	100.000
B - Hockley Road		ONE HOUR	✓	1012	100.000
C - Birmingham Road (N)		ONE HOUR	✓	543	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	0	596
	B - Hockley Road	899	0	113
	C - Birmingham Road (N)	418	125	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
From		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
	A - Birmingham Road (S)	0	0	3
	B - Hockley Road	1	0	0
	C - Birmingham Road (N)	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	3.73	7570.83	97.5	F	104	156
B-A	3.75	7492.42	772.6	F	825	1237
C-AB	0.38	7.04	1.0	A	230	345
C-A					269	403
A-B					0	0
A-C					547	820

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	85	21	44	1.918	41	0.0	11.1	586.452	F
B-A	677	169	353	1.918	349	0.0	82.0	458.381	F
C-AB	160	40	765	0.209	158	0.0	0.4	5.933	A
C-A	249	62			249				
A-B	0	0			0				
A-C	449	112			449				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	102	25	41	2.507	40	11.1	26.4	1734.321	F
B-A	808	202	315	2.562	315	82.0	205.2	1623.511	F
C-AB	215	54	790	0.273	215	0.4	0.6	6.266	A
C-A	273	68			273				
A-B	0	0			0				
A-C	536	134			536				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	124	31	34	3.707	34	26.4	49.1	3688.502	F
B-A	990	247	264	3.747	264	205.2	386.7	4048.246	F
C-AB	312	78	827	0.378	311	0.6	1.0	6.989	A

C-A	285	71			285				
A-B	0	0			0				
A-C	656	164			656				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	124	31	33	3.727	33	49.1	71.9	5306.983	F
B-A	990	247	264	3.752	264	386.7	568.2	5211.439	F
C-AB	313	78	828	0.378	313	1.0	1.0	7.038	A
C-A	285	71			285				
A-B	0	0			0				
A-C	656	164			656				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	102	25	40	2.553	40	71.9	87.3	6628.907	F
B-A	808	202	315	2.566	315	568.2	691.5	6542.933	F
C-AB	216	54	791	0.273	218	1.0	0.6	6.326	A
C-A	272	68			272				
A-B	0	0			0				
A-C	536	134			536				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	85	21	44	1.914	44	87.3	97.5	7570.830	F
B-A	677	169	352	1.921	352	691.5	772.6	7492.422	F
C-AB	161	40	766	0.210	162	0.6	0.4	5.987	A
C-A	248	62			248				
A-B	0	0			0				
A-C	449	112			449				

2022 + Dev (WCC), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Hockley Road - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		14261.60	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	14261.60	F

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
D7	2022 + Dev (WCC)	AM	ONE HOUR	07:30	09:00	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 - Birmingham Road (S)		ONE HOUR	✓	337	100.000
B - Hockley Road		ONE HOUR	✓	2409	100.000
C - Birmingham Road (N)		ONE HOUR	✓	606	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	0	337
	B - Hockley Road	2108	0	301
	C - Birmingham Road (N)	510	96	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	0	4
	B - Hockley Road	0	0	0
	C - Birmingham Road (N)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	7.04	20063.83	336.3	F	276	414
B-A	7.05	20007.12	2354.1	F	1934	2902
C-AB	0.27	5.24	0.7	A	190	285
C-A					366	549
A-B					0	0
A-C					309	464

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	227	57	57	3.993	55	0.0	42.8	1573.455	F
B-A	1587	397	397	3.993	396	0.0	297.7	1497.634	F
C-AB	131	33	853	0.154	130	0.0	0.3	4.977	A
C-A	325	81			325				
A-B	0	0			0				
A-C	254	63			254				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	271	68	53	5.124	53	42.8	97.2	4847.610	F
B-A	1895	474	369	5.137	369	297.7	679.3	4777.994	F
C-AB	178	45	893	0.200	178	0.3	0.4	5.034	A
C-A	367	92			367				
A-B	0	0			0				
A-C	303	76			303				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	331	83	47	7.032	47	97.2	168.3	8862.995	F
B-A	2321	580	330	7.042	330	679.3	1177.1	8796.664	F
C-AB	260	65	950	0.274	259	0.4	0.7	5.220	A
C-A	407	102			407				
A-B	0	0			0				
A-C	371	93			371				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	331	83	47	7.040	47	168.3	239.4	13220.716	F
B-A	2321	580	329	7.046	329	1177.1	1675.0	13158.256	F
C-AB	261	65	950	0.274	261	0.7	0.7	5.242	A
C-A	407	102			407				
A-B	0	0			0				
A-C	371	93			371				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	271	68	53	5.138	53	239.4	293.9	17051.782	F
B-A	1895	474	369	5.142	369	1675.0	2056.6	16992.536	F
C-AB	179	45	894	0.200	180	0.7	0.5	5.069	A
C-A	366	92			366				
A-B	0	0			0				
A-C	303	76			303				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	227	57	57	3.995	57	293.9	336.3	20063.827	F
B-A	1587	397	397	3.997	397	2056.6	2354.1	20007.120	F
C-AB	132	33	854	0.155	133	0.5	0.3	5.010	A
C-A	324	81			324				
A-B	0	0			0				
A-C	254	63			254				

2022 + Dev (WCC), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Hockley Road - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		2519.85	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2519.85	F

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
D8	2022 + Dev (WCC)	PM	ONE HOUR	16:30	18:00	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 - Birmingham Road (S)		ONE HOUR	✓	596	100.000
B - Hockley Road		ONE HOUR	✓	778	100.000
C - Birmingham Road (N)		ONE HOUR	✓	736	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	0	596
	B - Hockley Road	698	0	80
	C - Birmingham Road (N)	418	318	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Birmingham Road (S)	B - Hockley Road	C - Birmingham Road (N)
From	A - Birmingham Road (S)	0	0	3
	B - Hockley Road	1	0	0
	C - Birmingham Road (N)	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	4.22	6914.58	68.6	F	73	110
B-A	4.27	6811.45	594.8	F	640	961
C-AB	0.96	69.85	17.1	F	591	887
C-A					84	126
A-B					0	0
A-C					547	820

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	60	15	35	1.730	31	0.0	7.4	553.167	F
B-A	525	131	304	1.730	298	0.0	56.8	383.406	F
C-AB	405	101	768	0.528	399	0.0	1.5	9.691	A
C-A	149	37			149				
A-B	0	0			0				
A-C	449	112			449				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	72	18	30	2.372	30	7.4	17.9	1559.269	F
B-A	627	157	255	2.458	255	56.8	149.8	1809.634	F

C-AB	547	137	795	0.688	541	1.5	3.0	14.221	B
C-A	115	29			115				
A-B	0	0			0				
A-C	536	134			536				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	88	22	22	3.991	22	17.9	34.4	3692.845	F
B-A	769	192	189	4.062	189	149.8	294.6	4249.233	F
C-AB	796	199	833	0.956	757	3.0	12.8	42.522	E
C-A	14	3			14				
A-B	0	0			0				
A-C	656	164			656				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	88	22	21	4.222	21	34.4	51.2	5096.614	F
B-A	769	192	180	4.268	180	294.6	441.8	4968.349	F
C-AB	810	203	842	0.963	793	12.8	17.1	69.855	F
C-A	0	0			0				
A-B	0	0			0				
A-C	656	164			656				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	72	18	28	2.583	28	51.2	62.2	6184.919	F
B-A	627	157	241	2.604	241	441.8	538.4	6070.726	F
C-AB	578	145	820	0.705	632	17.1	3.7	25.278	D
C-A	83	21			83				
A-B	0	0			0				
A-C	536	134			536				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	60	15	35	1.740	35	62.2	68.6	6914.580	F
B-A	525	131	300	1.752	300	538.4	594.8	6811.453	F
C-AB	411	103	774	0.532	420	3.7	1.6	10.540	B
C-A	143	36			143				
A-B	0	0			0				
A-C	449	112			449				

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: 215933 - Hockley Road_Dark Lane - V2.j10
Path: H:\Projects\W210000\215933 - Hatton, Warwick\Technical\C - Vision Document January 2023\Modelling\Picady
Report generation date: 22/02/2023 10:16:58

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2022 Observed					
Stream B-ACD	0.2	10.26	0.17	0.5	12.33	0.33
Stream A-BCD	0.3	5.21	0.13	0.0	4.71	0.04
Stream D-ABC	0.1	9.62	0.11	0.1	8.55	0.10
Stream C-ABD	0.1	5.43	0.04	0.0	5.44	0.02
	2022 + Dev					
Stream B-ACD	0.0	0.00	0.00	0.0	0.00	0.00
Stream A-BCD	3.7	5.63	0.52	0.5	3.47	0.16
Stream D-ABC	0.9	78.07	0.49	1.8	147.69	0.69
Stream C-ABD	0.0	0.00	0.00	0.0	0.00	0.00
	2022 + Dev (WCC)					
Stream B-ACD	0.0	0.00	0.00	0.0	0.00	0.00
Stream A-BCD	531.8	1829.51	9999999999.00	853.5	1703.06	1.58
Stream D-ABC	56.3	59999940.00	9999999999.00	52.6	59999940.00	9999999999.00
Stream C-ABD	0.0	0.00	0.00	0.0	0.00	0.00

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	
Location	
Site number	
Date	13/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\ellen.hill
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	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

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
D3	2022 Observed	AM	ONE HOUR	07:30	09:00	15	✓
D4	2022 Observed	PM	ONE HOUR	16:30	18:00	15	✓
D5	2022 + Dev	AM	ONE HOUR	07:30	09:00	15	✓
D6	2022 + Dev	PM	ONE HOUR	16:30	18:00	15	✓
D7	2022 + Dev (WCC)	AM	ONE HOUR	07:30	09:00	15	✓
D8	2022 + Dev (WCC)	PM	ONE HOUR	16:30	18:00	15	✓

Analysis Set Details

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

2022 Observed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	A - Hockley Road (E) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Major arm width	C - Hockley Road (W) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		2.31	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.31	A

Arms

Arms

Arm	Name	Description	Arm type
A	Hockley Road (E)		Major
B	Dark Lane		Minor
C	Hockley Road (W)		Major
D	The Green		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - Hockley Road (E)	5.87			121.0	✓	0.00
C - Hockley Road (W)	5.87			131.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Dark Lane	One lane	4.08	21	19
D - The Green	One lane	4.35	31	22

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	644	-	-	-	-	-	-	0.251	0.358	0.251	-	-	-
B-A	547	0.100	0.253	0.253	-	-	-	0.159	0.362	-	0.253	0.253	0.127
B-C	705	0.109	0.275	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	547	0.100	0.253	0.253	-	-	-	0.159	0.362	0.159	-	-	-
B-D, offside lane	547	0.100	0.253	0.253	-	-	-	0.159	0.362	0.159	-	-	-
C-B	650	0.253	0.253	0.362	-	-	-	-	-	-	-	-	-
D-A	724	-	-	-	-	-	-	0.282	-	0.112	-	-	-
D-B, nearside lane	566	0.165	0.165	0.374	-	-	-	0.262	0.262	0.104	-	-	-
D-B, offside lane	566	0.165	0.165	0.374	-	-	-	0.262	0.262	0.104	-	-	-
D-C	566	-	0.165	0.374	0.131	0.262	0.262	0.262	0.262	0.104	-	-	-

The slopes and intercepts shown above include custom intercept adjustments only.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

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	2022 Observed	AM	ONE HOUR	07:30	09:00	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 - Hockley Road (E)		ONE HOUR	✓	381	100.000
B - Dark Lane		ONE HOUR	✓	65	100.000
C - Hockley Road (W)		ONE HOUR	✓	232	100.000
D - The Green		ONE HOUR	✓	40	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A - Hockley Road (E)	B - Dark Lane	C - Hockley Road (W)	D - The Green
From	A - Hockley Road (E)	0	70	258	53
	B - Dark Lane	33	0	10	22
	C - Hockley Road (W)	201	17	0	14
	D - The Green	11	23	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Hockley Road (E)	B - Dark Lane	C - Hockley Road (W)	D - The Green
From	A - Hockley Road (E)	0	0	2	2
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	3	0	0	0
	D - The Green	27	0	33	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-ACD	0.17	10.26	0.2	B	60	89
A-BCD	0.13	5.21	0.3	A	81	121
A-B					57	86
A-C					211	317
D-ABC	0.11	9.62	0.1	A	37	55
C-ABD	0.04	5.43	0.1	A	22	33
C-D					12	19
C-A					178	267

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	49	12	469	0.104	48	0.0	0.1	8.558	A
A-BCD	59	15	751	0.079	59	0.0	0.1	5.199	A
A-B	49	12			49				
A-C	179	45			179				
D-ABC	30	8	458	0.066	30	0.0	0.1	8.408	A
C-ABD	17	4	681	0.025	17	0.0	0.0	5.422	A
C-D	10	3			10				
C-A	148	37			148				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	58	15	449	0.130	58	0.1	0.1	9.205	A
A-BCD	77	19	776	0.099	77	0.1	0.2	5.153	A
A-B	57	14			57				
A-C	209	52			209				
D-ABC	36	9	441	0.082	36	0.1	0.1	8.883	A
C-ABD	21	5	688	0.031	21	0.0	0.0	5.395	A
C-D	12	3			12				
C-A	175	44			175				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	72	18	423	0.169	71	0.1	0.2	10.244	B
A-BCD	106	26	811	0.130	105	0.2	0.3	5.106	A
A-B	67	17			67				
A-C	247	62			247				
D-ABC	44	11	418	0.105	44	0.1	0.1	9.616	A
C-ABD	28	7	700	0.041	28	0.0	0.1	5.359	A
C-D	15	4			15				
C-A	212	53			212				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	72	18	422	0.169	72	0.2	0.2	10.259	B
A-BCD	106	26	811	0.130	106	0.3	0.3	5.108	A
A-B	67	17			67				
A-C	247	62			247				
D-ABC	44	11	418	0.105	44	0.1	0.1	9.624	A
C-ABD	28	7	699	0.041	28	0.1	0.1	5.366	A
C-D	15	4			15				
C-A	212	53			212				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	58	15	449	0.130	59	0.2	0.2	9.224	A
A-BCD	77	19	776	0.099	78	0.3	0.2	5.157	A
A-B	57	14			57				
A-C	209	52			209				
D-ABC	36	9	441	0.082	36	0.1	0.1	8.893	A
C-ABD	21	5	688	0.031	21	0.1	0.0	5.406	A
C-D	12	3			12				
C-A	175	44			175				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	49	12	468	0.104	49	0.2	0.1	8.589	A
A-BCD	60	15	751	0.079	60	0.2	0.1	5.208	A
A-B	48	12			48				
A-C	179	45			179				
D-ABC	30	8	458	0.066	30	0.1	0.1	8.425	A
C-ABD	17	4	680	0.025	17	0.0	0.0	5.429	A
C-D	10	3			10				
C-A	148	37			148				

2022 Observed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	A - Hockley Road (E) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Major arm width	C - Hockley Road (W) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		2.90	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.90	A

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	2022 Observed	PM	ONE HOUR	16:30	18:00	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 - Hockley Road (E)		ONE HOUR	✓	370	100.000
B - Dark Lane		ONE HOUR	✓	129	100.000
C - Hockley Road (W)		ONE HOUR	✓	194	100.000
D - The Green		ONE HOUR	✓	44	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A - Hockley Road (E)	B - Dark Lane	C - Hockley Road (W)	D - The Green
From	A - Hockley Road (E)	0	40	315	15
	B - Dark Lane	55	0	25	49
	C - Hockley Road (W)	176	9	0	9
	D - The Green	13	26	5	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Hockley Road (E)	B - Dark Lane	C - Hockley Road (W)	D - The Green
From	A - Hockley Road (E)	0	0	2	0
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	2	0	0	0
	D - The Green	15	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-ACD	0.33	12.33	0.5	B	118	178
A-BCD	0.04	4.71	0.0	A	23	35
A-B					36	53
A-C					281	421
D-ABC	0.10	8.55	0.1	A	40	61
C-ABD	0.02	5.44	0.0	A	11	17
C-D					8	12
C-A					159	238

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	97	24	478	0.203	96	0.0	0.3	9.405	A
A-BCD	17	4	782	0.022	17	0.0	0.0	4.708	A
A-B	29	7			29				
A-C	232	58			232				
D-ABC	33	8	506	0.065	33	0.0	0.1	7.600	A
C-ABD	9	2	671	0.013	8	0.0	0.0	5.436	A
C-D	7	2			7				
C-A	131	33			131				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	116	29	459	0.252	116	0.3	0.3	10.462	B
A-BCD	22	6	810	0.028	22	0.0	0.0	4.569	A
A-B	35	9			35				
A-C	275	69			275				
D-ABC	40	10	491	0.081	39	0.1	0.1	7.972	A
C-ABD	11	3	676	0.016	11	0.0	0.0	5.409	A
C-D	8	2			8				
C-A	156	39			156				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	142	36	434	0.327	141	0.3	0.5	12.285	B
A-BCD	31	8	849	0.036	31	0.0	0.0	4.395	A
A-B	42	11			42				
A-C	334	84			334				
D-ABC	48	12	470	0.103	48	0.1	0.1	8.544	A
C-ABD	14	4	684	0.021	14	0.0	0.0	5.370	A
C-D	10	2			10				
C-A	190	47			190				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	142	36	434	0.327	142	0.5	0.5	12.332	B
A-BCD	31	8	849	0.036	31	0.0	0.0	4.399	A
A-B	42	11			42				
A-C	334	84			334				
D-ABC	48	12	470	0.103	48	0.1	0.1	8.548	A
C-ABD	14	4	684	0.021	14	0.0	0.0	5.372	A
C-D	10	2			10				
C-A	190	47			190				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	116	29	459	0.252	117	0.5	0.3	10.518	B

A-BCD	22	6	810	0.028	22	0.0	0.0	4.577	A
A-B	35	9			35				
A-C	275	69			275				
D-ABC	40	10	491	0.081	40	0.1	0.1	7.980	A
C-ABD	11	3	676	0.016	11	0.0	0.0	5.416	A
C-D	8	2			8				
C-A	156	39			156				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	97	24	478	0.203	97	0.3	0.3	9.475	A
A-BCD	17	4	782	0.022	17	0.0	0.0	4.711	A
A-B	29	7			29				
A-C	232	58			232				
D-ABC	33	8	506	0.065	33	0.1	0.1	7.609	A
C-ABD	9	2	671	0.013	9	0.0	0.0	5.441	A
C-D	7	2			7				
C-A	131	33			131				

2022 + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	A - Hockley Road (E) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Major arm width	C - Hockley Road (W) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		2.78	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.78	A

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	2022 + Dev	AM	ONE HOUR	07:30	09:00	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 - Hockley Road (E)		ONE HOUR	✓	1195	100.000
B - Dark Lane		ONE HOUR	✓	0	100.000
C - Hockley Road (W)		ONE HOUR	✓	914	100.000
D - The Green		ONE HOUR	✓	40	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A - Hockley Road (E)	B - Dark Lane	C - Hockley Road (W)	D - The Green
From	A - Hockley Road (E)	0	0	1142	53
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	878	0	0	36
	D - The Green	11	0	29	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Hockley Road (E)	B - Dark Lane	C - Hockley Road (W)	D - The Green
From	A - Hockley Road (E)	0	0	0	2
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	1	0	0	0
	D - The Green	27	0	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	0.52	5.63	3.7	A	407	611
A-B					0	0
A-C					690	1034
D-ABC	0.49	78.07	0.9	F	37	55
C-ABD	0.00	0.00	0.0	A	0	0
C-D					33	50
C-A					806	1209

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	242	0.000	0	0.0	0.0	0.000	A
A-BCD	182	46	1100	0.166	180	0.0	0.5	3.914	A
A-B	0	0			0				
A-C	717	179			717				
D-ABC	30	8	250	0.121	30	0.0	0.1	16.320	C
C-ABD	0	0	417	0.000	0	0.0	0.0	0.000	A
C-D	27	7			27				
C-A	661	165			661				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	170	0.000	0	0.0	0.0	0.000	A
A-BCD	317	79	1212	0.261	314	0.5	1.1	4.030	A
A-B	0	0			0				
A-C	758	189			758				
D-ABC	36	9	186	0.193	36	0.1	0.2	23.833	C
C-ABD	0	0	371	0.000	0	0.0	0.0	0.000	A
C-D	32	8			32				
C-A	789	197			789				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	64	0.000	0	0.0	0.0	0.000	A
A-BCD	708	177	1376	0.515	698	1.1	3.5	5.402	A
A-B	0	0			0				
A-C	608	152			608				
D-ABC	44	11	91	0.484	42	0.2	0.8	70.129	F
C-ABD	0	0	308	0.000	0	0.0	0.0	0.000	A
C-D	40	10			40				
C-A	967	242			967				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	61	0.000	0	0.0	0.0	0.000	A
A-BCD	724	181	1383	0.524	723	3.5	3.7	5.626	A
A-B	0	0			0				
A-C	592	148			592				
D-ABC	44	11	89	0.494	44	0.8	0.9	78.070	F
C-ABD	0	0	306	0.000	0	0.0	0.0	0.000	A
C-D	40	10			40				
C-A	967	242			967				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	166	0.000	0	0.0	0.0	0.000	A
A-BCD	325	81	1221	0.267	335	3.7	1.2	4.136	A
A-B	0	0			0				
A-C	749	187			749				

D-ABC	36	9	184	0.195	39	0.9	0.3	25.145	D
C-ABD	0	0	368	0.000	0	0.0	0.0	0.000	A
C-D	32	8			32				
C-A	789	197			789				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	240	0.000	0	0.0	0.0	0.000	A
A-BCD	186	46	1104	0.168	189	1.2	0.5	3.953	A
A-B	0	0			0				
A-C	714	179			714				
D-ABC	30	8	249	0.121	31	0.3	0.1	16.530	C
C-ABD	0	0	415	0.000	0	0.0	0.0	0.000	A
C-D	27	7			27				
C-A	661	165			661				

2022 + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	A - Hockley Road (E) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Major arm width	C - Hockley Road (W) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		3.18	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.18	A

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	2022 + Dev	PM	ONE HOUR	16:30	18:00	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 - Hockley Road (E)		ONE HOUR	✓	1160	100.000
B - Dark Lane		ONE HOUR	✓	0	100.000
C - Hockley Road (W)		ONE HOUR	✓	1063	100.000
D - The Green		ONE HOUR	✓	44	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A - Hockley Road (E)	**B - Dark Lane**	**C - Hockley Road (W)**	**D - The Green**
From	**A - Hockley Road (E)**	0	0	1145	15
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	1005	0	0	58
	D - The Green	13	0	31	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Hockley Road (E)	**B - Dark Lane**	**C - Hockley Road (W)**	**D - The Green**
From	**A - Hockley Road (E)**	0	0	1	0
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	0	0	0	0
	D - The Green	15	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	0.16	3.47	0.5	A	123	185
A-B					0	0
A-C					941	1412
D-ABC	0.69	147.69	1.8	F	40	61
C-ABD	0.00	0.00	0.0	A	0	0
C-D					53	80
C-A					922	1383

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	230	0.000	0	0.0	0.0	0.000	A

A-BCD	54	13	1091	0.049	53	0.0	0.1	3.469	A
A-B	0	0			0				
A-C	820	205			820				
D-ABC	33	8	253	0.131	33	0.0	0.1	16.274	C
C-ABD	0	0	426	0.000	0	0.0	0.0	0.000	A
C-D	44	11			44				
C-A	757	189			757				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	156	0.000	0	0.0	0.0	0.000	A
A-BCD	95	24	1201	0.079	95	0.1	0.1	3.254	A
A-B	0	0			0				
A-C	948	237			948				
D-ABC	40	10	181	0.219	39	0.1	0.3	25.317	D
C-ABD	0	0	382	0.000	0	0.0	0.0	0.000	A
C-D	52	13			52				
C-A	903	226			903				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	45	0.000	0	0.0	0.0	0.000	A
A-BCD	220	55	1364	0.161	218	0.1	0.5	3.144	A
A-B	0	0			0				
A-C	1057	264			1057				
D-ABC	48	12	70	0.689	43	0.3	1.5	118.815	F
C-ABD	0	0	322	0.000	0	0.0	0.0	0.000	A
C-D	64	16			64				
C-A	1107	277			1107				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	44	0.000	0	0.0	0.0	0.000	A
A-BCD	221	55	1365	0.162	221	0.5	0.5	3.151	A
A-B	0	0			0				
A-C	1056	264			1056				
D-ABC	48	12	70	0.692	47	1.5	1.8	147.685	F
C-ABD	0	0	322	0.000	0	0.0	0.0	0.000	A
C-D	64	16			64				
C-A	1107	277			1107				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	155	0.000	0	0.0	0.0	0.000	A
A-BCD	96	24	1202	0.080	97	0.5	0.1	3.266	A
A-B	0	0			0				
A-C	947	237			947				
D-ABC	40	10	180	0.219	46	1.8	0.3	27.743	D
C-ABD	0	0	382	0.000	0	0.0	0.0	0.000	A
C-D	52	13			52				

C-A	903	226			903				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	230	0.000	0	0.0	0.0	0.000	A
A-BCD	54	14	1092	0.050	54	0.1	0.1	3.475	A
A-B	0	0			0				
A-C	819	205			819				
D-ABC	33	8	253	0.131	34	0.3	0.2	16.448	C
C-ABD	0	0	425	0.000	0	0.0	0.0	0.000	A
C-D	44	11			44				
C-A	757	189			757				

2022 + Dev (WCC), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	A - Hockley Road (E) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Major arm width	C - Hockley Road (W) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		795253.08	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	795253.08	F

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
D7	2022 + Dev (WCC)	AM	ONE HOUR	07:30	09:00	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 - Hockley Road (E)		ONE HOUR	✓	921	100.000
B - Dark Lane		ONE HOUR	✓	0	100.000
C - Hockley Road (W)		ONE HOUR	✓	2430	100.000

D - The Green		ONE HOUR	✓	40	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A - Hockley Road (E)	**B - Dark Lane**	**C - Hockley Road (W)**	**D - The Green**
From	**A - Hockley Road (E)**	0	0	868	53
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	2394	0	0	36
	D - The Green	11	0	29	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Hockley Road (E)	**B - Dark Lane**	**C - Hockley Road (W)**	**D - The Green**
From	**A - Hockley Road (E)**	0	0	0	2
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	0	0	0	0
	D - The Green	27	0	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	9999999999.00	1829.51	531.8	F	764	1146
A-B					0	0
A-C					81	122
D-ABC	9999999999.00	59999940.00	56.3	F	38	56
C-ABD	0.00	0.00	0.0	A	0	0
C-D					33	50
C-A					2197	3295

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	101	0.000	0	0.0	0.0	0.000	A
A-BCD	266	66	769	0.345	258	0.0	2.0	7.095	A
A-B	0	0			0				
A-C	428	107			428				

D-ABC	30	8	0	9999999999.000	0	0.0	7.5	59999940.000	F
C-ABD	0	0	470	0.000	0	0.0	0.0	0.000	A
C-D	27	7			27				
C-A	1802	451			1802				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	769	192	840	0.915	677	2.0	24.9	33.149	D
A-B	0	0			0				
A-C	59	15			59				
D-ABC	36	9	0	9999999999.000	0	7.5	16.5	59999940.000	F
C-ABD	0	0	432	0.000	0	0.0	0.0	0.000	A
C-D	32	8			32				
C-A	2152	538			2152				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	1014	254	0	9999999999.000	0	24.9	278.4	176.239	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	44	11	0	9999999999.000	0	16.5	27.5	59999940.000	F
C-ABD	0	0	360	0.000	0	0.0	0.0	0.000	A
C-D	40	10			40				
C-A	2636	659			2636				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	1014	254	0	9999999999.000	0	278.4	531.9	158.601	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	44	11	0	9999999999.000	0	27.5	38.5	59999940.000	F
C-ABD	0	0	97	0.000	0	0.0	0.0	0.000	A
C-D	40	10			40				
C-A	2636	659			2636				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	828	207	879	0.942	871	531.9	521.2	1829.506	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	36	9	0	9999999999.000	0	38.5	47.5	59999940.000	F
C-ABD	0	0	0	0.000	0	0.0	0.0	0.000	A
C-D	32	8			32				
C-A	2152	538			2152				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	693	173	1189	0.583	1180	521.2	399.5	1394.365	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	30	8	0	9999999999.000	0	47.5	55.1	59999940.000	F
C-ABD	0	0	0	0.000	0	0.0	0.0	0.000	A
C-D	27	7			27				
C-A	1802	451			1802				

2022 + Dev (WCC), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	A - Hockley Road (E) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Major arm width	C - Hockley Road (W) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		810149.73	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	810149.73	F

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
D8	2022 + Dev (WCC)	PM	ONE HOUR	16:30	18:00	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 - Hockley Road (E)		ONE HOUR	✓	2530	100.000
B - Dark Lane		ONE HOUR	✓	0	100.000
C - Hockley Road (W)		ONE HOUR	✓	829	100.000
D - The Green		ONE HOUR	✓	44	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A - Hockley Road (E)	B - Dark Lane	C - Hockley Road (W)	D - The Green
From	A - Hockley Road (E)	0	0	2515	15
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	771	0	0	58
	D - The Green	13	0	31	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Hockley Road (E)	B - Dark Lane	C - Hockley Road (W)	D - The Green
From	A - Hockley Road (E)	0	0	0	0
	B - Dark Lane	0	0	0	0
	C - Hockley Road (W)	0	0	0	0
	D - The Green	15	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	1.58	1703.06	853.5	F	2322	3482
A-B					0	0
A-C					0	0
D-ABC	9999999999.00	59999940.00	52.6	F	40	61
C-ABD	0.00	0.00	0.0	A	0	0
C-D					53	80
C-A					707	1061

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	1905	476	1772	1.075	1682	0.0	55.6	53.067	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	33	8	121	0.273	32	0.0	0.4	59999940.000	F
C-ABD	0	0	166	0.000	0	0.0	0.0	0.000	A
C-D	44	11			44				

C-A	580	145			580				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	2274	569	1769	1.286	1763	55.6	183.4	247.513	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	40	10	0	9999999999.000	0	0.4	10.2	59999940.000	F
C-ABD	0	0	16	0.000	0	0.0	0.0	0.000	A
C-D	52	13			52				
C-A	693	173			693				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	2786	696	1765	1.578	1764	183.4	438.7	637.726	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	48	12	0	9999999999.000	0	10.2	22.4	59999940.000	F
C-ABD	0	0	0	0.000	0	0.0	0.0	0.000	A
C-D	64	16			64				
C-A	849	212			849				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	2786	696	1765	1.578	1765	438.7	693.9	1156.037	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	48	12	0	9999999999.000	0	22.4	34.5	59999940.000	F
C-ABD	0	0	0	0.000	0	0.0	0.0	0.000	A
C-D	64	16			64				
C-A	849	212			849				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A
A-BCD	2274	569	1769	1.286	1769	693.9	820.2	1542.213	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	40	10	0	9999999999.000	0	34.5	44.4	59999940.000	F
C-ABD	0	0	0	0.000	0	0.0	0.0	0.000	A
C-D	52	13			52				
C-A	693	173			693				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	0	0	0	0.000	0	0.0	0.0	0.000	A

A-BCD	1905	476	1772	1.075	1771	820.2	853.5	1703.056	F
A-B	0	0			0				
A-C	0	0			0				
D-ABC	33	8	0	9999999999.000	0	44.4	52.6	59999940.000	F
C-ABD	0	0	0	0.000	0	0.0	0.0	0.000	A
C-D	44	11			44				
C-A	580	145			580				

Appendix E

Paramics Modelling Outputs

Legend

Network Extent

Queues

- Greater than 10 vehicles reduction
- Between +10 and +25 vehicles
- Between +25 and +50 vehicles
- Greater than 50 vehicles increase

CLIENT:

PROJECT:

VM210437
Hatton Strategic Site

TITLE:

Queue Difference
2037 Local Plan Reference vs
2037 Local Plan Development
AM Peak Hour (0800-0900)

SCALE: NTS

DRAWN:	CHECKED:	DATE:	REVISION:
JL	BN	20/02/2023	1

vectos microsim.

7th Floor, 36 Great Charles Street, Birmingham, B3 3JY
Tel: 0121 289 5610 Email: microsim@vectos.co.uk www.vectos.co.uk

DRAWING REFERENCE:

Legend

- Network Extent

Queues

- Greater than 10 vehicles reduction
- Between +10 and +25 vehicles
- Between +25 and +50 vehicles
- Greater than 50 vehicles increase

CLIENT:

PROJECT:

VM210437
Hatton Strategic Site

TITLE:

Queue Difference
2037 Local Plan Reference vs
2037 Local Plan Development
PM Peak Hour (1700-1800)

SCALE: NTS

DRAWN:	CHECKED:	DATE:	REVISION:
JL	BN	20/02/2023	1

vectos microsim.

7th Floor, 36 Great Charles Street, Birmingham, B3 3JY
Tel: 0121 289 5610 Email: microsim@vectos.co.uk www.vectos.co.uk

DRAWING REFERENCE:

Legend

Development Trip Flow (Veh)

- 10 - 20
- 20 - 40
- 40 - 80
- 80 - 160
- 160 - 320
- > 320

CLIENT:

PROJECT:

VM210437
Hatton Strategic Site

TITLE:

Development Trip Routing
AM Peak Hour (0800-0900)
Demand Flows

SCALE: NTS

DRAWN:	CHECKED:	DATE:	REVISION:
JL	BN	21/02/2023	1

vectos microsim.

7th Floor, 36 Great Charles Street, Birmingham, B3 3JY
Tel: 0121 289 5610 Email: microsim@vectos.co.uk www.vectos.co.uk

DRAWING REFERENCE:

Legend

Development Trip Flow (Veh)

- 10 - 20
- 20 - 40
- 40 - 80
- 80 - 160
- 160 - 320
- > 320

CLIENT:

PROJECT:

VM210437
Hatton Strategic Site

TITLE:

Development Trip Routing
PM Peak Hour (1700-1800)
Demand Flows

SCALE: NTS

DRAWN:	CHECKED:	DATE:	REVISION:
JL	BN	21/02/2023	1

vectos microsim.

7th Floor, 36 Great Charles Street, Birmingham, B3 3JY
Tel: 0121 289 5610 Email: microsim@vectos.co.uk www.vectos.co.uk

DRAWING REFERENCE:

vectos microsim.

Job Title:	VM210437
Job Number:	Hatton Strategic Site
Model Name:	Warwick and Leamington Wide Area Paramics Model
Model Year:	2037
Model Location:	Warwick and Leamington
Date:	Feb-23

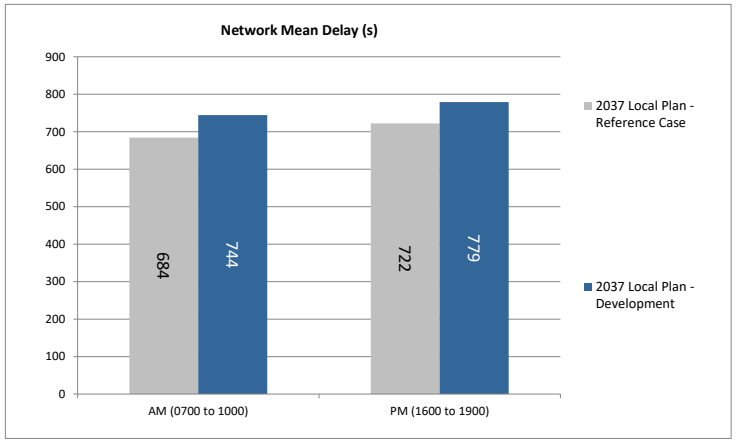
Scenarios:

Scenario 1	2037 Local Plan - Reference Case
Scenario 2	2037 Local Plan - Development

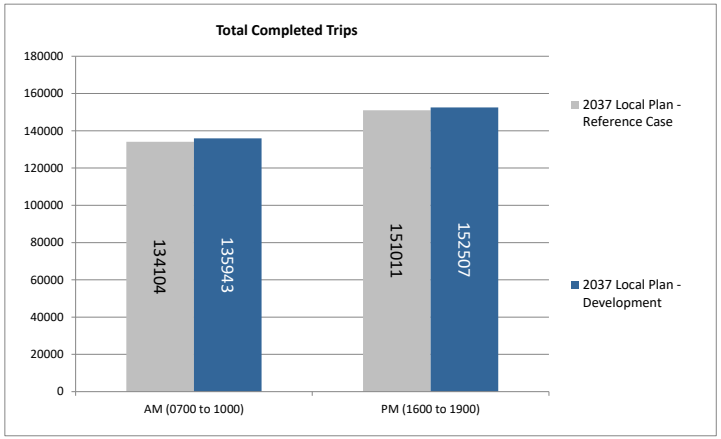
Description:

As per Scenario 1 + Hatton Garden Village Development - based upon Vectos MAP Trip Rates

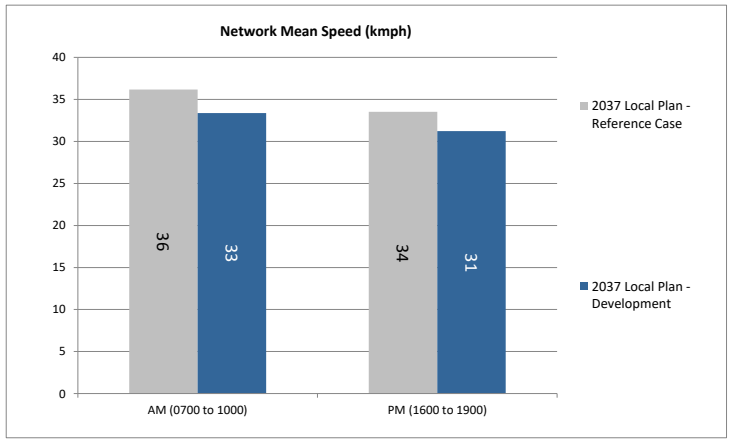
	Scenario 1	Scenario 2
Network Mean Delay (s)	**2037 Local Plan - Reference Case**	**2037 Local Plan - Development**
AM (0700 to 1000)	684	744
PM (1600 to 1900)	722	779



	Scenario 1	Scenario 2
Total Completed Trips	**2037 Local Plan - Reference Case**	**2037 Local Plan - Development**
AM (0700 to 1000)	134104	135943
PM (1600 to 1900)	151011	152507



	Scenario 1	Scenario 2
Network Mean Speed (kmph)	**2037 Local Plan - Reference Case**	**2037 Local Plan - Development**
AM (0700 to 1000)	36	33
PM (1600 to 1900)	34	31



Scenario 01:	2037 Local Plan - Reference Case
Scenario 02:	2037 Local Plan - Development

Assessment Criteria Queue Lengths:

Criteria 01:	Less than	-10	greater than	-999999
Criteria 02:	Less than	25	greater than	10
Criteria 03:	Less than	50	greater than	25
Criteria 04:	Less than	9999999	greater than	50

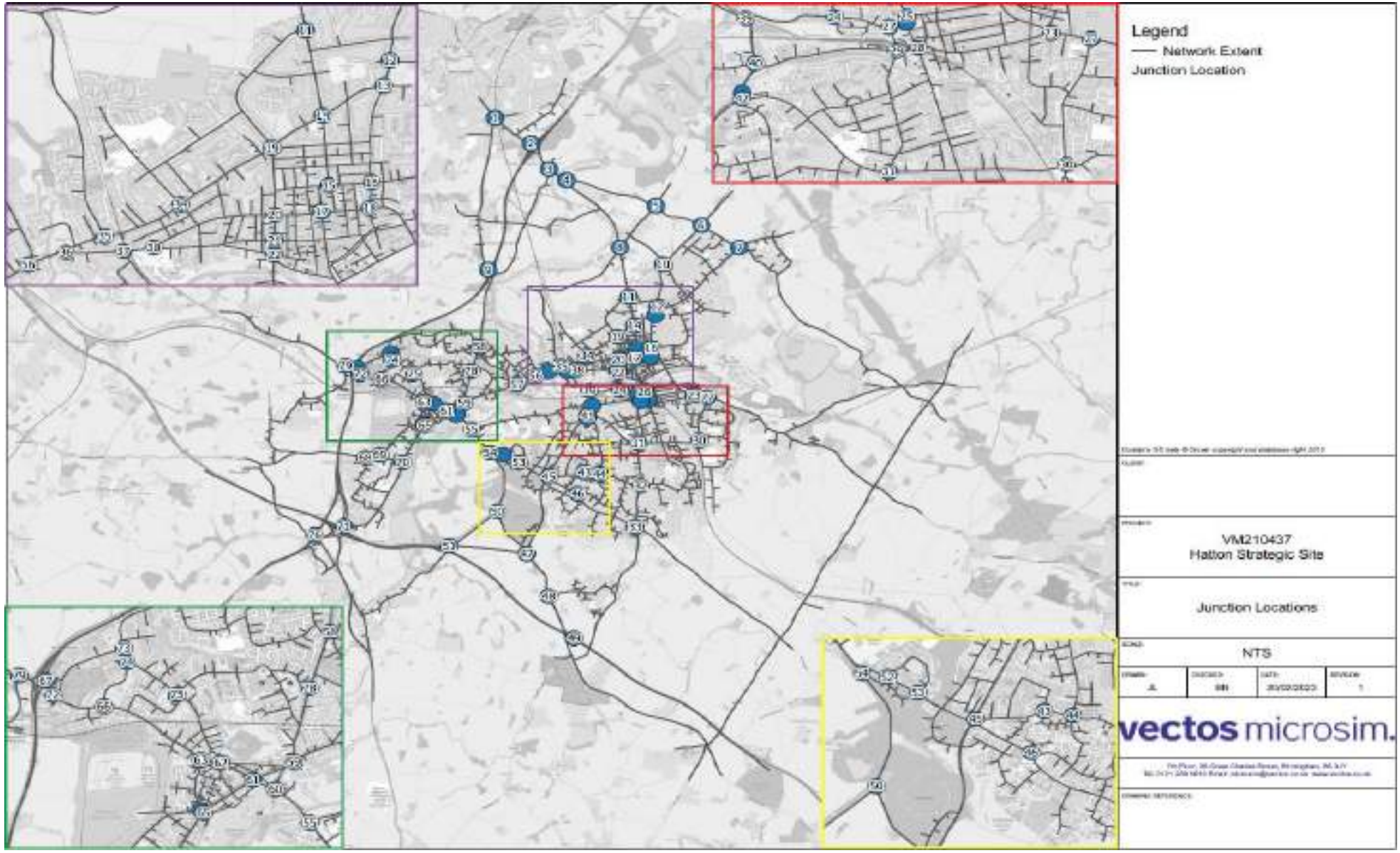
Maximum Queue Length (vehs)

			07:00 - 08:00				08:00 - 09:00				09:00 - 10:00				16:00 - 17:00				17:00 - 18:00				18:00 - 19:00			
Junction	Junction Arm	Approach	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Developmen t	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria
J1	J1 A	A452 Warwick Rd SB	15	16	1		11	11	0		11	12	1		30	35	4		40	42	1		45	47	2	
J1	J1 B	Birches Ln SB	55	55	0		53	53	0		5	5	0		12	16	4		10	13	3		8	9	1	
J1	J1 C	A542 Leamington Rd WB	9	9	0		11	11	0		10	9	-1		9	9	0		10	10	0		11	11	0	
J1	J1 D	Warwick Rd NB	22	33	10	2	34	37	3		15	18	3		54	56	2		54	56	3		56	59	2	
J2	J2 A	A452 Leamington Rd SB	14	13	-1		20	27	7		12	13	1		18	17	-1		17	17	0		17	17	0	
J2	J2 B	A46 SB Off-Slip	14	15	0		18	19	1		10	12	2		46	46	0		47	47	0		47	46	0	
J2	J2 C	A452 Leamington Rd NB	14	13	0		13	13	0		11	12	0		13	14	0		25	24	-1		17	29	12	2
J2	J2 D	A46 NB Off-Slip	9	10	1		12	15	3		8	10	2		10	11	1		17	16	-1		14	17	3	
J3	J3 A	B4115 SB	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
J3	J3 B	Kenilworth Rd NB	0	1	0		1	1	0		1	2	0		2	2	0		3	3	0		2	2	0	
J3	J3 C	B4115 NB	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
J3	J3 D	Kenilworth Rd SB	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
J4	J4 A	A452 EB	31	27	-3		37	39	2		17	25	8		15	14	-1		19	19	0		16	17	1	
J4	J4 B	Bericote Rd SB	57	59	2		65	65	0		39	46	6		14	12	-2		44	46	2		26	30	4	
J4	J4 C	A452 NB	17	16	-1		22	23	2		16	17	0		18	19	2		27	28	1		20	23	3	
J4	J4 D	Ramada Access	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
J5	J5 A	Stoneleigh Rd SB	4	4	0		5	5	0		2	3	1		6	5	0		9	9	-1		6	7	1	
J5	J5 B	Westhill Rd WB	7	7	0		7	8	1		4	5	1		5	5	0		7	7	-1		5	6	1	
J5	J5 C	Stoneleigh Rd NB	8	8	0		8	8	0		6	6	0		7	7	0		8	10	2		7	7	0	
J5	J5 D	Bericote Rd EB	8	8	0		20	32	13	2	7	8	1		9	9	0		49	46	-3		21	27	6	
J6	J6 A	Leicester Ln SB	4	3	-1		4	7	2		2	2	0		3	4	1		8	8	0		5	5	0	
J6	J6 B	Kenilworth Rd WB	4	4	0		5	5	0		3	3	0		2	2	0		3	3	0		4	4	0	
J6	J6 C	Leicester Ln NB	5	5	0		4	4	0		3	3	0		3	4	0		5	5	0		4	4	0	
J6	J6 D	Westhill Rd EB	3	3	0		4	5	1		3	3	1		4	5	1		6	6	0		5	6	1	
J7	J7 A	Rugby Rd SB	4	4	0		5	5	0		4	5	1		3	4	1		4	4	0		4	5	1	
J7	J7 B	Windmill Hill WB	5	5	0		6	7	1		5	4	0		4	3	-1		11	8	-2		10	12	2	
J7	J7 C	Rugby Rb NB	4	4	0		4	4	0		4	4	0		4	4	0		5	5	0		4	4	0	
J7	J7 D	Kenilworth Rd EB	3	3	0		4	5	0		4	4	0		6	7	1		10	11	1		10	10	0	
J8	J8 A	A452 SB	14	12	-1		19	25	6		12	16	4		11	11	0		15	16	1		13	15	2	
J8	J8 B	Stoneleigh Rd SB	14	16	2		18	26	8		7	18	12	2	6	6	0		14	15	1		10	14	5	
J8	J8 C	Kenilworth Rd NB	12	11	-1		14	15	1		12	12	0		12	11	0		34	30	-4		23	20	-3	
J8	J8 D	Old Milverton Ln NB	5	5	0		6	6	0		6	7	1		6	6	0		6	6	0		5	6	0	
J9	J9 A	Warwick Rd SB	40	39	-2		49	54	5		17	25	7		25	29	4		28	27	-1		23	28	5	
J9	J9 B	A46 SB Off-Slip	2	2	0		2	3	1		3	6	3		2	2	0		4	13	9		5	14	9	
J9	J9 C	B4115 Coventry Rd WB	3	3	0		11	27	16	2	8	27	19	2	3	3	1		9	16	7		5	20	16	2
J9	J9 D	Coventry Rd NB	4	5	1		7	7	1		5	5	0		21	20	0		22	22	0		18	19	1	
J9	J9 E	A46 NB Off-Slip	2	2	0		2	3	0		2	2	0		4	3	0		7	8	2		5	6	1	
J10	J10 A	Sandy Ln SB	5	7	1		18	17	-1		6	9	4		11	12	1		19	22	3		14	20	5	
J10	J10 B	Leicester Ln SB	5	6	1		18	14	-4		4	7	2		5	4	-1		7	7	0		5	5	0	
J10	J10 C	Lime Ave NB	11	12	0		10	12	2		4	5	1		3	3	0		3	4	1		4	4	0	
J10	J10 D	Lillington Rd NB	16	17	1		27	27	0		12	14	1		21	23	2		32	37	5		26	27	1	
J11	J11 A	Kenilworth Rd SB	18	21	3		46	39	-7		7	37	29	3	10	12	1		14	23	9		16	31	15	2
J11	J11 B	Kenilworth Rd NB	10	9	-1		13	12	-1		11	10	-1		8	8	0		10	10	0		6	7	0	
J11	J11 C	Northumberland Rd EB	15	17	2		27	29	2		15	22	7		22	22	-1		37	38	1		20	28	9	
J12	J12 A	Lillington Rd SB	13	10	-2		22	25	3		13	32	19	2	21	22	1		32	33	1		30	37	7	
J12	J12 B	B4453 WB	3	2	0		3	3	0		2	2	0		2	2	0		2	2	0		2	2	0	
J12	J12 C	Lillington Rd NB	4	4	1		4	4	-1		4	4	0		5	5	0		5	5	0		4	4	0	
J13	J13 A	Lillington Rd SB	0	0	0		6	1	-5		5	7	2		0	0	0		0	0	0		0	0	0	
J13	J13 B	Heemstede Ln WB	3	2	-1		2	2	-1		2	2	0		1	1	0		1	1	0		1	2	1	
J13	J13 C	Lillington Rd NB	17	16	-1		16	19	3		12	21	9		24	24	0		31	29	-2		22	22	-1	
J13	J13 D	Lillington Ave EB	0	0	0		0	0	0		0	2	2		0	0	0		0	1	0		0	0	0	
J14	J14 A	Kenilworth Rd SB	14	14	0		31	29	-2		31	50	19	2	26	25	-2		35	32	-3		41	45	5	
J14	J14 B	Lillington Ave WB	26	27	1		30	32	2		32	37	6		13	13	0		16	16	0		19	17	-2	
J14	J14 C	Kenilworth Rd NB	28	28	0		27	27	0		21	26	5		29	28	-1		30	30	0		25	26	1	
J14	J14 D	Lillington Ave EB	20	19	-1		27	29	2		31	38	6		23	26	3		31	33	2		23	27	4	
J15	J15 A	Kenilworth Rd SB	5	4	0		6	10	4		10	24	15	2	4	4	0		5	4	0		6	8	3	
J15	J15 B	Clarendon Ave WB	4	4	-1		3	4	1		5	9	4		3	3	0		4	3	0		4	7	3	
J15	J15 C	Clarendon Ave EB	4	4	0		4	7	3		6	10	4		4	4	1		5	4	0		5	5	1	
J16	J16 A	Clarendon St SB	30	29	-1		61	62	2		64	71	6		13	14	1		18	19	1		24	27	4	
J16	J16 B	Leicester St WB	4	4	0		10	8	-2		9	13	4		6	5	0		5	5	0		4	5	1	
J16	J16 C	Clarendon St NB	19	18	-1		19	17	-2		16	16	0		18	19	0		21	21	0		20	21	0	
J16	J16 D	Clarendon Ave EB	5	5	1		8	7	-1		12	12	0		8	8	0		8	8	0		8	7	-1	
J17	J17 A	Parade SB	5	6	1		7	7	0		9	10	1		5	5	0		6	5	0		6	9	3	
J17	J17 B	Warwick St WB	4	4	1		2	2	0		7	6	-1		3	3	0		3	5	2		4	6	2	
J17	J17 C	Parade NB	0	0	0		0	0	0		1	1	1		0	0	0		1	0	-1		0	0	0	
J17	J17 D	Warwick St EB	2	2	0		9	12	3		17	24	7		3	2	-1		4	4	0		5	5	0	
J18	J18 A	Clarendon St SB	26	25	-1		29	29	0		29	30	1		16	16	0		23	24	1		24	26	3	
J18	J18 B	Wiles Rd WB	14	14	0		18	14	-3		31	39	8		13	13	0		15	15	0		15	19	4	
J18	J18 C	Clarendon St NB	7	7	1		11	12	2		15	15	0		10	10	0		13	14	1		11	12	2	
J18	J18 D	Warwick St EB	12	14	2		38	42	4		44	44	0		16	14	-1		19	21	2		26	27	1	
J19	J19 A	Northumberland Rd SB	12	14	2		22	25	3		20	34	13	2	25	25	0		38	34	-4		38	42	4	
J19	J19 B	Lillington Ave SB	14	12	-2		21	28	7		30	41	11	2	5	5	0		8	7	-1		16	12	-4	
J19	J19 C	Binswood St NB	8	13	5		15	14	-1		18	28	10		10	8	-2		10	13	2		19	16	-3	
J19	J19 D	Rugby Rd EB	6	6	0		13	16	3		21	37	15	2	14	15	1		19	18	-1		14	14	-1	
J20	J20 A	Clarendon Pl SB	20	19	-1		47	60	14	2	61	65	4		13	14	1		40	36	-4		45	51	6	
J20	J20 B	Warwick St WB	9	8	-1		13	16	4		29	31	3		11	10	0		15	14	-1		17	22	5	
J20	J20 C	Dale St NB	8	8	0		9	9	-1		11	14	3		11	11	0		13	11	-1		12	12	1	
J20	J20 D	Warwick Pl	8	9	1		21	23	2		27	30	3		10	10	0		16	17	1		27	25	-2	
J21	J21 A	Dale St SB	19	18	-2		27	28	1		28	28	0		15	14	-1		26	26	0		27	27	1	
J21	J21 B	Regent St WB	2	2	0		3	5	2		5	5	-1		3	2	0		9	11	1		12	15	2	

J21	J21 C	Dale St NB	10	10	0	15	14	0		13	13	0		14	14	0	14	14	0		15	14	0	
J21	J21 D	Regent St EB	16	14	-3	27	28	1		23	27	4		7	7	0	26	27	0		27	30	3	
J22	J22 A	Dale St SB	8	9	1	16	16	0		16	16	0		7	6	-1	15	15	0		15	15	0	
J22	J22 B	Portland Pl E	2	2	0	6	8	2		9	8	0		4	3	-1	10	8	-1		13	13	0	
J22	J22 C	Adelaide Rd NB	1	1	0	13	15	2		12	11	-1		18	16	-2	30	29	-1		28	28	0	
J22	J22 D	Portland Pl W	0	0	0	6	10	3		10	8	-1		1	1	0	3	3	-1		7	7	0	
J23	J23 A	Willes Rd SB	12	13	1	44	44	0		40	44	4		34	35	1	103	88	-15	1	91	81	-11	1
J23	J23 B	Radford Rd WB	12	12	0	25	20	-4		17	25	8		41	42	1	96	84	-12	1	83	82	-1	
J23	J23 C	Radford Rd EB	1	0	-1	4	3	-1		3	4	1		11	9	-3	22	18	-4		18	18	0	
J24	J24 A	Adelaide Rd SB	7	9	1	40	42	3		44	45	1		9	9	0	19	22	3		24	27	4	
J24	J24 B	Avenue Rd WB	7	7	0	7	7	0		7	7	0		14	13	-1	23	28	5		26	34	8	
J24	J24 C	Avenue Rd EB	4	5	1	19	24	5		21	19	-2		5	7	2	36	53	17	2	49	53	4	
J25	J25 A	B4087 SB	19	20	1	32	32	0		33	33	1		0	0	0	7	7	0		22	26	4	
J25	J25 B	Priory Terrace WB	5	5	0	9	9	1		13	18	5		5	6	1	7	10	3		12	17	5	
J25	J25 C	B4087 NB	3	4	0	3	3	0		3	2	-1		5	5	0	6	6	1		6	6	0	
J26	J26 A	B4087 SB	3	3	0	6	8	1		7	8	1		1	1	0	2	2	0		3	5	2	
J26	J26 B	Spencer St EB	3	3	0	7	6	-1		8	7	-1		4	6	3	8	14	6		13	16	3	
J27	J27 A	Avenue Rd EB	19	19	-1	38	39	1		25	27	2		9	10	2	24	28	4		30	26	-3	
J27	J27 C	Lower Ave NB	8	8	0	7	7	0		7	7	0		9	8	0	10	16	6		14	21	8	
J28	J28 A	Bath St SB	27	28	1	30	30	0		30	30	0		12	13	1	22	24	2		26	28	2	
J28	J28 B	High St WB	8	8	0	19	22	3		34	38	5		10	9	-1	10	10	0		15	17	2	
J28	J28 C	Clemens St NB	21	18	-3	71	76	5		56	56	0		32	31	-1	61	60	-1		64	77	13	2
J28	J28 D	High St EB	7	7	0	9	8	-1		9	9	0		13	12	-1	14	14	0		13	16	3	
J29	J29 A	High St WB	13	13	-1	20	21	1		20	20	1		16	15	0	16	17	1		18	18	1	
J29	J29 B	Tachbrook Rd NB	43	43	1	46	46	0		46	46	0		44	44	0	45	45	0		45	45	0	
J29	J29 C	Old Warwick Rd EB	14	16	2	37	52	16	2	69	58	-11	1	27	35	8	68	70	2		74	80	6	
J30	J30 A	Sydenham Dr SB	2	3	1	8	4	-3		7	7	1		8	9	0	14	12	-2		13	15	2	
J30	J30 B	Chesterton Dr WB	4	4	0	6	5	-1		6	5	-2		5	4	0	5	5	0		5	5	0	
J30	J30 C	School Access NB	2	2	0	4	3	-1		3	2	-1		2	2	0	3	3	0		2	2	0	
J30	J30 D	Prospect Rd EB	7	7	0	17	16	0		10	11	1		10	9	-1	21	21	0		18	24	6	
J31	J31 A	Tachbrook Rd SB	21	20	0	56	48	-8		59	59	1		20	20	0	28	30	2		45	45	0	
J31	J31 B	St Helen's Rd WB	17	17	0	46	48	2		47	48	1		10	10	0	11	11	-1		13	14	1	
J31	J31 C	Tachbrook Rd NB	23	26	3	58	50	-8		117	124	7		35	37	2	97	99	1		85	104	20	2
J31	J31 D	Queensway EB	6	7	0	19	13	-6		48	44	-4		20	22	3	48	50	3		46	61	15	2
J32	J32 A	Tachbrook Rd SB	9	9	0	20	20	0		33	57	24	2	21	22	1	26	30	4		47	51	5	
J32	J32 B	Heathcote Rd WB	26	29	3	52	54	2		61	72	11	2	24	25	1	28	33	6		20	31	12	2
J32	J32 C	Tachbrook Rd NB	25	27	2	32	36	4		67	73	5		22	20	-2	30	36	6		41	66	24	2
J32	J32 D	Heathcote Ln EB	12	12	0	22	21	-1		31	35	4		31	32	1	34	35	1		34	35	1	
J33	J33 A	Tachbrook Rd SB	20	21	1	48	54	6		61	75	15	2	39	43	4	66	67	1		45	51	5	
J33	J33 B	Harbury Ln WB	9	9	0	10	9	-1		15	12	-3		8	8	0	9	9	0		9	8	-1	
J33	J33 C	Oakley Wood Rd NB	14	12	-1	25	26	1		23	19	-4		18	16	-2	26	22	-4		30	22	-8	
J33	J33 D	Harbury Ln EB	23	22	-1	40	45	5		45	44	-2		23	23	0	49	52	3		26	33	7	
J34	J34 A	Rugby Rd SB	10	10	-1	12	13	1		27	30	2		11	11	0	15	19	4		18	26	8	
J34	J34 B	Guy's Cliffe Rd NB	1	2	0	4	4	0		6	7	1		4	4	0	4	6	2		9	9	0	
J34	J34 C	Rugby Rd NB	9	11	2	19	21	2		31	31	1		12	13	1	13	13	0		17	16	-1	
J34	J34 D	Guy's Cliffe Rd SB	4	3	0	6	6	0		6	8	2		5	5	0	5	5	0		6	4	-2	
J35	J35 A	Old Milverton Rd SB	5	5	0	27	32	5		23	31	7		2	2	0	10	10	1		9	13	3	
J35	J35 B	Rugby Rd WB	10	10	0	44	55	12	2	59	71	12	2	14	18	5	52	61	9		55	72	17	2
J35	J35 C	Rugby Rd EB	5	5	0	10	11	1		18	18	0		6	6	0	8	6	-2		8	6	-1	
J36	J36 A	Rugby Rd WB	32	31	-1	35	34	0		36	34	-1		25	27	2	34	34	0		33	33	0	
J36	J36 B	Warwick New Rd WB	13	13	0	43	42	-1		44	41	-3		47	45	-2	50	50	0		50	50	0	
J36	J36 C	Emscote Rd EB	18	19	1	30	30	1		33	33	0		27	28	0	29	29	1		29	29	0	
J37	J37 A	Warwick New Rd EB	12	16	4	45	51	6		53	55	1		14	15	1	19	15	-4		30	25	-5	
J37	J37 B	Warwick New Rd WB	18	20	2	25	25	0		26	26	0		11	12	2	22	21	0		22	23	1	
J37	J37 C	Princes Dr NB	11	11	-1	26	21	-4		30	26	-5		49	55	6	78	84	6		74	82	9	
J38	J38 A	Warwick Pl WB	13	13	0	37	43	6		49	50	1		5	7	2	36	38	2		42	46	4	
J38	J38 B	Warwick New Rd WB	3	2	-2	16	22	5		28	31	4		0	1	0	15	23	7		22	34	12	2
J38	J38 C	Warwick New Rd EB	0	0	0	5	10	5		8	28	20	2	0	0	0	4	6	1		4	8	4	
J39	J39 A	Princes Dr EB	76	78	2	82	82	0		82	82	0		51	52	1	70	68	-2		76	76	0	
J39	J39 B	Park Dr SB	45	52	7	78	79	1		81	82	1		12	12	0	18	17	0		36	43	8	
J39	J39 C	Princes Dr NB	8	8	0	16	15	-1		21	16	-5		23	24	1	41	50	9		44	49	5	
J40	J40 A	Princes Dr SB	43	44	1	45	44	-1		45	45	0		19	20	1	32	30	-2		37	39	2	
J40	J40 B	Old Warwick Rd WB	30	31	1	76	88	12	2	88	92	5		33	35	2	66	71	4		83	93	10	2
J40	J40 C	Europa Way NB	12	13	2	27	27	0		27	26	-1		17	18	1	24	25	1		24	27	3	
J40	J40 D	Myton Rd EB	4	4	0	20	12	-8		26	29	3		10	9	-1	47	86	38	3	73	130	57	4
J42	J42 A	Europa Way SB	7	7	0	8	9	0		9	9	0		16	17	1	19	18	0		16	16	0	
J42	J42 B	Queensway WB	31	26	-5	62	62	0		59	61	2		45	46	1	58	57	-1		56	60	4	
J42	J42 C	Tachbrook Park Dr WB	16	16	0	16	17	0		17	16	0		16	17	0	17	17	0		17	17	0	
J42	J42 D	Europa Way NB	10	10	1	54	56	2		42	50	8		19	21	2	36	45	9		44	56	12	2
J43	J43 A	Hawkes Dr SB	3	3	0	3	3	0		4	5	1		17	16	-1	15	16	1		4	8	4	
J43	J43 B	Heathcote Ln WB	3	3	0	4	3	-1		6	16	10	2	2	3	0	17	19	2		11	10	-1	
J43	J43 C	Macbeth App NB	3	3	0	4	5	1		5	8	3		2	3	1	7	9	1		5	5	-1	
J43	J43 D	Heathcote Ln EB	4	4	0	4	5	0		5	5	-1		3	3	0	12	10	-2		1	12	10	2
J44	J44 A	Tachbrook Park Dr SB	2	2	0	3	3	0		5	13	8		16	14	-3	27	38	11	2	12	39	27	3
J44	J44 B	Heathcote Ln WB	7	8	1	14	20	7		23	35	12	2	5	5	1	24	28	4		10	39	28	3
J44	J44 C	Ophelia Dr NB	12	11	-1	18	22	4		6	11	4		3	3	0	4	4	0		4	10	6	
J44	J44 D	Heathcote Ln EB	8	6	-2	21	21	-1		11	21	10	2	16	21	5	26	29	3		8	23	15	2
J45	J45 A	Europa Way SB	20	25	5	20	21	1		18	16	-2		17	16	-1	25	23	-3		21	22	2	
J45	J45 B	Heathcote Ln WB	53	48	-6	58	63	6		55	63	8		58	56	-2	73	75	1		68	67	-1	
J45	J45 C	Harbury Ln WB	39	33	-6	70	71	1		33	47	14	2	20	22	2	54	56	2		50	41	-9	
J45	J45 D	Europa Way NB	23	24	1	31	29	-3		18	19	1		16	16	0	17	18	1		17	17	0	
J45	J45 E	Gallows Hill EB	8	9	1	16	16	0		12	13	1		29	29	-1	31	31	0		15	16	1	
J46	J46 A	Gallagher Way SB	0	1	0	0	0	0		0	0	0		0	1	1	1	2	0		1	1	1	
J46	J46 B	Earl Rivers Ave WB	1	1	0	1	1	0		1	2	0		1	1	0	3	3	0		2	4	1	
J46	J46 C	Harbury Ln NB	10	10	0	25	18	-7		7	10	4		4	4	-1	9	10	1		6	6	0	
J46	J46 D	Harbury Ln EB	3	3	0	3	3	-1		2	2	0		3	3	0	4	4	0		4	4	0	
J47	J47 A	Europa Way SB	53	58	5	126	122	-3		101	87	-14	1	60	62	2	98	103	4		49	60	10	2
J47	J47 B	Banbury Rd WB	17	17	0	38	44	6		20	19	-2		16	16	0	22	22	1		49	70	20	2
J47*	J47 C	Warwick By-Pass EB	21	18	-3	31	27	-4		17	20	3		24	26	3	49	56	7		35	47	12	
J47	J47 D	Banbury Rd SB	18	19	1	77	96	20	2	68	91	23	2	27	25	-2	34	37	4		27	26	-1	
J47*	J47 E	New Arm (Red House Farm) NB	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0		0	0	0	
J48	J48 A	Banbury Rd SB	6	3	-3	4	5	1		4	5	1		3	1	-2	3	3	-1		2	5	3	

J48	J48 B	Mallory Rd WB	22	23	1		68	72	5		42	44	2		25	28	3		53	49	-4		42	40	-2							
J48	J48 C	Banbury Rd NB	10	14	5		12	11	-1		7	8	1		21	19	-2		36	36	-1		25	23	-1							
J49	J49 A	Banbury Rd SB	10	8	-2		6	8	2		3	3	-1		6	6	0		2	6	4		3	2	-1							
J49	J49 B	M40 Off-Slip	5	5	0		5	5	0		4	4	0		6	6	0		6	6	0		6	5	0							
J49	J49 C	Banbury Rd NB	14	12	-1		14	13	0		12	13	0		14	12	-2		13	14	1		13	12	-1							
J50	J50 A	Banbury Rd SB	2	3	0		6	11	5		3	9	6		6	6	0		56	31	-26	1	64	55	-9							
J50	J50 B	Banbury Rd NB	0	0	0		0	0	0		0	0	0		0	0	0		1	2	1		5	6	0							
J50	J50 C	Barford Hill NB	6	6	-1		10	10	0		2	3	1		3	2	-1		3	4	1		3	4	1							
J51*	J51 A	M40 EB Off-Slip	1	1	-1		1	1	0		1	1	0		0	1	0		0	1	0		0	0	0							
J51*	J51 B	Warwick By-Pass WB	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0							
J52	J52 A	Gallows Hill EB	26	26	0		43	42	-1		33	33	1		18	18	0		22	23	1		27	29	2							
J52	J52 B	Warwick Tech Park SB	3	3	0		6	5	0		3	6	3		26	26	0		26	26	0		9	21	12	2						
J52	J52 C	Gallows Hill WB	16	16	0		47	48	1		35	42	7		25	26	1		35	47	12	2	31	46	15	2						
J53	J53 A	Warwick Tech Park SB	1	2	0		7	8	0		4	5	1		19	19	0		18	18	1		6	9	3							
J53	J53 B	Gallows Hill WB	8	8	0		59	65	6		22	40	18	2	2	2	0		5	24	19	2	2	16	14	2						
J53	J53 C	Gallows Hill EB	8	6	-2		14	9	-5		9	13	4		7	7	0		13	13	-1		13	11	-2							
J54	J54 A	Banbury Rd SB	6	6	0		8	9	1		5	6	0		7	7	0		6	7	1		6	5	-1							
J54	J54 B	Gallows Hill WB	14	15	1		34	35	1		22	26	4		14	14	0		28	36	8		27	37	10	2						
J54	J54 C	Banbury Rd NB	12	12	0		87	92	5		37	50	14	2	9	10	0		16	45	28	3	16	57	41	3						
J55	J55 A	Banbury Rd SB	28	29	1		38	39	1		24	24	0		14	14	0		32	30	-2		33	30	-3							
J55	J55 B	Myton Rd WB	10	9	-1		31	27	-3		20	24	4		24	20	-3		54	76	22	2	57	82	25	2						
J55	J55 C	Banbury Rd NB	16	16	-1		43	36	-7		26	59	34	3	30	30	0		69	73	4		68	72	4							
J55	J55 D	Bridge End EB	2	2	0		3	3	0		3	4	1		2	2	0		2	2	0		2	2	1							
J56	J56 A	Greville Rd SB	2	3	0		3	3	0		17	17	-1		3	3	0		41	40	-1		32	44	12	2						
J56	J56 B	Emscote Rd SB	17	19	2		33	32	-1		36	35	-1		31	31	0		36	34	-1		35	34	-1							
J56	J56 C	Emscote Rd NB	9	9	0		33	35	2		38	41	3		31	29	-3		34	34	0		40	38	-1							
J57	J57 A	All Saints Rd SB	3	2	-1		24	21	-3		26	27	1		13	17	3		28	25	-3		25	31	6							
J57	J57 B	Emscote Rd WB	3	4	1		40	36	-3		52	53	2		5	4	-2		12	10	-2		12	18	6							
J57	J57 C	Emscote Rd EB	7	8	1		54	67	13	2	55	66	11	2	24	27	3		53	57	3		54	63	9							
J58	J58 A	Coventry Rd SB	3	5	2		64	91	27	3	80	108	28	3	3	3	0		7	9	2		14	26	12	2						
J58	J58 B	Spinney Hill WB	17	19	3		52	61	9		55	64	9		7	8	1		6	7	2		6	12	6							
J58	J58 C	Coventry Rd NB	4	4	0		7	14	6		9	9	0		5	4	0		7	15	7		8	16	8							
J58	J58 D	Primrose Hill EB	4	4	0		10	14	5		15	11	-3		6	5	-1		21	21	0		4	5	1							
J59	J59 A	Coventry Rd SB	101	101	0		156	164	7		160	160	0		51	54	3		105	112	7		96	126	30	3						
J59	J59 B	Coten End WB	52	50	-3		120	121	1		119	118	-1		36	37	1		59	57	-2		64	65	1							
J59	J59 C	St Johns Ct NB	3	2	-1		9	10	0		11	11	0		3	3	0		11	11	0		10	11	1							
J59	J59 D	Smith St EB	10	10	-1		13	15	1		16	15	-1		13	13	0		14	15	0		13	15	2							
J60	J60 A	St Nicholas Church St SB	37	36	0		39	38	0		37	37	-1		11	12	1		35	35	0		29	24	-6							
J60	J60 B	Banbury Rd WB	17	20	3		48	43	-5		40	53	13	2	34	31	-3		50	49	-1		49	51	1							
J60	J60 C	Mill St NB	1	0	0		1	1	0		1	2	0		2	2	0		1	1	0		2	2	0							
J60	J60 D	Castle Hill EB	4	4	0		8	9	1		4	4	-1		1	0	0		5	5	0		4	2	-2							
J61	J61 A	The Butts SB	35	34	0		40	40	0		39	38	0		14	12	-2		33	28	-5		31	28	-2							
J61	J61 B	Castle Hill NB	22	23	1		25	25	0		24	25	1		22	23	1		25	25	0		24	23	0							
J61	J61 C	Jury St NB	56	51	-5		62	63	1		56	64	7		30	38	8		57	62	5		44	56	12	2						
J62	J62 A	Northgate WB	5	6	0		7	12	4		7	16	8		6	6	0		6	10	4		6	9	3							
J62	J62 B	Barrack St EB	1	1	0		2	1	-1		1	1	0		1	1	0		1	2	0		1	2	1							
J62	J62 C	Saltisford EB	14	17	3		20	20	0		19	20	2		15	18	3		19	20	1		18	19	1							
J63	J63 A	Saltisford EB	9	14	5		35	43	8		39	69	30	3	10	20	10		45	58	14	2	21	32	11	2						
J63	J63 B	Saltisford WB	4	4	0		11	18	7		7	14	6		8	10	3		8	14	5		6	7	2							
J63	J63 C	Theatre St NB	15	15	0		53	67	14	2	30	61	31	3	15	34	19	2	28	55	27	3	6	22	16	2						
J64	J64 A	Bowling Green St SB	4	5	1		12	15	3		8	23	15	2	11	16	5		17	31	14	2	17	31	14	2						
J64	J64 B	Bowling Green St NB	2	3	1		5	6	1		3	6	3		3	3	0		5	6	1		2	5	3							
J64	J64 C	Friars St EB	23	36	14	2	37	99	62	4	10	70	59	4	4	7	3		22	60	38	3	6	31	25	2						
J65	J65 A	Bowling Green St SB	3	3	0		4	6	2		3	5	3		3	3	0		3	4	1		3	4	1							
J65	J65 B	High St SB	0	0	0		3	16	13	2	0	10	9		0	0	0		3	13	10		1	9	8							
J65	J65 C	West St NB	9	5	-4		31	93	62	4	5	81	75	4	0	0	0		8	64	56	4	0	28	28	3						
J66	J66 A	Wedgnock Ln SB	30	28	-2		60	86	26	3	72	87	15	2	33	43	10	2	57	74	16	2	44	67	22	2						
J66	J66 B	Birmingham Rd WB	6	7	1		7	6	0		6	6	0		18	22	4		35	48	13	2	16	30	15	2						
J66	J66 C	Birmingham Rd EB	16	17	0		20	26	6		33	41	8		16	15	-1		16	15	-1		17	17	0							
J67	J67 A	A46 SB Off-Slip	13	18	5		22	85	63	4	16	95	80	4	30	61	31	3	35	155	120	4	20	54	34	3						
J67	J67 B	Birmingham Rd WB	12	12	0		12	14	2		11	12	1		22	26	4		31	32	1		30	33	3							
J67	J67 C	A46 NB Off-Slip	17	24	7		19	42	22	2	24	137	113	4	36	113	77	4	58	124	66	4	16	89	73	4						
J67	J67 D	Birmingham Rd EB	19	22	4		18	23	4		11	16	5		20	55	35	3	25	125	100	4	21	117	96	4						
J68	J68 A	Hampton Rd EB	7	8	1		7	14	7		4	5	1		6	7	1		13	44	31	3	7	45	38	3						
J68	J68 B	Hampton Rd WB	0	0	0		0	0	0		0	0	0		1	0	0		0	0	0		1	0	0							
J68	J68 C	Purser Dr NB	14	21	8		16	25	9		4	6	2		4	6	1		6	15	9		6	10	4							
J69	J69 A	Hampton Rd WB	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0							
J69	J69 B	Hampton Rd EB	2	2	0		3	6	3		1	2	1		3	4	1		3	4	1		3	3	0							
J69	J69 C	Shakespeare Ave NB	3	3	1		4	8	5		2	3	1		4	4	1		4	5	1		3	5	2							
J70	J70 A	Stratford Rd SB	1	1	0		3	3	0		2	2	0		4	3	-1		4	4	0		4	5	1							
J70	J70 B	Alders Gr WB	1	1	-1		0	1	1		1	2	1		1	1	0		1	0	0		1	1	0							
J70	J70 C	Stratford Rd NB	0	2	2		1	9	8		0	5	5		3	2	0		3	2	0		2	3	1							
J70	J70 D	Shakespeare Ave EB	3	3	0		3	6	3		3	4	1		3	3	0		3	4	1		4	4	0							
J71	J71 A	Warwick Bypass SB	93	97	4		143	150	7		208	194	-14	1	21	23	1		35	31	-4		62	30	-32	1						
J71	J71 B	Stratford Rd SB	103	106	3		108	109	1		89	102	12	2	39	58	19	2	78	90	12	2	47	37	-10	1						
J71	J71 C	M40 WB Off-Slip	10	10	0		15	14	-1		11	14	3		9	8	0		11	19	8		9	9	0							
J71	J71 D	A429 NB	48	47	-1		59	60	0		37	48	10	2	39	44	5		48	66	19	2	28	54	25	3						
J71	J71 E	Stratford Rd EB	15	14	-1		25	20	-5		16	27	10	2	19	14	-5		46	37	-9		34	30	-4							
J72	J72 A	Birmingham Rd SB	11	14	2		14	15	1		12	10	-2		5	3	-1		3	3	0		5	3	-2							
J72	J72 B	Haywood Rd WB	13	14	1		32	44	12	2	29	48	19	2	41	46	4		64	73	9		51	66	14	2						
J72	J72 C	Birmingham Rd NB	3	3	0		3	4	1		3	4	1		26	29	3		32	33	1		27	32	5							
J73	J73 A	Wedgnock Ln SB	13	14	2		46	78	32	3	32	54	22	2	12	12	0		17	41	24	2	15	44	29	3						
J73	J73 B	Rothwell Rd WB	3	3	0		5	7	1		4	6	1		4	5	1		6	6	0		4	5	1							
J73	J73 C	Wedgnock Ln NB	25	30	5		62	80	18	2	30	47	16	2	45	41	-4		50	58	7		25	47	22	2						
J74	J74 A	Wedgnock Ln SB	0	0	0		6	13	7		6	9	3		0	3	3		11	20	9		7	17	10	2						
J74	J74 B	Cape Rd WB	3	4	0		10	27	17	2	13	13	-1		12	24	12	2	31	69	38	3	21	49	28	3						
J74	J74 C	Wedgnock Ln NB	10	9	-1		18	15	-3		15	11	-4		7	5	-2		9	11	2		8	13	5							
J75	J75 A	Cape Rd SB	3	2	-1		14	22	7		15	28	14	2	2	1	-1		5	12	7		3	9	6							
J75	J75 B	Millers Rd	3	3	0		19	37	18	2	32	31	-1		9	12	3		26	58	32	3	12	23	12	2						
J75	J75 C	Cape Rd NB	8	7	-1		16	16	0		10	13	3		7	7	0		8	22	14	2	5	8	3							
J76	J76 A	B4463 EB	65	72	6		111	142	31	3	32	94	61	4	4	10	6		50	71	21	2	17	38	21	2						
J76	J76 B	A46 Warwick Bypass SB	22	35	13	2	57	59	2		38	25	-13	1	11	11	0		110	39	-72	1	96	32	-65	1						

J76	J76 C	Stratford Rd WB	5	5	0		12	16	4		8	24	16	2	8	8	0		11	34	23	2	13	18	5	
J76	J76 D	Stratford Rd NB	35	23	-12	1	38	35	-3		11	17	6		16	21	5		41	72	31	3	10	29	19	2
J77	J77 A	Radford Rd WB	11	11	1		13	14	1		11	13	2		19	18	-1		20	19	-1		20	19	-1	
J77	J77 B	Sydenham Dr NB	29	33	5		43	51	8		97	90	-7		107	95	-11	1	131	131	0		126	120	-6	
J77	J77 C	Radford Rd EB	23	23	0		36	37	0		31	35	3		23	20	-2		38	37	-1		36	37	1	
J78	J78 A	Coventry Rd SB	30	33	3		70	71	1		71	71	0		7	8	1		32	38	7		44	50	6	
J78	J78 B	Coventry Rd NB	14	11	-3		39	50	11	2	37	39	2		28	47	20	2	43	50	7		18	28	10	2
J78	J78 C	Guys Cross Park Rd EB	8	6	-2		19	22	3		13	22	9		30	42	12	2	30	44	14	2	9	18	9	
J79	J79 A	Birmingham Rd EB	14	49	35	3	13	54	41	3	10	14	3		6	50	44	3	10	140	130	4	7	130	123	4
J79	J79 B	Birmingham Rd WB	11	11	1		13	14	1		13	15	2		14	15	1		14	15	1		11	14	3	
J79	J79 C	Old Budbrooke Rd NB	23	52	30	3	64	102	38	3	14	77	63	4	31	111	80	4	74	138	64	4	59	148	89	4


Legend
Network Extent
Junction Location
VM210437
Hatton Strategic Site
Junction Locations
NTS
vectos microsim.

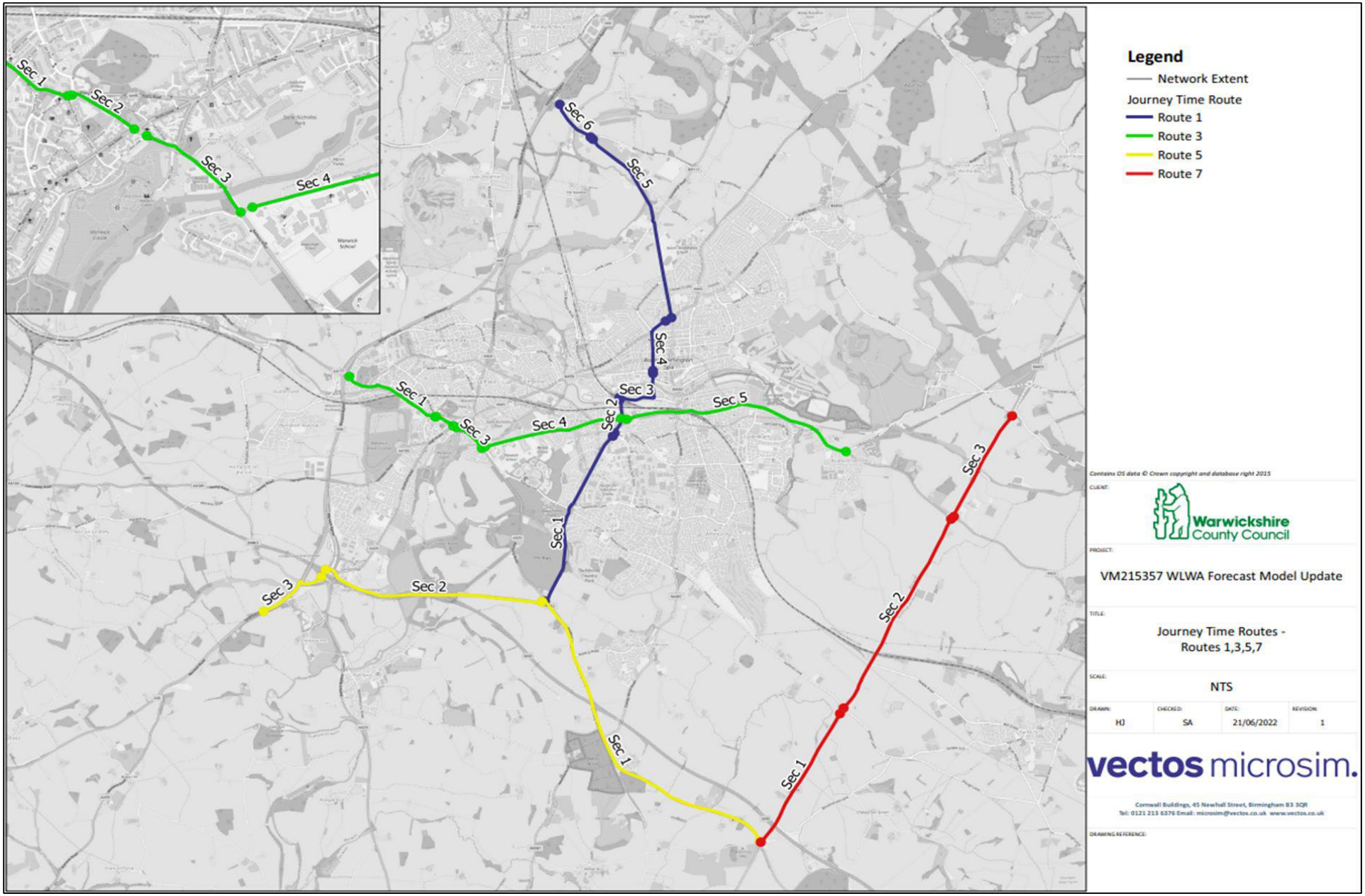
Scenario 01:	2037 Local Plan - Reference Case
Scenario 02:	2037 Local Plan - Development

Assessment Criteria Journey Time:

Criteria 01:	Less than	-25%	greater than	-999
Criteria 02:	Less than	50%	greater than	25%
Criteria 03:	Less than	100%	greater than	50%
Criteria 04:	Less than	999	greater than	100%

		07:00 - 08:00				08:00 - 09:00				09:00 - 10:00				16:00 - 17:00				17:00 - 18:00				18:00 - 19:00			
	Section	2037 Local Plan - Reference Case	2037 Local Plan - Development	%Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria	2037 Local Plan - Reference Case	2037 Local Plan - Development	Diff	Criteria
JT By Section	Route 1 Section 1 NB	252	255	1%		362	378	4%		303	344	13%		249	251	1%		336	383	14%		388	572	47%	2
	Route 1 Section 2 NB	92	93	1%		178	184	3%		180	187	4%		106	107	1%		186	215	16%		203	266	32%	2
	Route 1 Section 3 NB	106	107	1%		174	176	1%		186	159	-15%		133	133	0%		204	244	20%		242	245	1%	
	Route 1 Section 4 NB	142	143	1%		171	176	3%		191	246	29%	2	151	152	0%		179	178	0%		162	163	0%	
	Route 1 Section 5 NB	267	267	0%		295	299	1%		276	280	2%		262	266	1%		308	311	1%		273	280	3%	
	Route 1 Section 6 NB	62	62	0%		64	64	1%		63	63	0%		67	67	0%		88	85	-4%		75	99	32%	2
	Route 1 Section 6 SB	63	63	-1%		86	93	8%		55	59	8%		54	54	0%		58	59	1%		56	57	2%	
	Route 1 Section 5 SB	278	277	0%		355	361	1%		297	365	23%		294	298	1%		373	382	2%		364	396	9%	
	Route 1 Section 4 SB	136	135	0%		202	223	11%		627	744	19%		122	121	0%		189	180	-5%		285	254	-11%	
	Route 1 Section 3 SB	261	278	6%		1139	1213	7%		1613	1674	4%		120	120	0%		211	217	3%		287	294	2%	
	Route 1 Section 2 SB	206	203	-2%		294	293	0%		278	280	1%		79	80	1%		116	118	2%		130	124	-5%	
	Route 1 Section 1 SB	284	287	1%		545	560	3%		359	351	-2%		333	342	3%		465	499	7%		332	353	6%	
	Route 2 Section 1 NB	193	192	0%		240	427	78%	3	197	527	167%	4	195	195	0%		202	302	49%	2	192	218	14%	
	Route 2 Section 2 NB	194	197	2%		446	476	7%		377	511	35%	2	202	221	9%		376	487	30%	2	285	370	30%	2
	Route 2 Section 3 NB	179	179	0%		378	383	1%		408	416	2%		221	219	-1%		399	409	3%		382	485	27%	2
	Route 2 Section 4 NB	152	153	1%		186	185	-1%		282	354	26%	2	191	187	-2%		223	212	-5%		224	207	-8%	
	Route 2 Section 5 NB	274	275	0%		310	322	4%		287	319	11%		278	280	1%		336	348	4%		299	305	2%	
	Route 2 Section 5 SB	280	281	0%		315	325	3%		394	438	11%		271	273	1%		316	317	0%		315	311	-1%	
	Route 2 Section 4 SB	200	196	-2%		405	433	7%		615	667	8%		184	189	3%		360	391	9%		407	527	29%	2
	Route 2 Section 3 SB	271	285	5%		1432	1346	-6%		2118	1845	-13%		280	282	1%		588	595	1%		659	759	15%	
	Route 2 Section 2 SB	150	153	2%		302	318	5%		247	260	5%		134	133	-1%		194	199	2%		170	165	-3%	
	Route 2 Section 1 SB	237	235	-1%		1749	2278	30%	2	810	1223	51%	3	203	210	3%		333	443	33%	2	290	250	-14%	
	Route 3 Section 1 EB	173	175	2%		315	387	23%		311	373	20%		184	191	4%		298	338	14%		233	269	15%	
	Route 3 Section 2 EB	96	96	-1%		268	252	-6%		183	166	-9%		66	67	1%		113	106	-6%		110	104	-5%	
	Route 3 Section 3 EB	76	78	3%		112	112	0%		74	73	-1%		61	62	0%		92	91	-2%		93	83	-11%	
	Route 3 Section 4 EB	169	169	0%		223	210	-6%		212	236	12%		197	197	0%		260	299	15%		410	950	132%	4
	Route 3 Section 5 EB	357	360	1%		470	591	26%	2	701	647	-8%		401	402	0%		618	628	2%		685	644	-6%	
	Route 3 Section 5 WB	398	405	2%		705	729	3%		925	984	6%		430	437	2%		925	864	-7%		1013	1026	1%	
	Route 3 Section 4 WB	206	206	0%		302	299	-1%		251	341	36%	2	249	250	1%		456	516	13%		470	692	47%	2
	Route 3 Section 3 WB	102	111	8%		240	226	-6%		225	313	39%	2	114	121	5%		280	281	1%		264	262	-1%	
	Route 3 Section 2 WB	56	57	1%		83	101	22%		65	86	32%	2	65	67	3%		68	78	15%		61	70	14%	
	Route 3 Section 1 WB	187	187	0%		267	280	5%		219	256	17%		202	224	11%		301	367	22%		211	281	33%	2
	Route 4 Section 1 NB	183	185	1%		403	438	9%		233	326	40%	2	212	222	4%		371	523	41%	2	431	719	67%	3
	Route 4 Section 2 NB	102	111	8%		240	226	-6%		225	313	39%	2	114	121	5%		280	281	1%		264	262	-1%	
	Route 4 Section 3 NB	29	29	0%		32	34	5%		34	39	14%		30	30	-1%		31	32	1%		31	33	6%	
	Route 4 Section 4 NB	115	113	-2%		174	195	12%		166	165	-1%		112	123	9%		157	167	7%		117	129	10%	
	Route 4 Section 5 NB	81	82	1%		84	84	1%		82	83	1%		105	102	-3%		180	194	8%		96	104	9%	
	Route 4 Section 5 SB	76	77	0%		116	146	26%	2	134	219	63%	3	75	76	1%		92	99	7%		93	118	27%	2
	Route 4 Section 4 SB	198	201	2%		826	777	-6%		664	702	6%		229	228	0%		595	621	4%		697	821	18%	
	Route 4 Section 3 SB	209	214	3%		408	406	0%		280	273	-3%		151	151	0%		233	225	-3%		224	198	-12%	
	Route 4 Section 1 SB	182	181	-1%		705	815	16%		514	764	49%	2	305	304	0%		514	480	-7%		492	495	1%	
	Route 5 Section 1 NB	277	276	-1%		335	335	0%		273	277	1%		302	307	1%		405	387	-4%		372	396	6%	
	Route 5 Section 2 NB	165	165	0%		195	198	2%		192	189	-2%		174	179	3%		429	491	14%		524	735	40%	2
	Route 5 Section 3 NB	64	65	1%		76	77	1%		70	78	12%		67	67	0%		71	93	31%	2	73	74	1%	
	Route 5 Section 3 SB	126	128	1%		166	169	2%		102	114	12%		114	119	4%		322	292	-9%		137	161	17%	
	Route 5 Section 2 SB	243	247	2%		308	295	-4%		273	287	5%		233	243	4%		321	347	8%		242	274	13%	
	Route 5 Section 1 SB	322	318	-1%		618	615	-1%		279	283	1%		538	530	-2%		1081	1092	1%		1716	1731	1%	
	Route 6 Section 1 NB	166	167	1%		180	182	1%		187	177	-6%		175	174	-1%		182	184	2%		200	180	-10%	
	Route 6 Section 2 NB	225	227	1%		297	310	4%		1346	1415	5%		279	280	0%		583	615	5%		604	832	38%	2
	Route 6 Section 4 NB	289	286	-1%		305	308	1%		297	342	15%		344	337	-2%		412	426	4%		358	393	10%	
	Route 6 Section 5 NB	201	202	1%		208	209	0%		205	208	2%		209	208	0%		221	221	0%		215	215	0%	
	Route 6 Section 5 SB	235	238	1%		249	248	0%		264	289	10%		218	219	0%		226	226	0%		229	230	1%	
	Route 6 Section 3 SB	122	122	0%		198	185	-7%		218	209	-4%		124	123	0%		140	145	3%		169	174	3%	
	Route 6 Section 2 SB	206	204	-1%		287	284	-1%		315	367	16%		300	298	-1%		431	459	6%		417	478	15%	
	Route 6 Section 1 SB	214	209	-2%		580	582	0%		263	316	20%		304	318	4%		676	612	-9%		381	405	6%	
	Route 7 Section 1 NB	96	97	0%		98	100	1%		93	93	0%		96	96	0%		97	97	0%		99	100	1%	
	Route 7 Section 2 NB	127	127	0%		130	130	0%		130	132	1%		150	158	5%		167	171	2%		167	163	-2%	
	Route 7 Section 3 NB	75	75	0%		76	76	0%		77	77	1%		76	76	0%		77	77	0%		77	77	0%	
	Route 7 Section 3 SB	93	88	-5%		598	594	-1%		596	636	7%		77	77	0%		179	198	11%		191	210	10%	
	Route 7 Section 2 SB	158	167	6%		182	188	3%		139	140	1%		184	186	1%		561	467	-17%		419	404	-4%	
	Route 7 Section 1 SB	101	98	-2%		171	179	5%		101	108	6%		95	94	0%		97	97	0%		101	101	0%	
	Route 8 NB	353	360	2%		386	422	9%		339	475	40%	2	351	366	4%		377	521	38%	2	330	393	19%	
	Route 8 SB	442	455	3%		1450	1533	6%		1779	2266	27%	2	417	427	2%		989	1017	3%		1190	1157	-3%	
	M40 Section 1 EB	85	85	0%		200	199	0%		141	140	0%		73	73	0%		72	72	0%		71	71	0%	
	M40 Section 2 EB	97	97	0%		102	101	-1%		102	103	1%		94	95	1%		97	97	0%		93	94	1%	
	M40 Section 3 EB	149	149	0%		145	144	0%		147	147	0%		142	142	0%		140	140	0%		141	141	0%	
	M40 Section 3 WB	166	166	0%		167	167	0%		166	166	0%		166	166	0%		171	172	1%		182	184	1%	
	M40 Section 2 WB	94	94	0%		101	102	2%		96	96	0%		100	102	2%		203	209	3%		236	258	9%	
	M40 Section 1 WB	60	61	1%		60	60	0%		61	61	0%		61	60	-1%		59	59	-1%		61	60	-1%	
	Route 1 NB	921	928	1%		1244	1276	3%		1199	1279	7%		969	975	1%		1300	1415	9%		1342	1624	21%	
	Route 1 SB	1228	1243	1%		2621	2743	5%		3228	3473	8%		1002	1014	1%		1412	1454	3%		1453	1477	2%	
	Route 2 NB	992	995	0%		1560	1792	15%		1552	2126	37%	2	1087	1102	1%		1535	1759	15%		1382	1586	15%	

JT By Route	Route 2 SB	1138	1149	1%	4203	4701	12%	4184	4432	6%		1072	1086	1%	1791	1945	9%		1840	2012	9%	
	Route 3 EB	871	879	1%	1389	1552	12%	1481	1496	1%		910	919	1%	1381	1461	6%		1531	2051	34%	2
	Route 3 WB	950	965	2%	1596	1633	2%	1685	1980	17%		1060	1098	4%	2030	2106	4%		2020	2330	15%	
	Route 4 NB	511	519	2%	933	977	5%	740	926	25%	2	573	597	4%	1019	1197	18%		939	1247	33%	2
	Route 4 SB	665	674	1%	2055	2144	4%	1593	1957	23%		759	758	0%	1434	1426	-1%		1506	1633	8%	
	Route 5 NB	506	505	0%	605	610	1%	534	543	2%		543	552	2%	906	972	7%		969	1205	24%	
	Route 5 SB	691	692	0%	1092	1079	-1%	654	684	5%		885	891	1%	1724	1731	0%		2095	2166	3%	
	Route 6 NB	1075	1083	1%	1612	1580	-2%	3137	3348	7%		1239	1235	0%	1874	1948	4%		1905	2248	18%	
	Route 6 SB	1098	1100	0%	1949	1961	1%	2059	2459	19%		1264	1292	2%	2021	2039	1%		1982	2182	10%	
	Route 7 NB	299	299	0%	304	306	0%	300	302	0%		322	329	2%	341	345	1%		342	340	-1%	
	Route 7 SB	351	353	1%	950	960	1%	837	884	6%		356	358	1%	837	761	-9%		712	715	1%	
	Route 8 NB	353	360	2%	386	422	9%	339	475	40%	2	351	366	4%	377	521	38%	2	330	393	19%	
	Route 8 SB	442	455	3%	1450	1533	6%	1779	2266	27%	2	417	427	2%	989	1017	3%		1190	1157	-3%	
	M40 EB	330	331	0%	446	445	0%	390	390	0%		310	310	0%	309	309	0%		305	306	0%	
	M40 WB	320	321	0%	328	329	0%	322	323	0%		326	328	0%	433	440	2%		479	502	5%	



Legend

- Network Extent

Journey Time Route

- Route 1
- Route 3
- Route 5
- Route 7

CLIENT: Warwickshire County Council

PROJECT: VM215357 WLWA Forecast Model Update

TITLE: Journey Time Routes - Routes 1,3,5,7

SCALE: NTS

DRAWN:	CHECKED:	DATE:	REVISION:
HJ	SA	21/06/2022	1

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DRAWING REFERENCE:

Legend

- Network Extent

Journey Time Route

- Route 2
- Route 4
- Route 6
- Route 8

CLIENT: Warwickshire County Council

PROJECT: VM215357 WLWA Forecast Model Update

TITLE: Journey Time Routes - Routes 2,4,6,8

SCALE: NTS

DRAWN:	CHECKED:	DATE:	REVISION:
HJ	SA	21/06/2022	1

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