



University of Kent

Sites BCD - Transport Strategy





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Contents

Quality control	3
Contents	4
1 Introduction	1
2 Transport Strategy Summary	3
3 Vision Led Trip Generation	20
4 Existing Traffic Flows	40
5 Monitor and Manage Strategy	55
6 Potential Transport Vision Impact	57
7 Summary and Conclusion	59

Appendices

Appendix A

Appendix A - Strategic Modelling Technical Note (November 2024)

Appendix B

Appendix B - University Masterplan - Traffic Flow Diagrams

1 Introduction

1.1 Overview

- 1.1.1. WSP has been commissioned by the University of Kent (UoK) to provide transport and environmental advice for the development of proposals to the north of their Canterbury Campus known as Sites BCD (hereafter referred to as the Site).
- 1.1.2. This report has been prepared to provide further information relating to the transport strategy associated with the Site following discussions with Kent County Council (KCC) Highways on the outputs and resulting highway impacts identified from strategic highway modelling undertaken to support an allocation in the Canterbury Local Plan.
- 1.1.3. This report evaluates how a vision-led approach to trip generation at the Site, along with supplementary measures on the adjacent University Campus, could reduce traffic impacts on the highway network and support the Proposed Development.

1.2 Background

- 1.2.1. To support the Local Plan process, Jacobs, on behalf of KCC have developed the Canterbury Strategic Transport Model (STM). WSP commissioned Jacobs to undertake various runs of the STM which were set out in the Update Regulation 18 Transport Appraisal Report (March 2025). Following feedback from KCC Highways it was agreed that an additional model run would be commissioned to consider a refined access strategy limiting traffic routing to/from the northeast along Tyler Hill Road / Hackington Road.
- 1.2.2. The modelling undertaken and submitted to KCC in August 2025 (Disposal Sites – BCD – Highway Assessment) sought to test a refined access strategy that restricted access to/from Sites BCD and Tyler Hill Road through the use of a traffic signal layout that restricted turning movements. The principle of using an ‘engineered’ solution to achieve the access strategy is understood to be agreed in principle with KCC. Further south and within the University Campus a bus gate was proposed on Park Wood Road at the junction with the proposed Access Road. This could be achieved through either physical measures or private enforcement and therefore the principle of restricting access to/from Park Wood Road is also considered agreed.
- 1.2.3. The access strategy therefore agreed in principle with KCC is to provide two points of access onto Whitstable Road connected to Sites BCD via a new access road through the University Campus. The current design for this will require the relocation of Blean Primary School. However, this can be achieved in a phased way so as not to delay the development coming forwards.
- 1.2.4. Impacts on the wider highway network as a result of the proposed allocation at Sites BCD and incorporating the agreed site allocation were tested using the STM. Whilst WSP concluded that these impacts could be accommodated on the highway network KCC have

raised a number of concerns at specific junctions surrounding the Site, focused on the A290 Whitstable Road.

- 1.2.5. A meeting was held with KCC on the 29th September 2025 to discuss these concerns in more detail. At the meeting a number of wider strategic solutions were discussed including the opportunity that the critical mass created by the University could have in terms of delivering a sustainable public transport, walking and cycling strategy for the proposed allocation site. Other matters discussed included reviewing the University's Parking Strategy with the aim of reducing baseline trips on the highway network.
- 1.2.6. The letter submitted by KCC (dated 29th September 2025) identified several detailed technical concerns, which have resulted in the highway authority being unable to support the site's inclusion as an allocation within the Local Plan at this time. These concerns mainly relate to the potential highways impacts of the Site along the Whitstable Road corridor, specifically between Rough Common Road and the London Road mini-roundabout.
- 1.2.7. It is our understanding that subject to addressing any remaining concerns relating to the highway impacts of the proposed allocation Site along the A290 Whitstable Road corridor, the principle of development at the UoK site would be accepted by KCC.
- 1.2.8. A subsequent meeting was held with KCC on the 7th November 2025 to discuss initial work undertaken to understand the potential for mode shift away from the private car associated with both the trip generation of the Site and the neighbouring University. This report considers these measures in more detail for agreement with KCC.
- 1.2.9. This Transport Strategy utilises data from a variety of time periods for example traffic surveys conducted in 2018, strategic modelling undertaken in 2024/25 in support of an allocation on the Site etc. Subject to agreement on the methodology and principle of the strategy set out an updated assessment would need to be prepared at an appropriate time using updated information to support the assessment set out.

1.3 Report Structure

- 1.3.1. Following this introduction, the remainder of this report is structured as follows:
 - Section 2 provides a summary of the proposed transport strategy for the site as submitted with representations for the most recent local plan consultation
 - Section 3 considers the potential to reduce vehicular trip generation associated with the Site
 - Section 4 considers the additional measures that could be considered by the University to reduce baseline and future trips on the highway network
 - Section 5 proposes the framework for delivery of these measures as part of a planning application for the Site
 - Section 6 provides a forecast of the potential impact of the vision led approach on the highway network; and
 - Section 7 provides a summary and conclusion

2 Transport Strategy Summary

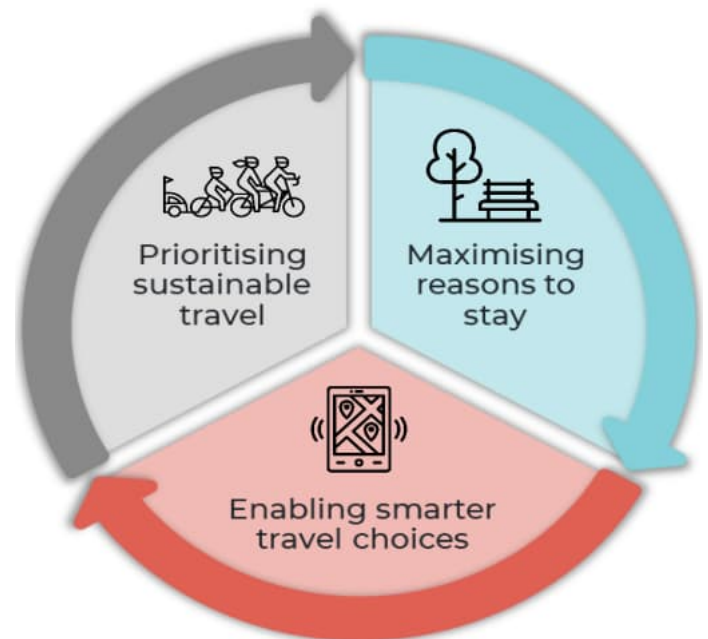
2.1 Introduction

- 2.1.1. This section provides a summary of the transport strategy for the Site as submitted with representations as part of the Canterbury Local Plan Focused Consultation in September 2025.

2.2 Transport Vision

- 2.2.1. The masterplan for the Proposed Development and the associated Transport Strategy which has evolved for the site has been developed with reference to relevant planning policy. Of key importance to the Transport Strategy is the National Planning Policy Framework (NPPF), the latest version being dated December 2024. Given the scale of the site and proximity to the strategic highway network, consideration has also been given to the requirements of Department for Transport (DfT) Circular 01/2022. The NPPF prioritises sustainable travel when considering new development.
- 2.2.2. The first step in achieving sustainable development (**Figure 2-1**) is to reduce the need to travel (i.e. maximising reasons to stay). Provision of a mix of land uses including a local centre and primary school on site, offering a range of amenities and facilities will assist with this, supported by enhanced connections to the University, where a range of supplementary facilities and services are also available.
- 2.2.3. A mobility hub, located within the local centre of the proposed allocation site will offer a range of transport options including bus stops, a car club, shared and micro-mobility (e-bikes and e-scooters) alongside micro-consolidation opportunities (such as parcel lockers). The range of sustainable transport modes will facilitate a review of car parking provision and should enable a reduction when compared to historic parking standards. For those trips that do need to be made off-site or by private car, technology will enable smarter travel choices. App based technology can support journey planning by a range of modes which would include the use of ride sharing and hailing services such as Uber as well as identifying availability of the car club and micro-mobility.

Figure 2-1 – Transport Strategy



2.3 Public Transport Strategy

- 2.3.1. In May 2024 WSP produced a Transport Strategy¹ which set out the proposed public transport strategy and vision and included discussions with the public transport operator Stagecoach. This section provides a summary of that document along with details of the public transport vision and how it aligns with the Draft Canterbury District Transport Strategy.

Policy Context

- 2.3.2. The Draft Canterbury District Transport Strategy for public transport presents the public transport vision for Canterbury until 2040:

The vision of the Canterbury City Council Bus Strategy is for the bus to be a key pillar of our local transport network: a transport option that is reliable, affordable, accessible, safe, integrated and which supports new evolving travel patterns.

- 2.3.3. Further to this, CCC will require developers to pay to provide bus routes to new developments or to increase the service if the development is already served by bus routes.
- 2.3.4. Focusing on Park and Ride facilities, the transport strategy notes that these facilities will play a key role in reducing traffic in the city centre. It details how provision is being investigated on the A290 corridor as well as on other key corridors into Canterbury. The draft transport strategy details that traffic into the city centre has dropped since 2000 but goods vehicles into the city centre has increased. The role of Park and Ride facilities are changing to become mobility hubs to enable goods transfer for first mile/ last mile journeys to be undertaken by micro-mobility options.

Site Vision – Public Transport

- 2.3.5. A key principle of the transport strategy is the delivery of a transport hub on the site to focus and provide access to a range of transport options, with the overarching aim of reducing reliance on the private car. A mobility hub can be understood as a 'place' or interchange providing different and connected transport modes supplemented with enhanced facilities to both attract and benefit the traveller. They are usually focussed around mass public transport (e.g. bus stops or rail station) and last mile mobility solutions (e.g. bicycles and scooters). The transport hub would be located adjacent to the local centre and be complimentary to the uses within the local centre itself. Whilst the principle of a mobility hub (**Figure 2-2**) is still evolving the key transport components of the facility would include:

- Bus stops including access to real time passenger information

¹ University of Kent, Canterbury Campus, Regulation 18 Transport Appraisal (May 2024)

- Cycle parking to facilitate modal interchange including bike pump and repair facilities
- A focal point for ride sharing and hailing services (such as Uber)
- Car club spaces
- Micro-mobility (bike and scooter hire docking stations)
- Rapid electric vehicle charging
- Micro-consolidation facilities such as parcel lockers

Figure 2-2 – Mobility Hub Concept

2.3.6. Providing a mobility hub on-site aligns with the Draft Canterbury District Transport Strategy by providing a range of sustainable transport modes with the ultimate ambition to reduce private car ownership and use. Its location within the centre of the development will maximise accessibility to all and ensure it is highly visible, on the key north-south movement corridor (Figure 2-3).

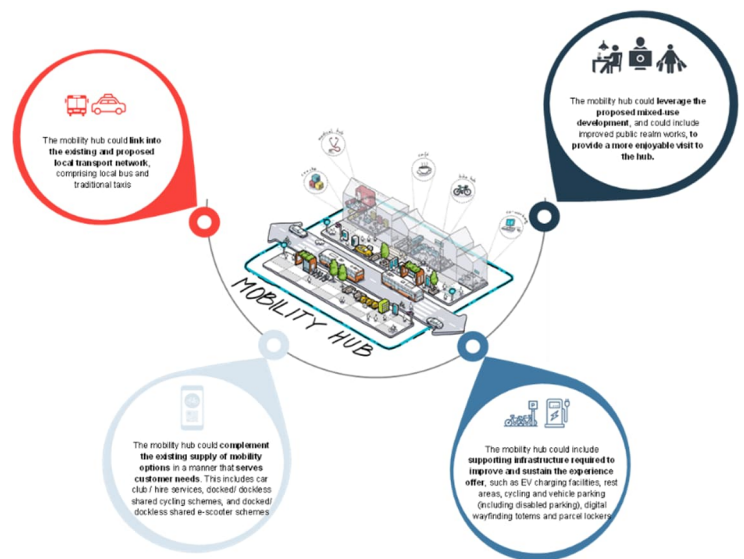
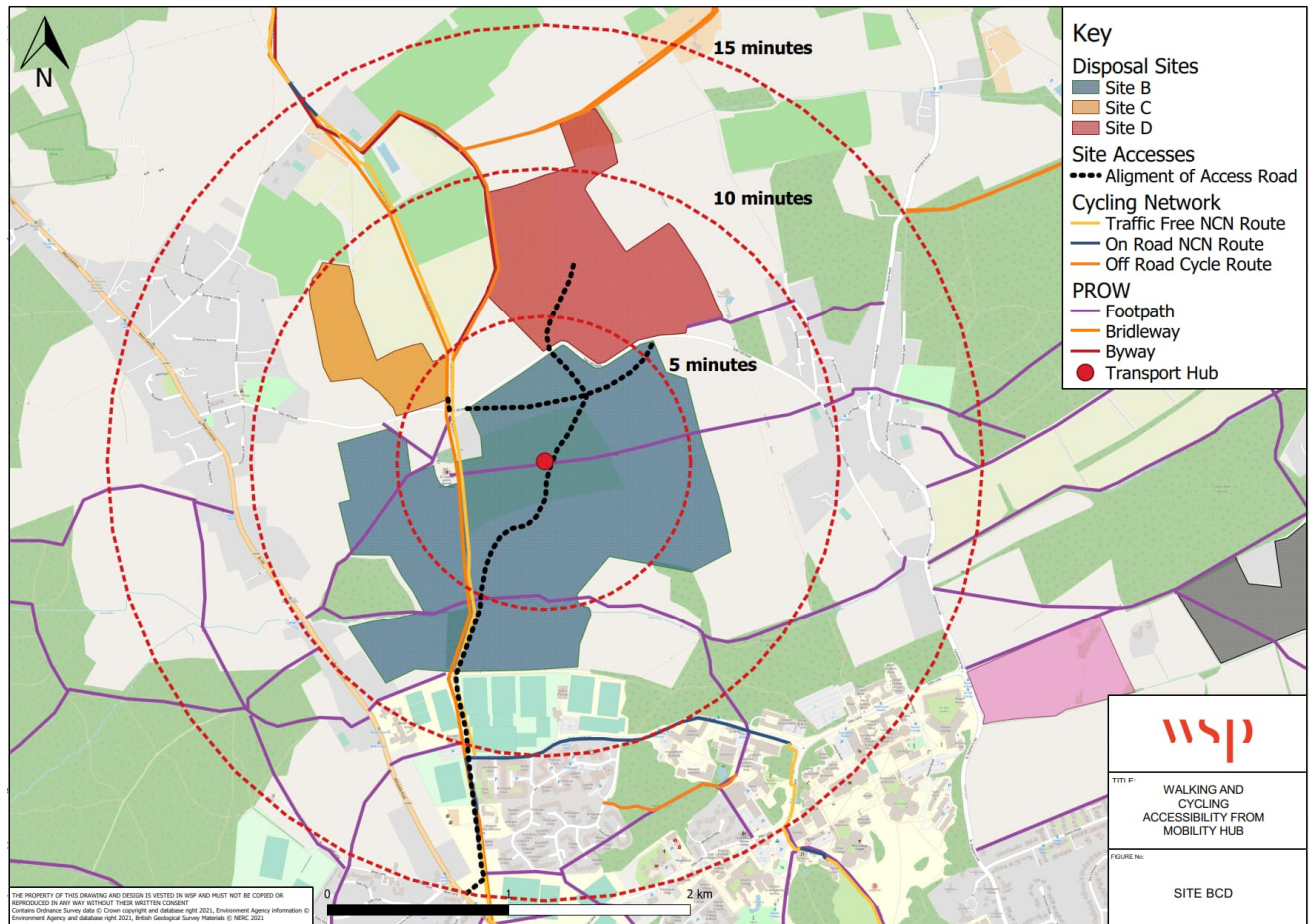


Figure 2-3 – Mobility Hub Location within proposed Site Allocation



2.3.7. The UoK already has an established and well used bus network between the city centre and the university which the site will be able to support and further enhance. **Table 2-1** shows the existing services from the university and **Table 2-2** presents the number of bus services an hour from the university towards the city centre and Whitstable.

Table 2-1 – Existing Bus Services from the university, First Bus, last bus and approximate frequency across the week

Service	Key Destinations	Day	First Bus	Last Bus	Approx frequency
Uni 1	- Canterbury Bus Station - Canterbury East Train Station - St Dunstons (near West Train Station)	Monday to Friday	Bus Station – 08:08 Campus Main stop – 08:41	Bus Station – 18:18 Campus Main stop – 18:51	Every 10 minutes

Service	Key Destinations	Day	First Bus	Last Bus	Approx frequency
	<u>University main bus stop (Keynes)</u> - University Darwin & Park Wood bus stops	Saturday (term time)	Bus Station – 08:08 Campus Main stop – 08:35	Bus Station – 18:18 Campus Main stop – 18:45	
		Sunday & public holidays	Bus Station – 11:13 Campus Main stop – 11:53	Bus Station – 20:18 Campus Main stop – 20:43	Every 30 minutes
<u>Uni 2</u>	- Canterbury Bus Station - Canterbury West Train Station - Hales Place <u>University main bus stop (Keynes)</u> - University Darwin & Park Wood bus stops	Monday to Friday	Bus Station – 09:04 (0843 from Westgate Towers) Campus Main stop – 08:50	Bus Station – 0405 Campus Main stop - 0419	Every 30 minutes (24 hr service)
		Saturday (term time)	Bus Station – 1820 Campus Main stop – 18:35	Bus Station – 0405 Campus Main stop – 0419	
<u>Route 400/401</u>	- Herne bay/Whitstable <u>University main bus stop (Keynes)</u> - St Dunstan's (near West Train Station) - Canterbury East Train Station - Canterbury Bus Station	Monday to Friday	Bus Station – 0520 Campus Main stop – 0600	Bus Station – 2338 Campus Main stop – 2351	Every 15 minutes
		Saturday	Bus Station – 0642	Bus Station – 2307	Every 20 minutes

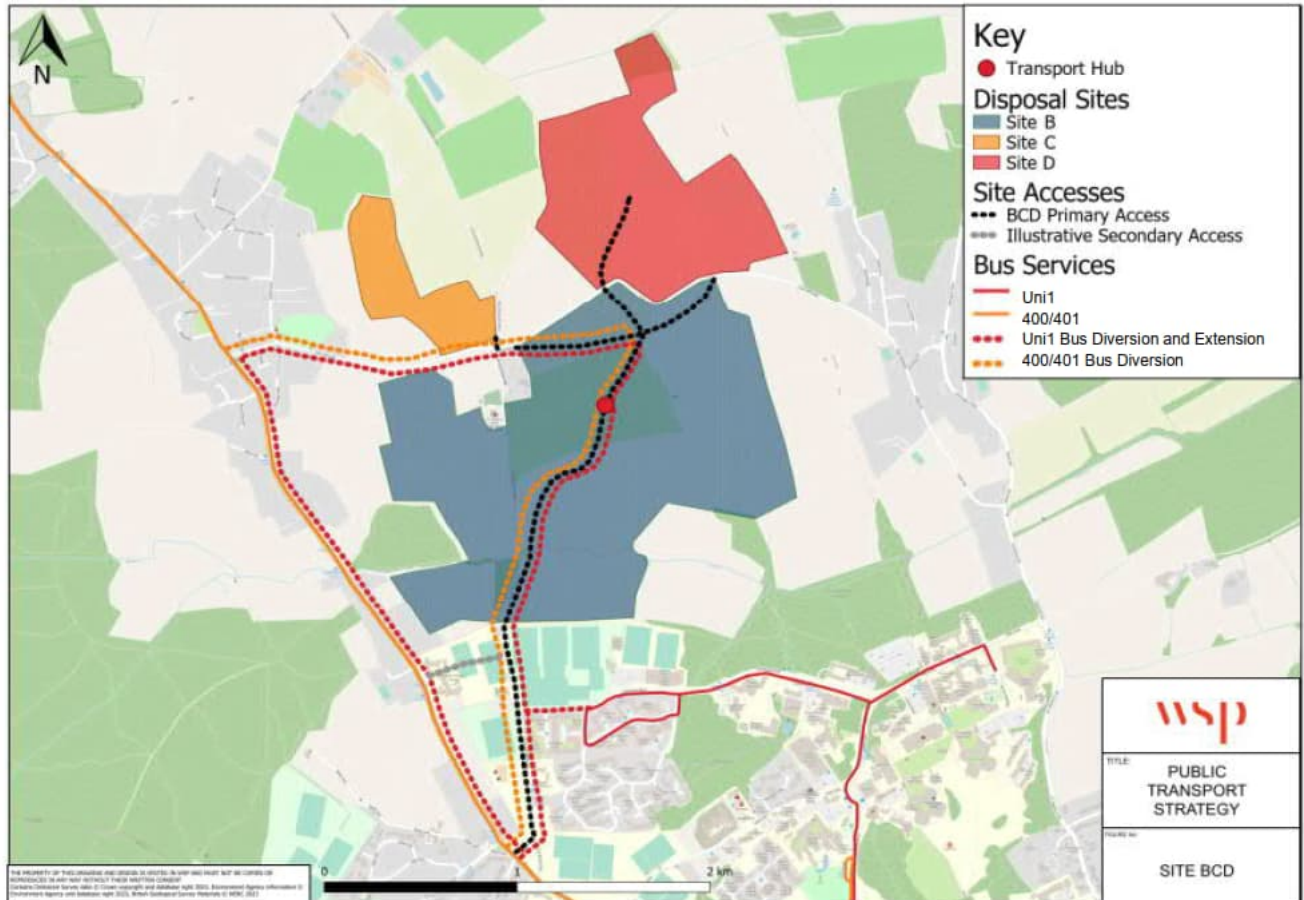
Service	Key Destinations	Day	First Bus	Last Bus	Approx frequency
			Campus Main stop – 0659	Campus Main stop – 2339	
		Sunday	Bus Station – 0735	Bus Station – 2339	
			Campus Main stop – 0725	Campus Main stop – 2329	

Table 2-2 – Weekday Bus Services from the University Campus

	08:00-09:00	09:00-10:00	16:00-17:00	17:00-18:00	18:00-19:00
Canterbury City centre	6	11	8	12	11
Whitstable	3	4	4	4	4

- 2.3.8. **Table 2-1** and **Table 2-2** demonstrate that there are up to 12 buses per hour from the university to Canterbury City Centre, including train stations, and four buses per hour to Herne Bay and Whitstable.
- 2.3.9. The transport strategy proposes to extend these services into a central transport hub for the site (**Figure 2-4**). This will widen the patronage of the existing services and further strengthen the financial models of all the bus services.
- 2.3.10. It was noted during discussions with Stakeholders that currently the bus services to and from the university and city centre are tidal, with a significant number of users travelling in the morning peak to the university and back towards the city centre in the evening peak. The residential led site offers the opportunity for the reverse in terms of patronage with full buses taking residents from the university area in the morning peak to the city centre and back to the university in the evening peak. This would therefore enable the proposed site allocation to support the viability of these existing bus services without reducing the capacity of existing services.

Figure 2-4 – Public Transport Strategy Key Diagram



2.3.11. An aspiration within the Draft Canterbury District Transport Strategy is to provide a Park & Ride on the A290 corridor into Canterbury, this would attract those travelling to Canterbury from the north Kent coastal towns. The UoK would be willing to consider the potential of providing a Park & Ride facility at the new development itself or within a car park on the University Campus. As noted in **Table 2-1**, the frequency of bus services would make the facility attractive to users on site. Further information on this strategy is presented later in this report.

Summary

2.3.12. The vision for public transport can be summarised as follows:

- Provide a mobility hub within the site to enhance the opportunity to connect frequent bus services to active travel opportunities, micro-consolidation, rapid electric vehicle charging and car club spaces
- Extend existing bus services accessing the university into the site to utilise and build upon the 12 existing bus services per hour stopping at the university
- Review bus service timings where required to ensure they are suitable to serve a residential led development

- Consider the potential to provide a Park & Ride at or within the vicinity of the UoK Campus

2.4 Walking and Cycling Strategy

- 2.4.1. Walking and Cycling have the potential to be a main mode of travel for trips to neighbouring areas including the city centre. In May 2024² WSP carried out a walking and cycling audit which supported the wider walking and cycling strategy for the proposed site allocation to improve connectivity between the site and Canterbury City Centre. Coupled with improvements identified in the Draft Local Cycling and Walking Implementation Plan (LCWIP) and on the facilities provided by the on-site mobility hub it is considered that a high quality walking and cycling offer can be provided for the proposed site allocation.

Policy Context

- 2.4.2. The Draft Canterbury District Transport Strategy for walking and cycling outlines how active travel is the most efficient way of travelling short distances bringing health benefits and not impacting on air quality or climate change. The document details how the Draft LCWIP 2025-2040 presents the proposed improvements to encourage walking and cycling around Canterbury. **Table 2-3** presents the walking and cycling improvements relevant to the areas between the University Campus and the city centre with which the UoK site allocation could benefit from.

Table 2-3 – Walking and cycling improvements taken from the draft LCWIP which would be applicable to the UoK site allocation

Ref	Action	Detail	Est Cost	Proposed funding source
CS14	Remove parking, widen footways and install table junction to provide better crossing area	Beaconsfield Road: short length of carriageway between the path adjacent to the former railway line and St Michael's Road. This requires cyclists to turn left then right in the carriageway at present	£100,000	CIL
CS15	Investigate "Share with Care" length of path	At Hackington Place	£1,000	CIL

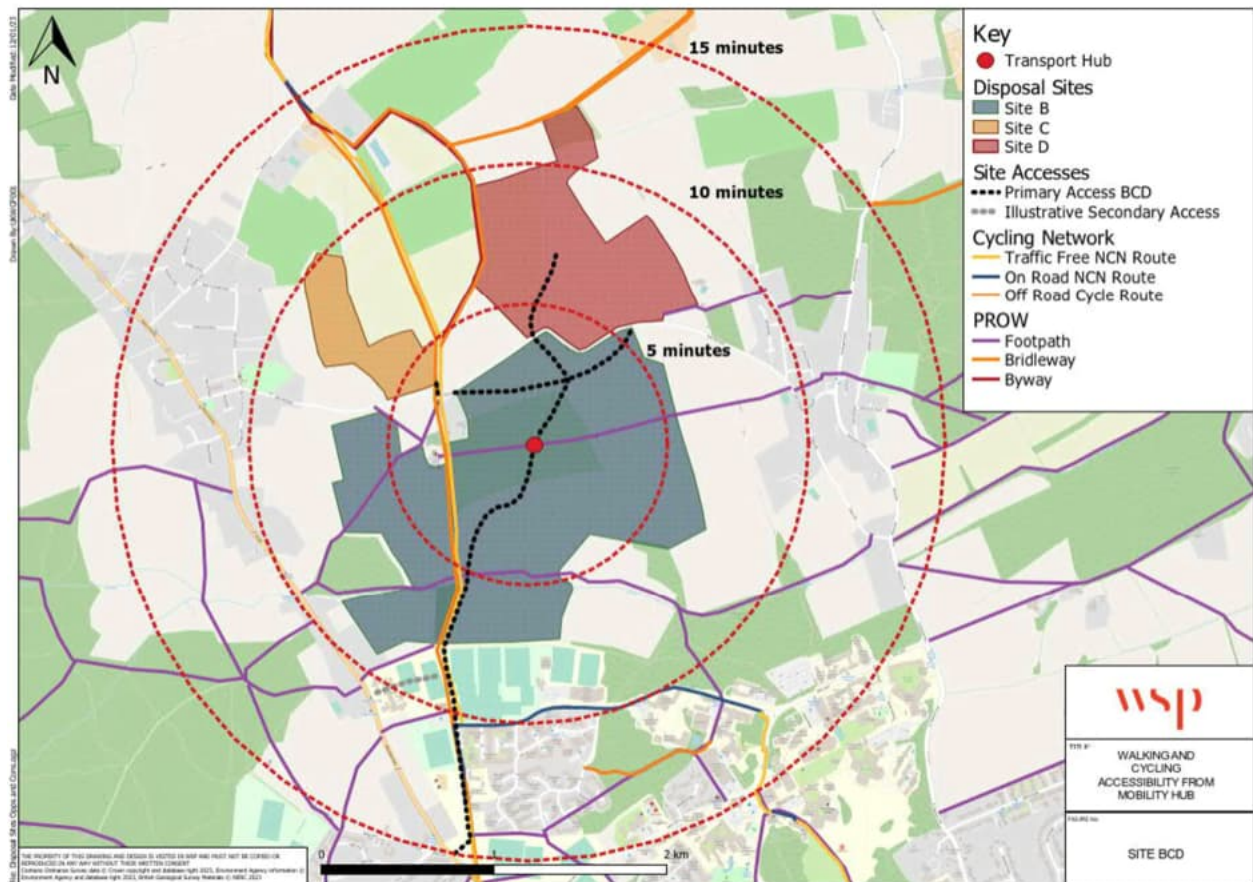
² University of Kent, Canterbury Campus, Regulation 18 Transport Appraisal (May 2024)

Ref	Action	Detail	Est Cost	Proposed funding source
	and removal of barriers			
CS16	Widen existing path and footway by using land to north of existing footway to Canterbury West station	This would create an important link from the station to University and residential areas to the north. It would enable the creation of an integrated transport hub at the station.	£100,000	CIL
CS17	Reduce carriageway width and widen footway/ cycle path at Station Road West	Add kerbed level difference between footway and cycle path. Improve pedestrian/ cycle crossing point on North Lane. Add cycle symbols to carriageway at The Causeway.	£100,000	CIL

Site Vision – Walking and Cycling

- 2.4.3. Walking and cycling have the opportunity to form a primary mode of travel to and from the Site. Existing infrastructure provided on site (**Figure 2-5**) in the form of the Crabb and Winkle Way (to be enhanced through delivery of the site's access road) connect the Site with the university campus to the south and existing pedestrian and cycle infrastructure on the A290 towards the city centre.
- 2.4.4. To encourage travel by active modes the on-site transport hub will include provision for shared and micro-mobility. The provision of e-bikes and e-scooters as a rental facility could either be provided by the development or as part of a city-wide strategy and form part of the longer-term strategy within the Draft Canterbury District Transport Strategy. The provision of these facilities, alongside traditional models of bicycle ownership and cycle parking within the development enable trips to/from local destinations within Canterbury. In particular, the use of e-bikes and e-scooters will help to overcome the topographic challenges faced by the location of the site relative to the city centre.

Figure 2-5 – Walking and Cycling Strategy Key Diagram

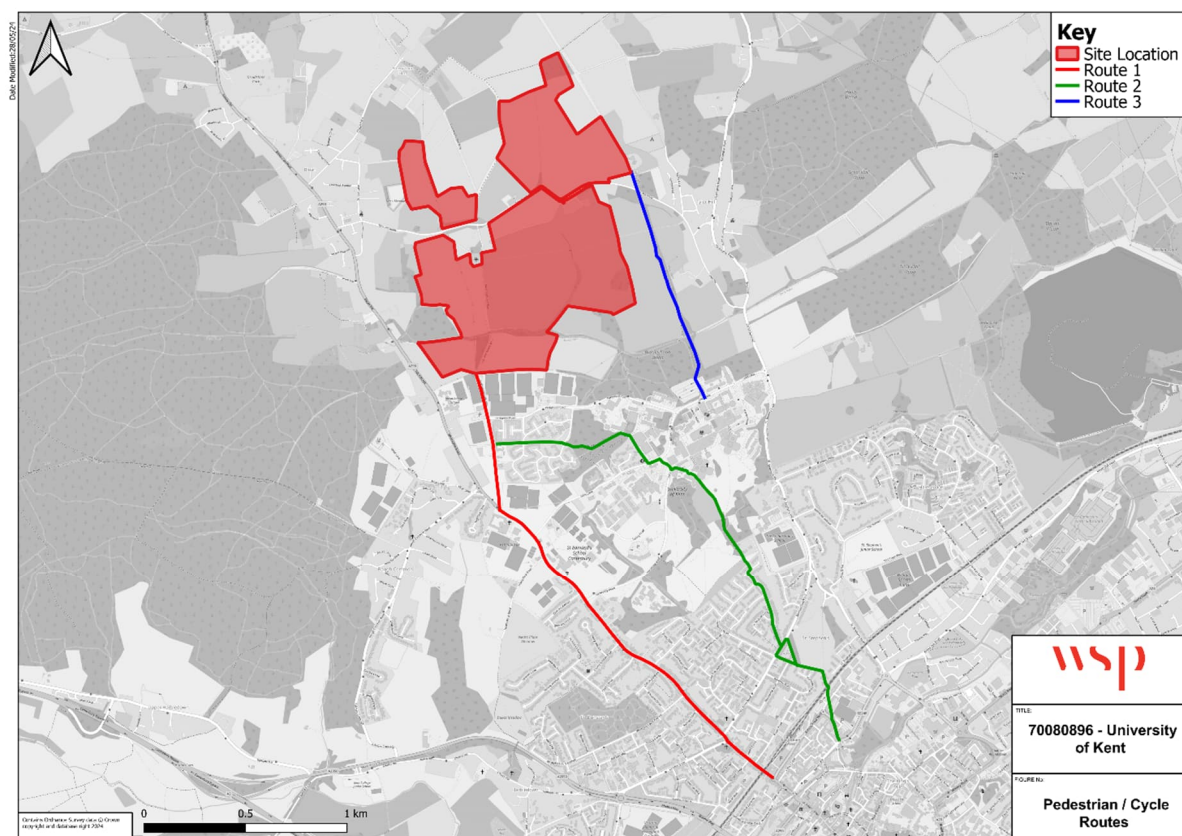


2.4.5. To ensure that infrastructure is in place to facilitate trips off-site by walking and cycling a walking and cycling audit was undertaken in May 2024³ which focused on three key movement corridors connecting the site with Canterbury City centre (**Figure 2-6**). The routes were as follows:

- Route 1: Crab and Winkle Way and Whitstable Road (south to the junction with B2248 Station Road W).
- Route 2: Through the centre of UoK via St Michael's Road to roundabout junction of B2248/ North Lane / St Stephen's Road.
- Route 3: Aspirational route via Crab & Winkle Line from point 100m north of Tyler Hill Road and Giles Lane.

³ University of Kent, Canterbury Campus, Regulation 18 Transport Appraisal (May 2024)

Figure 2-6 – Pedestrian and Cycle Route into Canterbury City Centre from UoK



2.4.6. **Table 2-4** below presents the limitations and the opportunities for each of the routes and how the site can support the LCWIP proposals.

Table 2-4 – Limitations and Opportunities across the three audit routes into Canterbury City centre

Route	Limitations and Opportunities
Route 1	An opportunity to provided additional surveillance and light to improve walking and cycling alongside the need to enhance the pedestrian crossing facilities. A limitation for cyclists is the need to be on road for the A290 corridor due to space limitation to provide a segregated cycle facility.
Route 2	The route offers a quiet, mostly off-road corridor to the city centre. It supports walking and cycling strategy policies CS14, CS15, and CS17 from the Draft LCWIP. Adding e-bikes to the Mobility hub will help users manage the route's elevation changes.

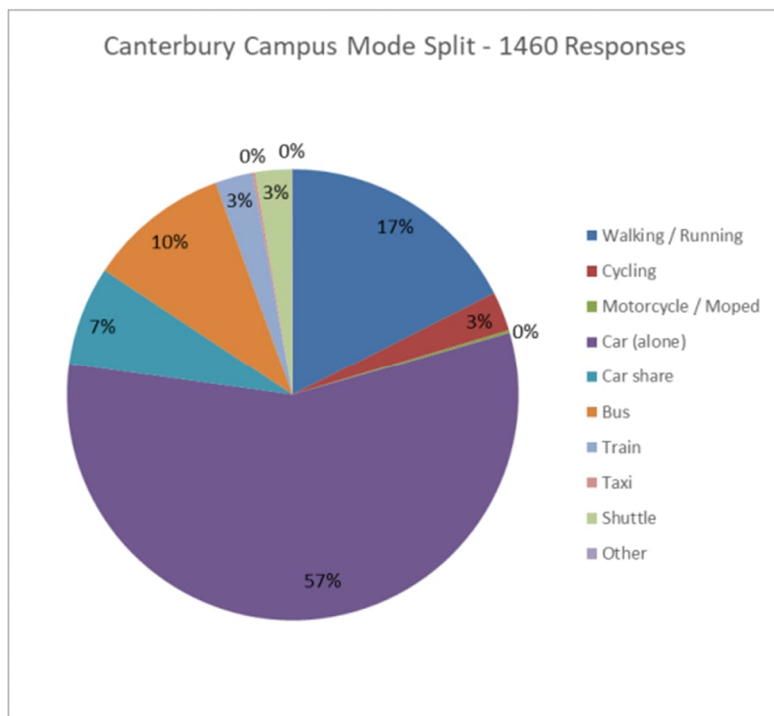
Route	Limitations and Opportunities
Route 3	This route is currently classified as a footpath and is considered aspirational. Upgrading this corridor to match the original railway line's width would incur substantial costs and necessitate comprehensive environmental assessments. Additionally, providing access to the university or city centre would demand significant improvements at the southern end to elevate pedestrians and prospective cyclists to street level.

- 2.4.7. The route audit indicates that there are existing opportunities for walking and cycling to the city centre, notably Route 2 which includes segregated cycle provision for the majority of the route into the city which is within appropriate distances for these modes of travel. Targeted improvements along these routes coupled with an on-site micro-mobility (e-bikes) offer a viable alternative to the private car, addressing potential concerns regarding elevation changes.

Existing University Travel Movements

- 2.4.8. To evidence the ability for the Site to encourage travel by walking and cycling reference has been made to the UoK Canterbury Campus Travel Plan (TP). Last updated in 2022 the TP shows how existing staff and students travel to and from the University Campus (**Figure 2-7**).

Figure 2-7 – University of Kent Canterbury Campus Travel Plan Survey Results



- 2.4.9. As highlighted within Route 2, there are significant level differences between the University Campus and the city centre. The TP indicates that only 3% of staff and students currently cycle to the university. However, the provision of shared micro-mobility facilities within the mobility hub provide an opportunity to increase cycling as a main mode of travel.
- 2.4.10. The TP results support the conclusions of the walking and cycling audit that there are no existing barriers to walking to the university as 17% of staff and students currently use this mode.
- 2.4.11. It is evident that through provision of facilities on site to encourage travel by active modes and improvements off-site towards the city centre that any barriers to walking and cycling can be overcome in a similar manner to that which is understood to have been agreed for other allocation sites in the draft local plan.

Summary

- 2.4.12. The vision for walking and cycling can be summarised as follows:
- The 20% active travel mode share of students and staff travelling to/from the University demonstrates the ability for non-car modes of travel to form a primary mode for the proposed allocation site.
 - Existing infrastructure provides connectivity between the Site, University and towards the city centre

- Enhancing the walking and cycling routes from the university to the city centre based on the LCWIP proposals and further enhancements identified by WSP will further encourage these modes
- Provision of e-bikes as part of the Mobility Hub to improve cycle connectivity between the site and the city centre overcoming any perceived constraint posed by the level difference.

2.5 Vehicular Strategy

- 2.5.1. As outlined in the introduction, WSP has undertaken extensive highway modelling to assess constraints on both the local and strategic highway networks. A package of off-site highway mitigation measures have been identified to accommodate the proposed site allocation on the highway network. WSP continue to work with KCC to refine these proposals as part of ongoing modelling.

2.6 Policy Context

- 2.6.1. The NPPF requires development proposals to be considered using a vision-led approach. This means locating development where it is or can be made to be sustainable, prioritising sustainable forms of transport above that of the private car and maximising opportunities from existing and proposed transport infrastructure.
- 2.6.2. The highway modelling undertaken to date has been based on previous NPPF guidance, which considered developments primarily as significant generators of vehicular trips and required development of a package of highway mitigation to address this vehicular trip generation. This contrasts with the updated NPPF approach, which places greater emphasis on sustainable travel options and the use of a vision-led approach.

2.7 Vision-led Approach

- 2.7.1. In respect of the UoK proposed site allocation the vision-led approach means:
- Providing a mix of uses on-site to enable residents to undertake daily activities within the site, reducing the need for travel off-site
 - Provision of a mobility hub on-site to be the focal point for the site's transport offering. This will provide access to a range of modes that will encourage sustainable travel
 - For those journeys that do need to take place off-site technology will be used to encourage smarter travel choices
 - A package of measures aimed at delivering high frequency bus services, walking and cycling infrastructure will be provided to prioritise sustainable travel
 - Opportunity exists to further reduce vehicular trip making to/from the city centre and replace them with bus and cycling trips through the measures above

- The University will review its own travel plan and car parking strategy to determine if baseline vehicular trips to/from the University could be reduced, thereby freeing up highway capacity. This topic is discussed in more detail later in this report.
- The residual impacts of the development, once all efforts to encourage sustainable travel have been accounted for will be considered within an updated highway network assessment
- A targeted package of highway mitigation measures will then be determined based on the residual highway impacts identified

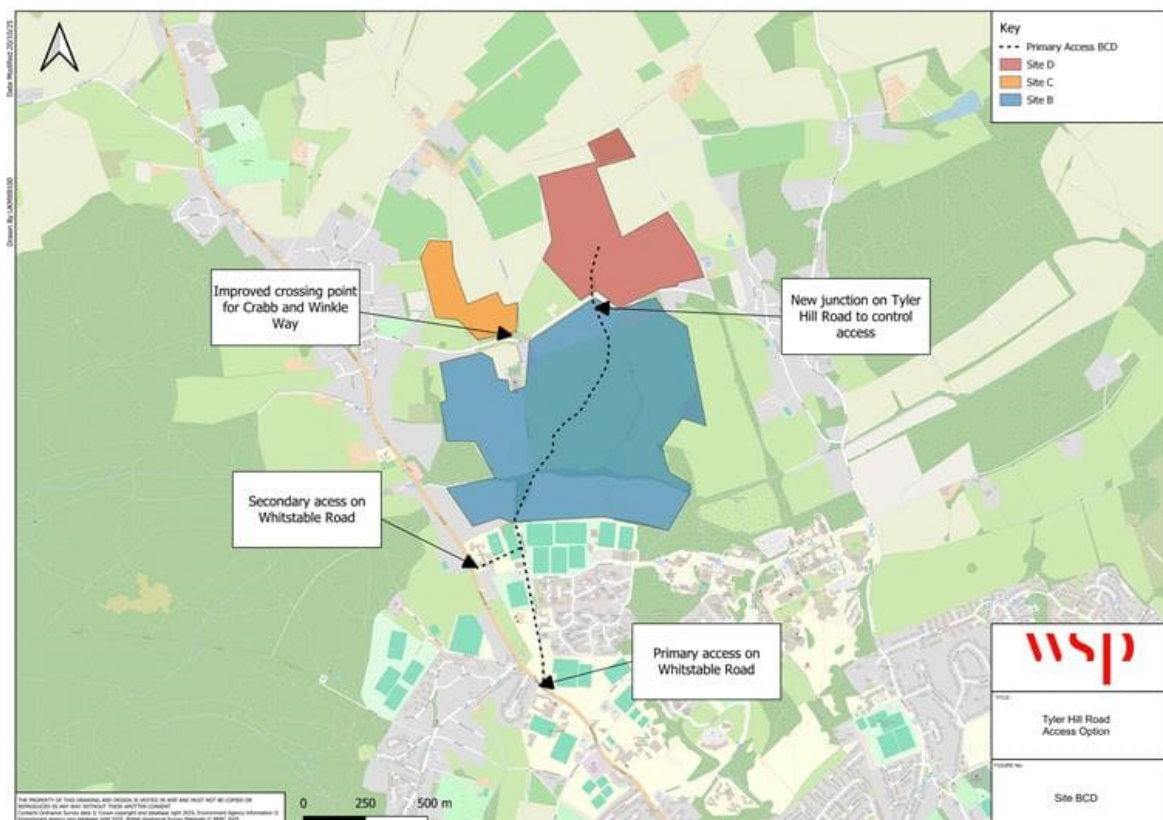
2.8 Access Strategy

- 2.8.1. When considering vehicular access to Sites BCD the starting point was to investigate where the current sites connect with the public highway. The only existing point of connection to the public highway is Tyler Hill Road. Tyler Hill Road is a single carriageway road that connects the A290 Whitstable Road in the west with the village of Tyler Hill and Hackington Road in the east.
- 2.8.2. In its current form Tyler Hill Road is not currently considered suitable to accommodate a significant increase in volumes of traffic. Due to the University's limited frontage onto Tyler Hill Road, constrained highway boundary extents and multiple land ownerships fronting the highway, the University has limited potential within its own land ownership to improve Tyler Hill Road.
- 2.8.3. Consideration has been given to whether access could be achieved through third party land acquisition. However, the multiple land ownerships restrict the ability to achieve this at this early stage (although opportunities may arise in due course). In addition, significantly increasing traffic volumes on this road could result in unacceptable impacts on the neighbouring village of Tyler Hill and upon the two junctions at either end (A290 and Hackington Road) which have been highlighted by KCC as a concern.
- 2.8.4. The access strategy therefore proposes developing a north-south route through the University Campus achieving access onto Whitstable Road. To discourage increased usage of Tyler Hill Road, and through discussions with KCC the principle of an engineered solution, restricting highway access to Tyler Hill Road has been agreed. A bus gate would also be introduced on Park Wood Road within the University Campus to discourage traffic routing along this road.
- 2.8.5. Two points of access are proposed onto Whitstable Road. A priority junction is proposed in the south which would be supplemented at a later date by a secondary access at the location of the existing Blean Primary School. The Blean Primary School would be re-provided to facilitate the secondary access. The access strategy is summarised in **Figure 2-8**.
- 2.8.6. To enable the north-south access strategy, and based on the University's current land holdings the access road would need to pass through an area of ancient woodland located

on Site B. Further information on the route selection and design of the access road are set out in the May 2024 transport submission for the Local Plan⁴.

- 2.8.7. In the context that ancient woodland is classified as an irreplaceable habitat and of high ecological value, work has been undertaken to understand this constraint, how impacts could be minimised and the potential compensation strategy that would be required. A separate note on the Ancient Woodland Compensation Strategy⁵ has been submitted with the local plan representations.

Figure 2-8 – Access Strategy Diagram



2.9 Highway Impacts

- 2.9.1. The modelling work undertaken to date has identified a package of mitigation that could be implemented to accommodate the proposed allocation site on the highway network. This

⁴ University of Kent, Canterbury Campus Regulation 18 Transport Appraisal, WSP, May 2024

⁵ University of Kent Disposal Sites – Ancient Woodland Strategy (September 2025)

package has been refined through various iterations of highway modelling with the most recent modelling presented to KCC Highways in August 2025.

- 2.9.2. The Draft Canterbury District Transport Strategy identifies an all movement junction at the A2 Harbledown as a key piece of infrastructure associated with the proposed site allocation. Based on the highway modelling work undertaken to date the proposed site allocation is not reliant upon the Harbledown Slips.
- 2.9.3. It is understood that the Harbledown Slips have been removed from the Draft Canterbury District Local Plan: Focused consultation, noting the limited support from National Highways and citing the removal of the UoK's site allocation. Whilst it is considered that the Harbledown slips could be complementary to the delivery of a site allocation to the north of the University, as it has the potential to remove traffic from the city centre ring road, it does not appear to be a direct requirement of the Site based upon the work undertaken to date.
- 2.9.4. More broadly, CCC is aware of the congestion challenges within the city centre and is actively exploring opportunities to improve conditions. WSP supports these efforts and believes that any wider changes to vehicle access into the city centre (whether through vehicle charging or use of Park & Rides) aligns well with the transport strategy developed for the site allocation. The site vision also reflects this by aiming to reduce overall trip demand along the A290 Whitstable Road corridor into Canterbury City Centre.
- 2.9.5. It is important to note that the conclusions reached to date on the highway impacts of the site allocation, most recently set out in the traffic modelling are derived from a 'worst case' scenario and do not incorporate elements of either the UoK's or Canterbury City Council transport visions, which are intended to decrease vehicle movements on major routes into Canterbury, such as the A290. Based on current discussions, it has been established that the Draft Canterbury District Transport Strategy has yet to be thoroughly evaluated. Consequently, it can only be concluded that the proposed draft allocations will result in increased vehicular impacts along other restricted corridors leading into the city centre, with limited measures available to mitigate these effects.

3 Vision Led Trip Generation

3.1 Introduction

- 3.1.1. This section provides a summary of the trip generation for the Site agreed with the Transport Stakeholders (KCC Highways and National Highways) in 2024 in advance of undertaking the strategic modelling and the analysis undertaken to demonstrate how, through the comprehensive transport strategy set out in the previous section, a 'vision led' approach to the trip generation can be utilised to review vehicular trips and reduce highway impacts.

3.2 Agreed Trip Generation

- 3.2.1. WSP produced a Modelling Trip Generation Technical Note (TN) in November 2024 (**Appendix A**) which formed the basis of the traffic flows utilised in the Jacobs modelling of the site. **Table 3-1** presents the agreed vehicular trip generation which represents the baseline upon which the 'vision led' approach has then been considered.

Table 3-1 – Total Vehicular Trip Generation

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Residential – Private Housing (1,800 Dwellings)	126	571	697	608	304	912
Residential – Senior Living (200 units)	17	23	40	20	15	35
Office (4000sqm)	50	3	53	0	44	45
Education – 3FE Primary School	50	0	50	0	35	35
Vehicular Total	242	598	840	628	398	1,026

3.3 Spatial Analysis

- 3.3.1. A review of 2011 Census journey to work data for the Canterbury 012 Mid-layer Super Output Area (MSOA) (where the site is located) has been undertaken to understand the distribution of trip making associated with the existing population. The existing population

has then been used as a proxy for the Site. **Table 3-2** provides a breakdown of the existing travel patterns of those living and working within Canterbury 012.

Table 3-2 –Review of Canterbury 012 MSOA

	Canterbury District	Outside Canterbury District
Place of Work Canterbury 012	69.3%	30.7%
Home Canterbury 012	63.2%	36.8%

- 3.3.2. **Table 3-2** demonstrates that the existing population exhibit high levels of trip containment within Canterbury itself with approximately 70% of trips starting and ending within the Canterbury district providing opportunity for the vision led approach to focus on key routes to local destinations.

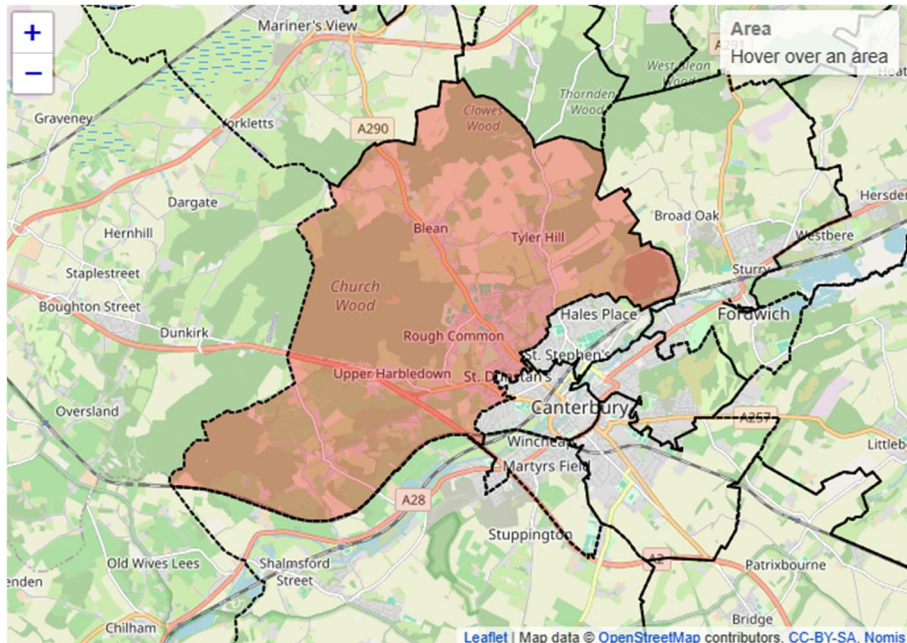
Transport Vision

- 3.3.3. The Transport Vision will be split into four different areas based on its location and accessibility to different modes of transport. Each of the zones is detailed below.

Intra Zone

- 3.3.4. The intra zone is the Canterbury 012 MSOA, as presented in **Figure 3-1**. It is noted that the major employer in the zone is the UoK.
- 3.3.5. In the MSOA origin-destination (OD) data approximately 20% of work-based trips start and end in Canterbury 012. As this would have the potential to skew the analysis a review of the Canterbury Campus Travel Plan has been undertaken to understand the number of staff members living and working in Canterbury 012. The information provided from the Travel Plan survey indicates that approximately 15% live and work within Canterbury 012 MSOA.
- 3.3.6. The number of OD trips associated with the Site apportioned to start and end their journey in Canterbury 012 has therefore been revised downwards to 15% to be commensurate with existing travel patterns. The residual trips have then be spread across the remaining destinations.
- 3.3.7. Those trips associated with the Site and taking place in the Intra Zone are assumed to largely be undertaken by walking and cycling.
- 3.3.8. This is supported by the development's proximity to the University Campus and by providing high-quality footway and cycleway provision throughout the Site and to/from the University Campus.

Figure 3-1 - Intra Zone MSOA



City Centre (Western) MSOAs

- 3.3.9. The City Centre (Western) MSOAs (**Figure 3-2**) have been grouped together due to being the closest City Centre destination and are also served directly by bus from the existing University. The two MSOAs are approximately a half an hour walk from the Site as presented by **Figure 3-3** and within a 10-minute cycle journey from the Site as shown in **Figure 3-4**. Furthermore, in terms of bus accessibility there are currently up to 12 bus services an hour between the Site and Canterbury City Centre with little walking distance required from the stops to employment areas.

Figure 3-2 - City Centre (Western) MSOAs

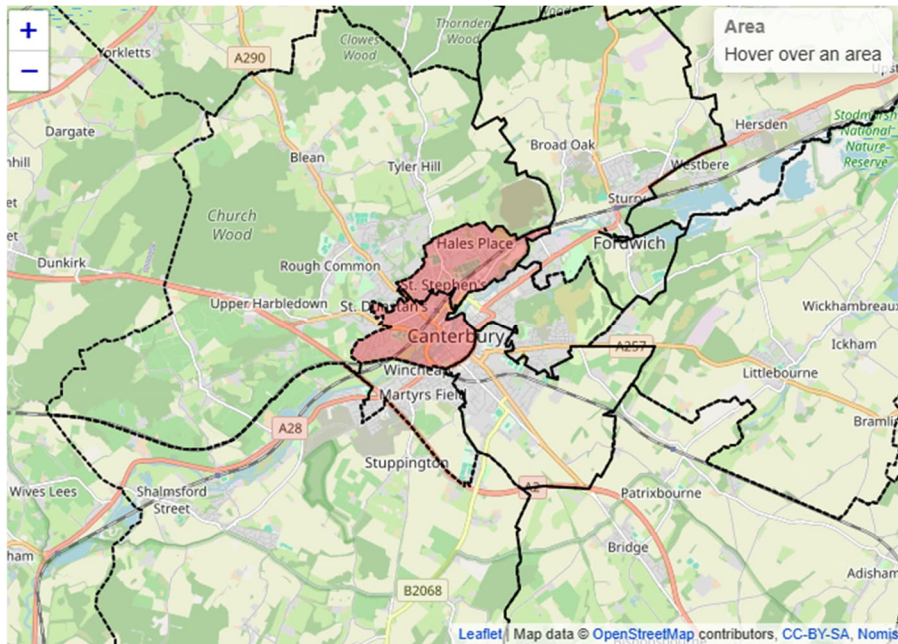


Figure 3-3 - Walking Accessibility Sites BCD

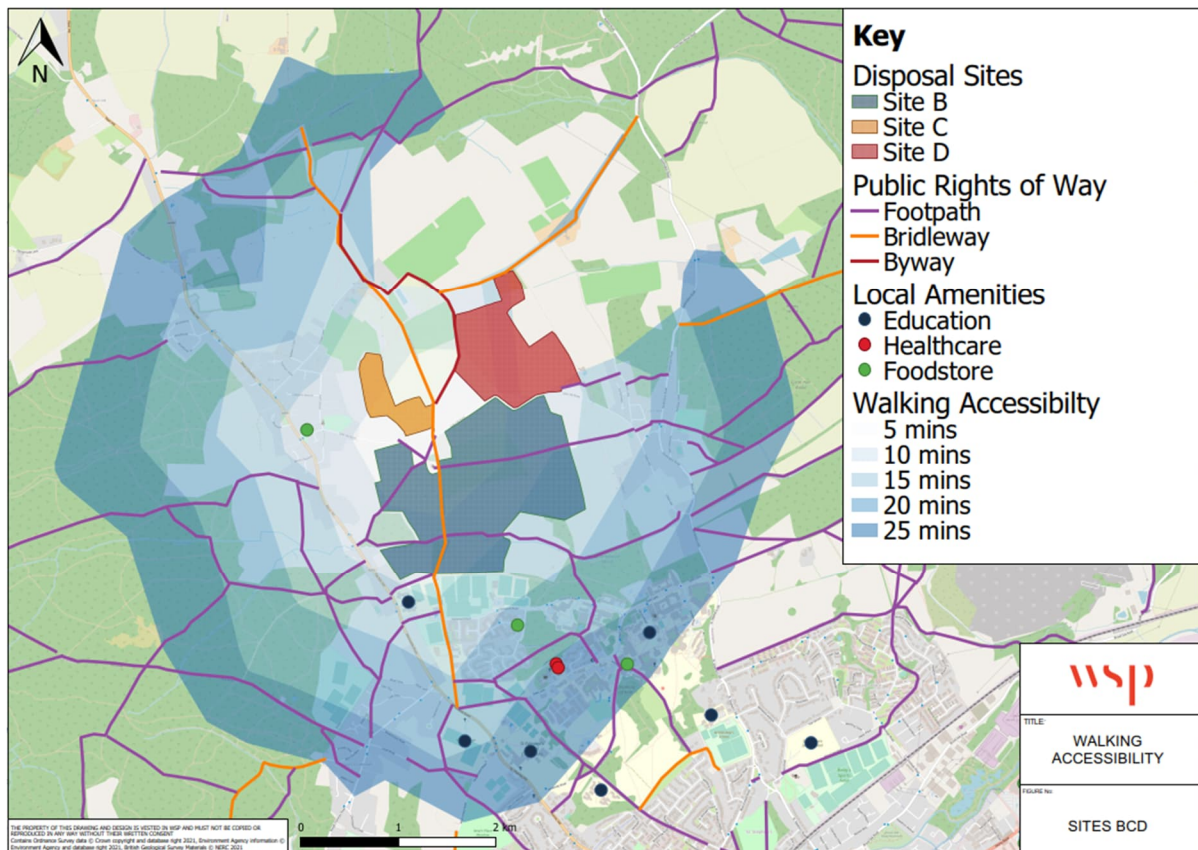
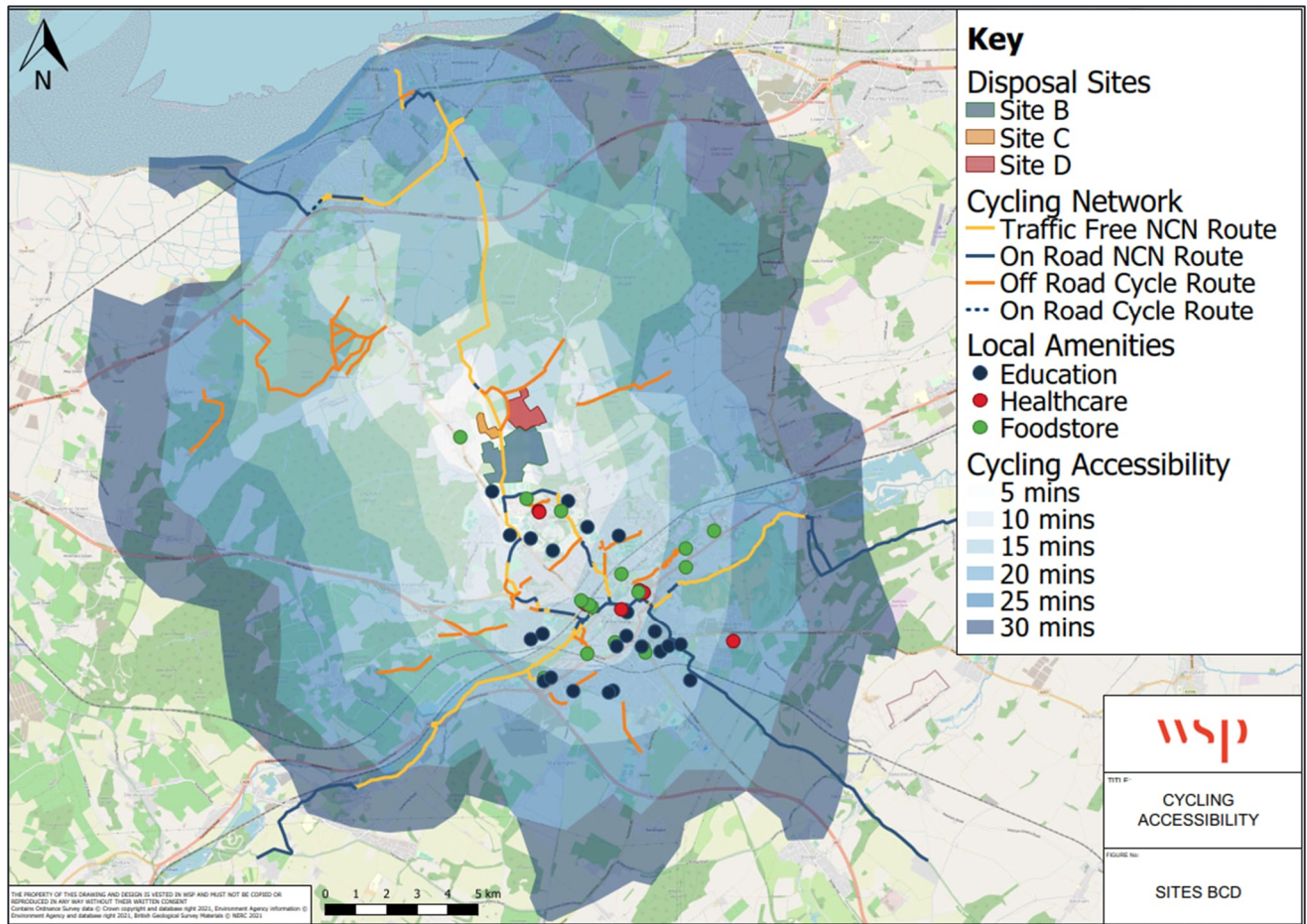


Figure 3-4 - Cycle Accessibility Sites BCD



City Centre (Eastern) MSOAs

- 3.3.10. The City Centre eastern MSOAs (**Figure 3-5**) have been grouped together as a potential destination beyond that of the existing bus services serving the University as the majority of services terminate within the City Centre. Despite this the predominant alternative mode is still likely to be the bus with a short walk required at the beginning/end of the journey (**Figure 3-6**) whilst cycling still provides an alternative mode, albeit it is acknowledged that as distance from the Site increases so the propensity to cycle reduces.

400 and 401 bus service that serves the University. This is presented in **Figure 3-7** below. The bus services from Whitstable into/ nearby the University operate on a 15 minute frequency which should be sufficient to allow connection between the Site and this destination on the North Kent Coast. **Figure 3-8** presents the MOSAs included within the North Kent Coast catchment.

Figure 3-7 - Whitstable and Herne Bay Accessibility

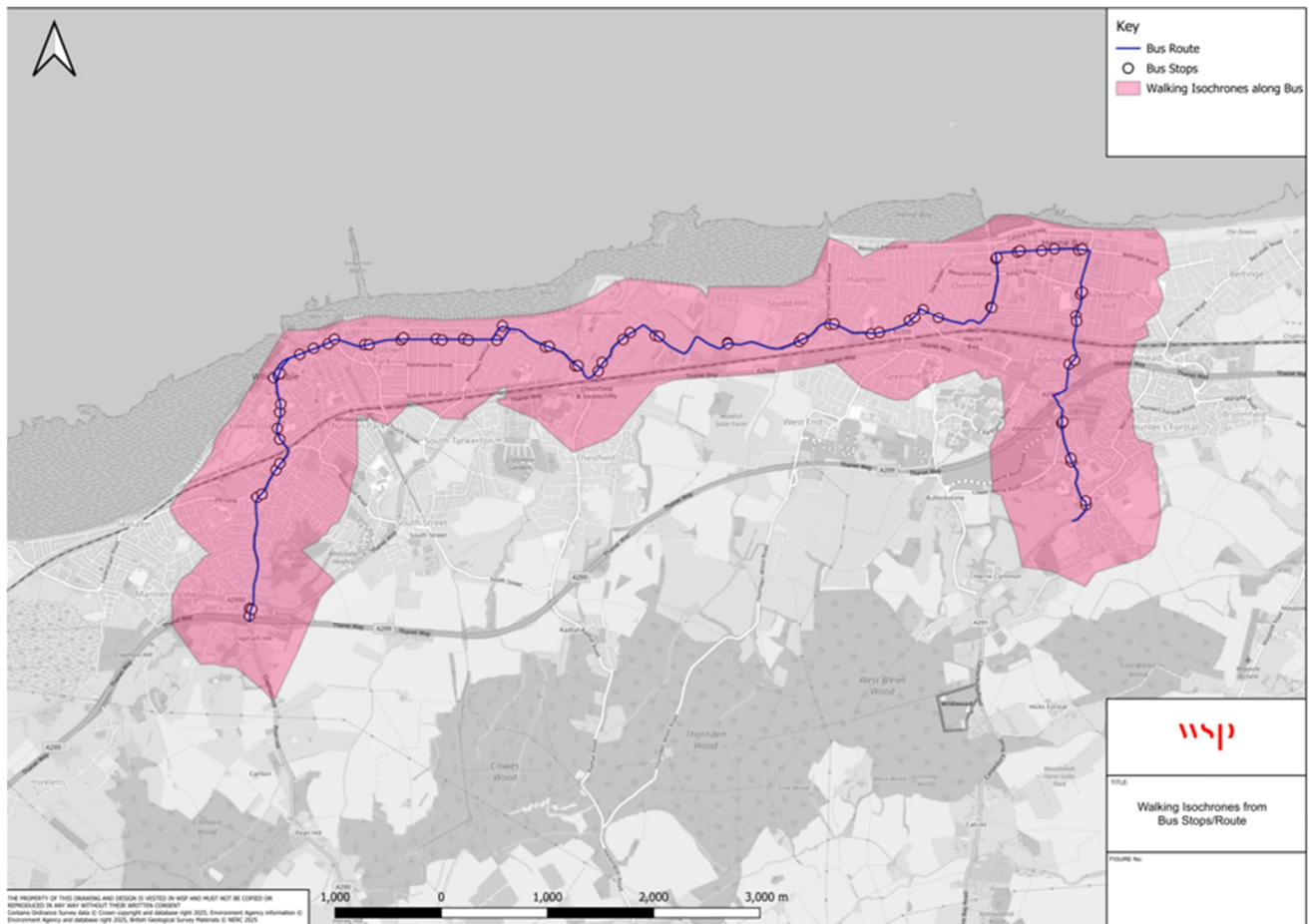
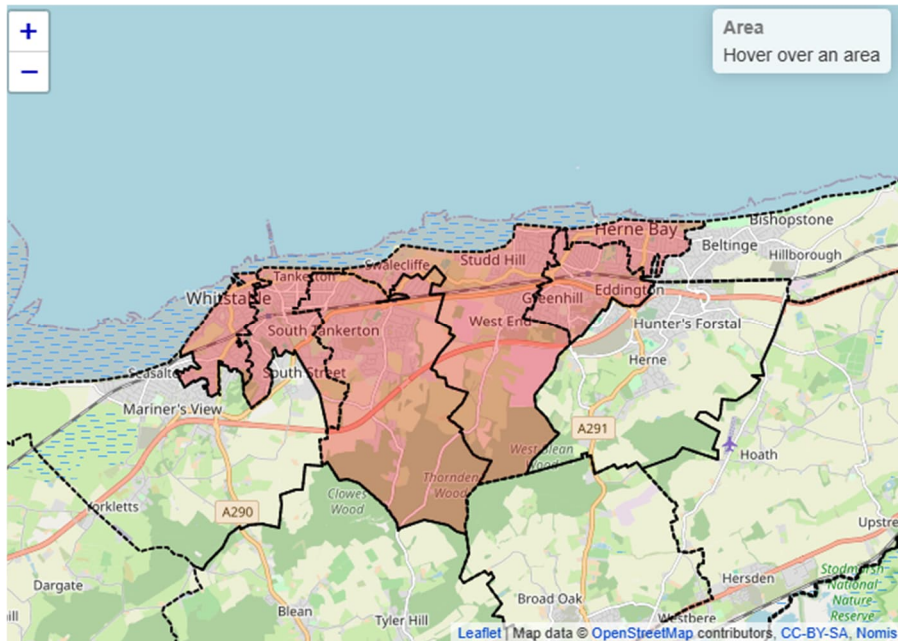


Figure 3-8 - North Kent Coast MSOAs



3.4 Vision Led Trip Generation

- 3.4.1. **Table 3-3** presents mode share targets for Active Travel and Bus patronage based on the four zones identified and across three Transport Vision Scenarios (Max, Average and Low). Residual trips are assumed to take place by the remaining modes available with the predominant mode being by car.

Table 3-3 – Transport Vision Scenarios by Zone

Zone/Scenario	Transport Vision Max		Transport Vision Average		Transport Vision Low	
	Active Travel	Bus	Active Travel	Bus	Active Travel	Bus
Intra Zone	90%	0%	75%	0%	50%	0%
City Centre (Western) MSOAs	45%	45%	30%	40%	25%	25%
City Centre (Eastern) MSOAs	0%	60%	0%	40%	0%	20%
North Kent Coast MSOAs	0%	35%	0%	20%	0%	10%

- 3.4.2. The figures presented in **Table 3-3** have been used to amend the 2011 Census Travel to Work OD data to establish the proportion of trips that would transfer to active and public transport modes following application of the three scenarios.
- 3.4.3. It should be noted that whilst undertaking this analysis, if the existing mode share percentage for an MSOA was found to be higher than the proposed vision, the existing mode share percentage has been used.
- 3.4.4. The following section shows how the trip generation would adjust in each of the scenarios outlined for both the Commercial and Residential land uses.

Commercial

- 3.4.5. **Table 3-4** replicates **Table 5** from the TN and presents the Office Person Trip Rate and Trip Generation.

Table 3-4 - Office Person Trip Rate and Trip Generation (including internalisation)

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Person Trip Rate (100sqm)	2.075	0.130	2.205	0.012	1.851	1.863
Person Trip Generation (4000sqm)	83	5	88	0	74	75

- 3.4.6. The calculated Transport Vision Max, Average and Low mode shares along with a comparison to the baseline 2011 Census data is presented in **Table 3-5**.

Table 3-5 - 2011 Census Mode vs Transport Vision Max, Average and Low Mode Share Commercial

Mode	2011 Census	Transport Vision Max	Transport Vision Average	Transport Vision Low
Rail (including underground)	3.8%	3.8%	3.8%	3.8%
Bus	9.4%	22.3%	19.3%	12.4%
Taxi	0.2%	0.2%	0.2%	0.2%

Mode	2011 Census	Transport Vision Max	Transport Vision Average	Transport Vision Low
Motorcycle	0.4%	0.4%	0.4%	0.4%
Car Driver	59.3%	43.3%	47.9%	55.2%
Car Passenger	5.1%	5.1%	5.1%	5.1%
Active Travel (Walking and Cycling)	21.5%	25.2%	23.5%	22.6%
Other	0.2%	0.2%	0.2%	0.2%
Total	100%	100%	100%	100%
Vehicular Total	60.0%	43.3%	48.4%	55.9%

3.4.7. **Table 3-6** presents the two-way trip generation based on the mode shares outlined in **Table 3-5**.

Table 3-6 – Forecast Trip Generation by Scenario for Commercial Land Use

Mode	2011 Census		Transport Vision Max		Transport Vision Average		Transport Vision Low	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Bus	8	7	20	17	17	14	11	9
Rail (including underground)	3	3	3	3	3	3	3	3
Taxi	0	0	0	0	0	0	0	0
Motorcycle	0	0	0	0	0	0	0	0
Car Driver	52	44	38	32	42	36	49	41
Car Passenger	4	4	5	4	5	4	5	4
Active Travel (Walking and Cycling)	19	16	22	19	21	18	20	17
Other	0	0	0	0	0	0	0	0
Total	88	75	88	75	88	75	88	75
Vehicular Total	53	45	41	35	49	42	52	44

- 3.4.8. The vehicular trip generation for the Commercial land use is forecast to reduce by approximately 22% in the Transport Vision Max when compared to the 2011 Census in the AM peak and PM peak. Whilst the Transport Vision Low shows very minimal reduction in vehicular trips. The Transport Vision Scenarios forecast between a 3-12 person increase in bus patronage in the AM peak and in the PM Peak the increase is forecast to be between 2-10 persons.

Residential

- 3.4.9. The residential person trip generation has been disaggregated by journey purpose and mode in the TN. This approach enabled detailed consideration of internalisation as well as providing an opportunity for different mode shares to be applied to each journey purpose. The internalisation assumptions were applied after the trips were split by journey purpose using National Travel Survey (NTS) data.
- Retail – 10% of the trips were internalised reflecting the presence of a local centre on site to serve the needs of the development.
 - Escort Education – 75% of the trips were internalised to reflect the presence of a primary school on site.
 - Commuting / Business – A 10% internalisation factor has been applied to the office land use, as shown in Tables 4 and 5. These trips have then been removed from the commuting / business journey purpose.
- 3.4.10. The Transport Vision focuses on the **Commuting/ Business, Retail, Other Work, Visiting Friends and Holiday** journey purposes as there is a significant amount of internalisation already applied to the Education/ Escort Education trip purpose.
- 3.4.11. **Table 3-7** replicates **Table 11** from the TN and represents the baseline position upon which the Residential Transport Vision is applied.

Table 3-7 - Residential Person Trip Generation by Journey Purpose (including internalisation)

Time Period	Commuting / Business	Retail	Education	Education Escort	Other work, visiting friends, holiday	Total
AM Peak (08:00 – 09:00)	372	63	477	95	359	1,366
PM Peak (17:00 – 18:00)	561	174	48	9	757	1,548

Mode Share

- 3.4.12. As outlined in the TN, the **Commuting/ Business, Retail, Other Work, Visiting Friends and Holiday** trip purposes utilise the 2011 Census data to present the trip generation by mode, this is recreated in **Table 3-8**. The Transport Vision mode shares have then been shown to the side.

Table 3-8 - 2011 Census Mode vs Transport Vision Max, Average and Low Mode Share Residential

Mode	2011 Census	Transport Vision Max	Transport Vision Average	Transport Vision Low
Rail (including underground)	5.4%	5.4%	5.4%	5.4%
Bus	8.0%	24.2%	19.5%	12.0%
Taxi	0.8%	0.8%	0.8%	0.8%
Motorcycle	0.5%	0.5%	0.5%	0.5%
Car Driver	58.3%	35.5%	44.1%	55.4%
Car Passenger	4.9%	4.9%	4.9%	4.9%
Active Travel (Walking and Cycling)	22.0%	28.6%	24.7%	20.9%
Other	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%
Vehicular Total	59.6%	36.8%	45.4%	56.7%

Retail, Other Work, Visiting Friends, Holiday Trip Generation

- 3.4.13. **Table 3-9** presents the forecast two-way trip generation for the Retail, Other Work, Visiting Friends and Holiday elements of the residential trips based on the mode shares presented in **Table 3-8**.

Table 3-9 - Forecast Trip Generation by Scenario for Residential Retail, Other Work, Visiting Friends and Holiday Journey Purposes

Mode	2011 Census		Transport Vision Max		Transport Vision Average		Transport Vision Low	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Bus	34	74	102	225	82	181	51	112
Rail (including underground)	23	50	23	50	23	50	23	50
Taxi	4	8	4	8	4	8	4	8
Motorcycle	2	4	2	4	2	4	2	4
Car Driver	246	543	150	331	186	411	234	516
Car Passenger	21	46	21	46	21	46	21	46
Active Travel (Walking and Cycling)	93	205	121	267	104	230	88	195
Other	0	0	0	0	0	0	0	0
Total	423	931	423	931	422	931	422	931
Vehicular Total	252	555	155	343	192	423	239	528

- 3.4.14. The vehicular trip generation for the Retail, Other Work, Visiting Friends and Holiday trip purpose is forecast to reduce by approximately 40% in the Transport Vision Max when compared to the 2011 Census in the AM peak and PM peak. Whilst the Transport Vision Low shows a 5% reduction in vehicular trips. The Transport Vision Scenarios forecast between 17-68 increase in bus patronage in the AM peak and in the PM Peak the increase is forecast to be between 38-151.

Journey Purpose - Commuting / Business

- 3.4.15. **Table 3-10** presents the forecast two-way trip generation for the Commuting / Business element of the residential trips based on the mode shares presented in **Table 3-8**.

Table 3-10 - Forecast Trip Generation by Scenario for Residential Commuting/Business Journey Purpose

Mode	2011 Census		Transport Vision Max		Transport Vision Average		Transport Vision Low	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Bus	30	45	90	136	72	109	45	67
Rail (including underground)	20	30	20	30	20	30	20	30
Taxi	3	5	3	5	3	5	3	5
Motorcycle	2	3	2	3	2	3	2	3
Car Driver	217	327	132	199	164	248	206	311
Car Passenger	18	27	18	27	18	27	18	27
Active Travel (Walking and Cycling)	82	124	107	161	92	139	78	117
Other	0	0	0	0	0	0	0	0
Total	372	561	372	561	372	561	372	561
Vehicular Total	222	335	137	207	169	255	211	318

- 3.4.16. The vehicular trip generation for the Commuting/Business trip purpose is forecast to reduce by approximately 40% in the Transport Vision Max when compared to the 2011 Census in the AM peak and PM peak. Whilst the Transport Vision Low shows a 5% reduction in vehicular trips. The Transport Vision Scenarios forecast between 15-60 increase in bus patronage in the AM peak and in the PM Peak the increase is forecast to be between 22-91.

Overall Change

- 3.4.17. **Table 3-11** below presents the difference in trips by mode between the various Transport Vision scenarios and the existing trip generation taken from the TN produced in November 2024.

Table 3-11 – Overall Change between Trip Generation and Transport Vision Scenarios

Mode	Transport Vision Max		Transport Vision Average		Transport Vision Low	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Bus	+140	+252	+99	+178	+35	+62
Car Driver	-195	-352	-123	-219	-26	-46
Active Travel (Walking and Cycling)	+56	+102	+23	+42	-8	-16

- 3.4.18. The results in **Table 3-11** would suggest a significant increase in trips by bus with the most pronounced increase in the PM peak. Whilst the increase in bus trips looks significant the existing University is served by a high frequency bus service already. Initial discussions with Stagecoach supported a strategy of extending existing routes to serve the Site. On this basis and reviewing the existing service frequency in the AM peak the additional bus patronage would be nine people per service and in the PM peak approximately 16 per service. Further discussions will be held with Stagecoach on the basis of this information to understand whether a change to the bus strategy is required.
- 3.4.19. One anomaly that results from the analysis presented is a reduction in active travel in the Vision Low scenario. The negative change is due to the changes made to the Census data regarding the Canterbury 012 MSOA. The reduction of the number of people working and living in Canterbury 012 MSOA to match the University postcode data has led to an increase in the percentage of users from other MSOAs. The remaining Canterbury MSOAs have a significantly different mode share compared to Canterbury 012 and as such the active travel flow decreases.

3.5 A290 Whitstable Road Impact

- 3.5.1. The removal of the trips outlined in **Table 3-11** will be most significantly felt on the A290 corridor into Canterbury City Centre. As the two vehicular access points for the Site are located on the A290 and with the recent amendment to the overall access strategy the development will no longer be able to access Tyler Hill Road. The traffic flow bundles show that with the new access arrangement only a small amount of traffic associated with Canterbury City Centre utilises St Stephen's Hill.
- 3.5.2. To calculate the potential impact on traffic flows on the A290 the change in vehicular trips has been considered with reference to the Census origin-destination data. **Table 3-12** below presents the directional split of development traffic between the A290 North and South.

Table 3-12 – Direction split of development traffic on the A290 based on Census data

Direction	Zones	Home 012 to Area	Direction Split %	Area to Work 012	Direction Split %
A290 (N)	Canterbury 001	29	14.9%	79	27.3%
	Canterbury 003	12		88	
	Canterbury 004	29		72	
	Canterbury 005	59		113	
	Canterbury 007	10		120	
	Canterbury 008	27		137	
A290 (S)	Canterbury 013	50	85.1%	488	72.7%
	Canterbury 014	155		134	
	Canterbury 016	274		214	
	Canterbury 019	77		160	
	Canterbury 020	397		575	
Total		1,120	N/A	2,162	N/A

- 3.5.3. **Table 3-12** forecasts that for the residential land use the split on the A290 (North) will be 15% whilst on the A290 (South) that will equate to 85%. Whilst, for the commercial element, the split on the A290 is approximately 25:75 north to south.
- 3.5.4. **Table 3-13** and **Table 3-14** present the reduction in traffic flows on the A290 in each direction in the AM and PM peak for the three Transport Vision Scenarios.

Table 3-13 – Vehicular Reduction on the A290 based on Bus Increases in the AM Peak

Link	Transport Vision Max		Transport Vision Average		Transport Vision Low	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
A290 (N)	-4	-17	-3	-12	-1	-4
A290 (S)	-21	-98	-15	-70	-5	-24

Table 3-14 – Vehicular Reduction on the A290 based on Bus Increases in the PM Peak

Link	Transport Vision Max		Transport Vision Average		Transport Vision Low	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
A290 (N)	-25	-12	-18	-9	-6	-3
A290 (S)	-144	-70	-103	-50	-35	-17

3.5.5. **Table 3-15** presents the vehicular trip reduction on the A290 (South) towards Canterbury City Centre based on the increase in Active Travel in the three Transport Vision Scenarios.

Table 3-15 – Vehicular Reduction on the A290 (South) based on Active Travel increases

Link	Transport Vision Max		Transport Vision Average		Transport Vision Low	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
AM Peak	-3	-2	0	+9	0	+7
PM Peak	-4	-4	+12	+4	+11	+5

3.5.6. **Table 3-16** below presents the Scenario 8 traffic flows on the A290 south of University Road, along with the forecast reduction of traffic flows on the A290 following the implementation of each of the Transport Vision Scenarios accounting for the shift to both bus and active travel modes.

Table 3-16 – Vehicular Reduction on the A290 (South of University Road) based on the Scenario 8 Traffic Flows

A290 (South of University Road)	AM Peak			PM Peak		
	Northbound	Southbound	Two-way	Northbound	Southbound	Two-way
Scenario 8	710	792	1,502	791	718	1,509

Scenario 8 (Transport Vision Max)	686 (-3%)	692 (-13%)	1,378 (-8%)	643 (-19%)	644 (-10%)	1,287 (-15%)
Scenario 8 (Transport Vision Average)	695 (-2%)	722 (-9%)	1,417 (-6%)	688 (-13%)	668 (-7%)	1,357 (-10%)
Scenario 8 (Transport Vision Low)	704 (-1%)	768 (-3%)	1,473 (-2%)	756 (-4%)	701 (-2%)	1,456 (-4%)

- 3.5.7. In the Transport Vision Max scenario, the forecast reduction is around 8% two-way in the AM peak and this increases to a 15% reduction in the PM peak. The reduction is tidal with a greater decrease southbound towards Canterbury City Centre in the AM peak with the decrease being larger northbound in the PM peak. The Transport Vision Average and Low scenarios see a reduction of vehicular traffic on the A290 (s) between 2-10% across the AM and PM peak.
- 3.5.8. **Table 3-17** shows the resultant change in vehicular trip generation from the Site across the three Transport Vision Scenarios compared with the vehicular trip generation presented in **Table 27** of the Modelling Trip Generation Note.

Table 3-17 - Overall Vehicular Trip Generation Agreed Trip Generation and Transport Vision Scenarios

Land Use	Agreed Trip Generation		Transport Vision Max		Transport Vision Average		Transport Vision Low	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Residential – Private Housing (1,800 Dwellings)	697	912	516	572	584	700	674	869
Residential – Senior Living (200 units)	40	35	40	35	40	35	40	35
Office (4000sqm)	53	45	38	32	42	36	49	41
Education – 3FE Primary School	50	35	50	35	50	35	50	35
Vehicular Total	840	1,026	644	674	717	806	813	980

4 Existing Traffic Flows

4.1 Introduction

- 4.1.1. This section sets out how existing/future baseline traffic on the highway network could be reduced through a series of supplementary measures to provide additional highway capacity that could be utilised by the traffic associated with the Site to facilitate the site allocation.

4.2 University Travel Plan

- 4.2.1. The UoK already have an adopted Travel Plan that sets out the measures and initiatives used to encourage travel by sustainable modes. This Travel Plan was last updated in 2022.
- 4.2.2. The Travel Plan identifies that in 2022 the following staff and student headcount were located at the Canterbury Campus. (**Table 4-1**).

Table 4-1 – Canterbury Campus Headcount

Status	Headcount	Total
Full Time Staff	2203	3017
Part-time Staff	814	
Full Time Student	14,751	15,997
Part Time Student	1247	
Total	19,014	

- 4.2.3. **Figure 4-1** shows the student catchment area for the Canterbury Campus. This was created using student term-time postcode data. The campus has a wide catchment area covering the whole country, though the majority of the student population lives locally to the campus with more than 11,600 (73%) students living in a Canterbury (CT) postcode. This includes the population of students who live on the campus itself in student accommodation.
- 4.2.4. To manage student parking demand an exclusion zone exists which means that students who live within certain CT postcodes are excluded from being eligible for a parking permit. The postcodes which are excluded from being eligible for a parking permit are shown in **Figure 4-2**.
- 4.2.5. Of the 11,600 students who live within a CT postcode, just under 950 (18%) students live outside of the car driver exclusion zone and are therefore eligible for a parking permit. This represents approximately 33% of the total student population who are eligible for a parking permit.

Figure 4-1 Canterbury Campus Student Catchment

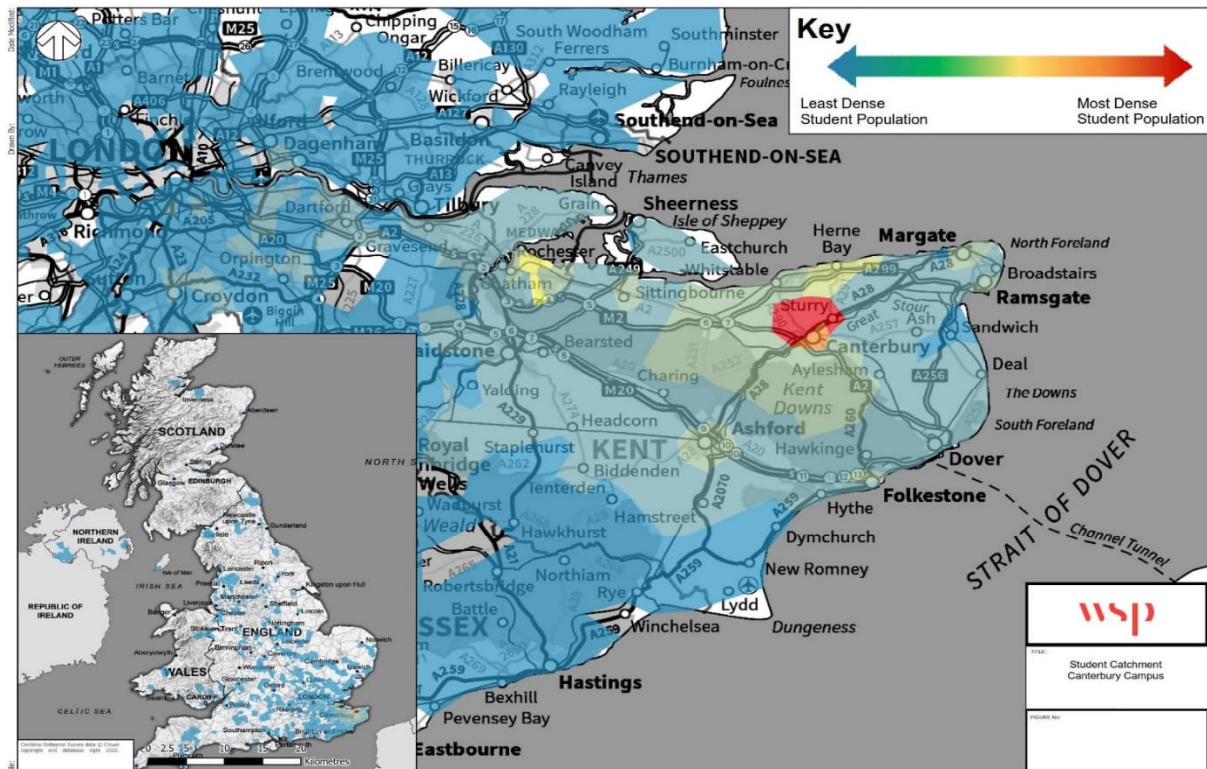
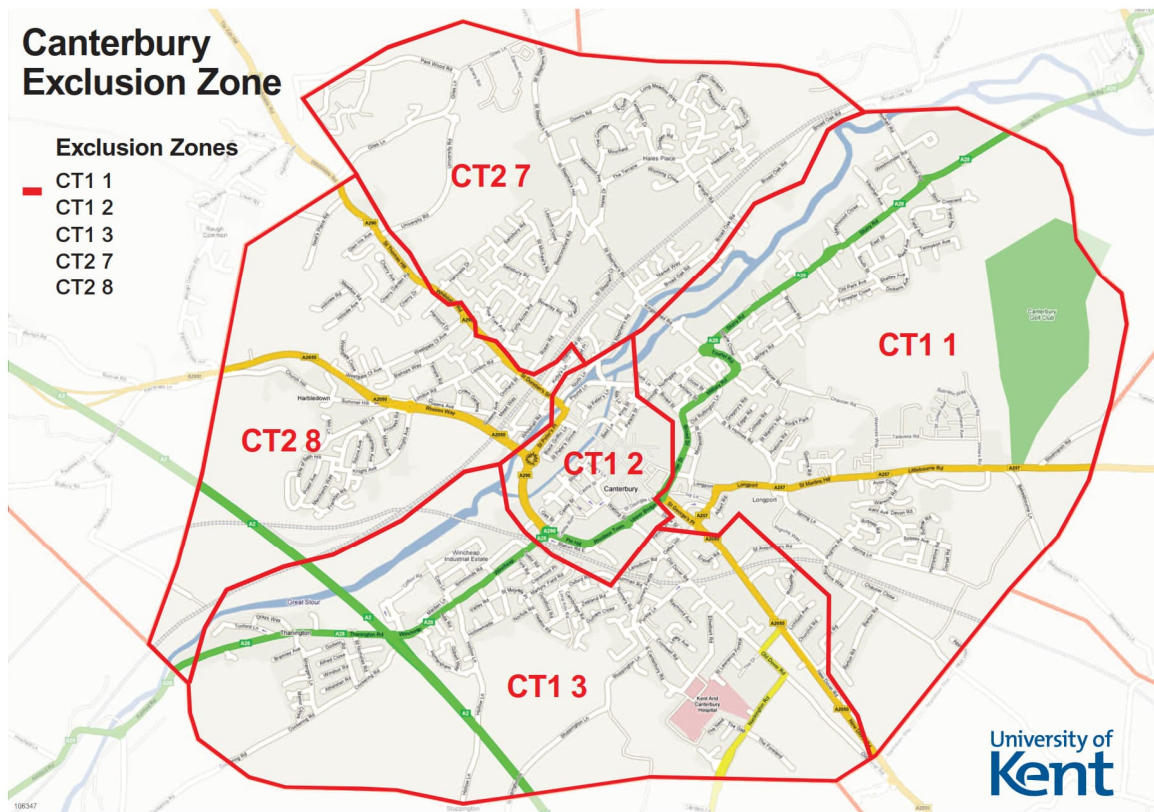
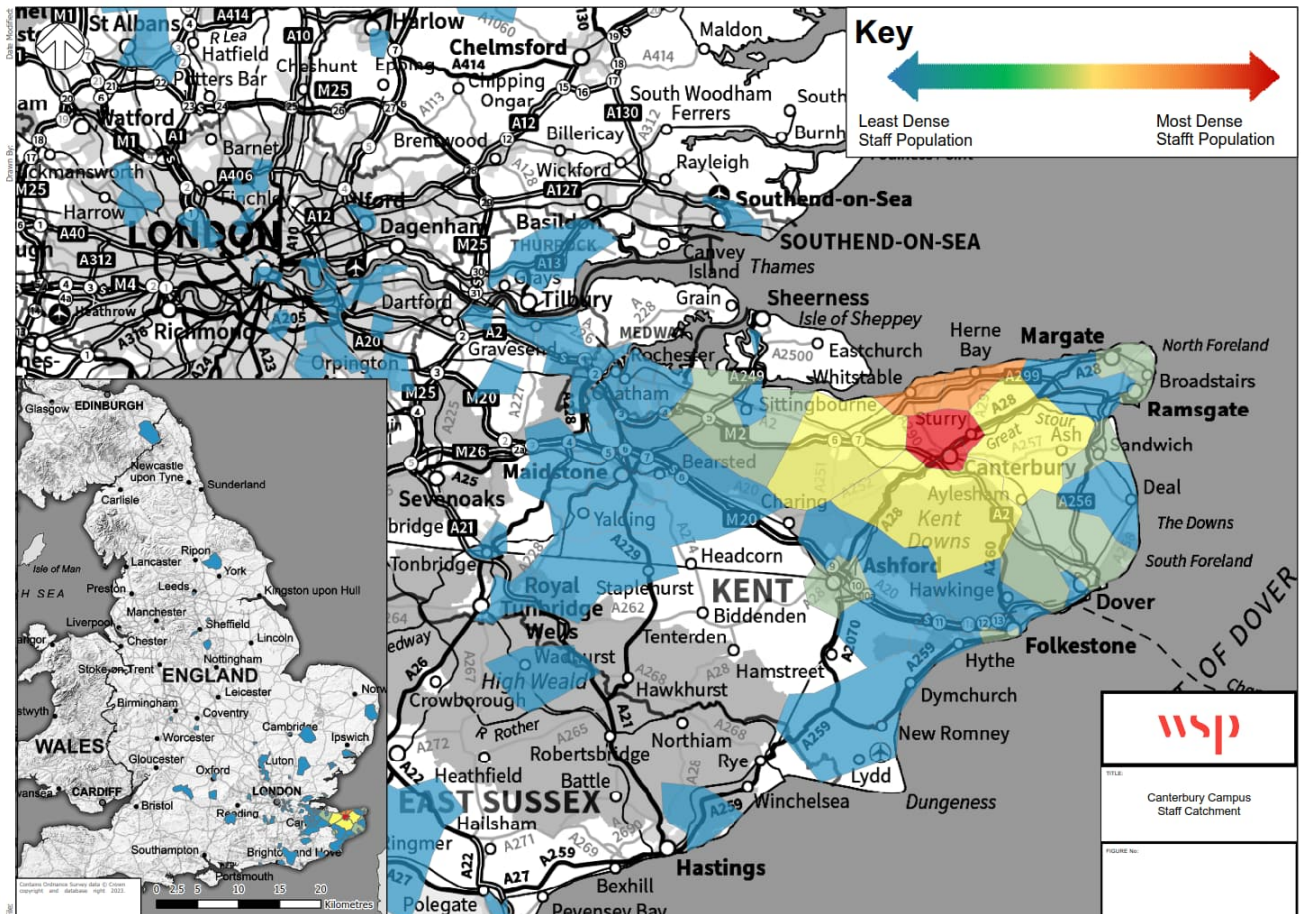


Figure 4-2 Canterbury Campus Student Exclusion Zone



- 4.2.6. **Figure 4-3** shows the staff catchment area for the Canterbury Campus. This was created using staff postcode data. This shows that staff are concentrated in the south-east of England, with the majority living in Canterbury, Whitstable and Herne Bay, with other popular areas including Ashford, Margate and Ramsgate. The wider map shows that some live on the other side of the country, however with the rise in hybrid / virtual working it is possible that these employees do not need to travel regularly to the campus.

Figure 4-4 Canterbury Campus Staff Catchment



- 4.2.7. The Travel Plan provides an existing staff and student mode share as well as targets for the next Travel Plan period (through to 2027). These mode shares and targets are provided in **Table 4-2**.

Table 4-2 - UoK Travel Plan Mode Shares and Targets

Mode	Combined Percentage	Staff	Students	Target
Walking / Running	18%	8%	34%	-
Cycling	3%	4%	1%	↑ 7% (Staff) ↑ 5% (Students)
Motorcycle / Moped	0%	0%	0%	-
Car (alone)	57%	72%	32%	↓ 67% (Staff only)
Car share	7%	8%	5%	↑ 12% (combined)
Bus	10%	5%	19%	-
Train	3%	2%	3%	-
Taxi	0%	0%	0%	-
Shuttle	3%	1%	6%	-
Other	0%	0%	0%	-
Total	100%	1%	6%	-

4.2.8. The Travel Plan proposes a series of measures to achieve the targets set out. Of relevance to this Transport Strategy are:

- Increasing the cost of on-site car parking, both permits and pay-as-you go daily vouchers
- Decreasing the total number of parking spaces available on site to reduce the number of vehicles on campus
- Introducing an exclusion zone or a specific criteria for staff or staff parking permits to reduce the number of vehicles on campus
- Increasing the parking charges in the pay and display visitor car parks
- Introducing car share incentives and provision of dedicated car share parking spaces

4.2.9. Overall, it is considered that the UoK have a Travel Plan in place which seeks to reduce car trips and will, over time, through the measures outlined, reduce the number of vehicular trips on the highway network which will free up capacity to accommodate the Site.

4.2.10. Notwithstanding this, a series of enhanced measures have been considered to further reduce trip making associated with the UoK.

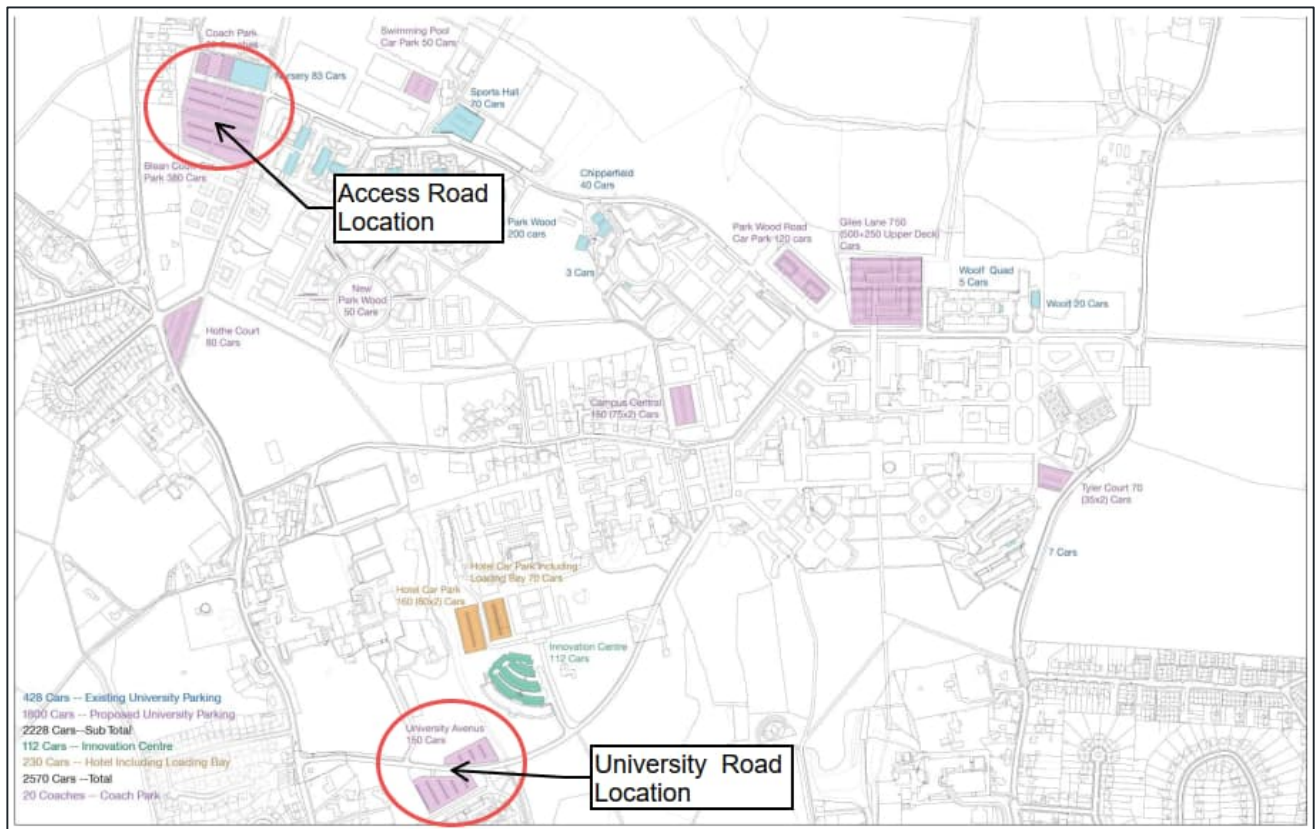
4.3 Potential Enhanced Trip Reduction Strategy

- 4.3.1. In addition to the Travel Plan that already has targets in place that aim to further reduce the impacts of the University on the surrounding transport network a series of supplementary measures have been considered which could be implemented to deliver further reductions in trips.

Park and Bus

- 4.3.2. The University currently has approximately 2300 car parking spaces spread out across the University Campus.
- 4.3.3. The University Masterplan sets out a strategy to consolidate and relocate car parking across the Campus to locations on the edge of the Campus so that pedestrian priority can be enhanced around the main core of the Campus. Within this strategy a series of car parks are identified which could form part of a Park and Bus Strategy. The Park and Bus Strategy would be similar to that of a traditional park and ride by providing the ability for the general public who are already travelling on routes served by the bus to park and then catch a bus to key destinations. The focus of this strategy for the University would be to capture trips to/from the City Centre and therefore reduce the number of trips taking place on Whitstable Road. Where this would differ from a traditional park and ride would be in the operating model in that existing services would stop at bus stops adjacent to the car parks to serve customers of the Park and Bus rather than having dedicated bus services. This strategy would be subject to discussion with Stagecoach as local bus operator.

Figure 4-5 – University Masterplan Car Parking Plan



- 4.3.4. Two locations for car parks have been identified by reviewing the University Masterplan. These are located on University Road or adjacent to the proposed access road to the Site. The location on University Road was previously identified as a 150 space car park whilst the location adjacent to the access road has been estimated to be able to accommodate up to 500 vehicles. Both locations require the construction of new car parks and dedicated bus infrastructure but are ideally located adjacent to Whitstable Road, reducing travel time for those customers wishing to use the facility.
- 4.3.5. The UoK preference would be to develop the University Road site. This location, whilst identified as being able to accommodate 150 spaces in the University Masterplan has been reviewed by WSP as being capable of accommodating in excess of 250 spaces.
- 4.3.6. To understand whether a material reduction in trips on the A290 Whitstable Road corridor could be achieved through the introduction of a Park and Bus facility at the University, analysis has been undertaken on the basis of achieving a 10% reduction in southbound flows on the A290 Whitstable Road in the AM Peak and 10% northbound in the PM Peak.
- 4.3.7. **Table 4-3** sets out the number of trips that would result in a 10% reduction on the A290 Whitstable Road based on Scenario 2 traffic flows from the traffic model outputs.

Table 4-3 – A290 Whitstable Road south of University Road 10% Traffic Flow

	AM Peak			PM Peak		
	Northbound	Southbound	Two-Way	Northbound	Southbound	Two-Way
P&R	0	68	68	65	0	65

- 4.3.8. To calculate the profile of arrivals and departures at the proposed Park and Bus facility the profile for an existing Park and Ride (P&R) facility that WSP have worked on in Portsmouth has been used as a proxy. This P&R facility has over 600 spaces and is located on the M275, one of three main corridors into the City. Journey time from the Portsmouth P&R to the City Centre is approximately 10 minutes and is therefore considered comparable to the proposed location in Canterbury. This build-up of car park occupancy is shown in **Table 4-4**.

Table 4-4 – Park and Ride Car Park Accumulation

Time	Arrivals Profile	Arrivals	Departure Profile	Departures	Occupancy
06:00-07:00	6.5%	15	0.3%	1	15
07:00-08:00	25.3%	57	0.5%	1	71
08:00-09:00	30.4%	68	1.0%	2	137
09:00-10:00	12.5%	28	0.5%	1	163
10:00-11:00	6.4%	14	1.0%	2	176
11:00-12:00	4.5%	10	1.5%	3	184
12:00-13:00	3.0%	7	2.9%	7	188
13:00-14:00	3.0%	7	4.5%	10	188
14:00-15:00	1.5%	3	5.6%	13	181
15:00-16:00	1.5%	3	7.7%	17	172
16:00-17:00	1.3%	3	17.7%	40	158
17:00-18:00	1.4%	3	29.0%	65	121
18:00-19:00	1.1%	3	15.7%	35	59
19:00-20:00	0.6%	1	4.8%	11	25

Time	Arrivals Profile	Arrivals	Departure Profile	Departures	Occupancy
20:00-21:00	0.3%	1	3.1%	7	15
21:00-22:00	0.3%	1	1.7%	4	9
22:00-23:00	0.3%	1	1.8%	4	5
23:00-24:00	0.1%	0	0.8%	2	2
Total	N/A	224	N/A	224	

- 4.3.9. **Table 4-4** shows that with the peak hour arrivals equating to the 10% flow on the A290 the Park and Bus facility would reach a maximum occupancy of approximately 188 vehicles. The site on University Road would therefore provide sufficient capacity to achieve a 10% shift away from the Whitstable Road.
- 4.3.10. The provision of such a facility is fully aligned with the draft Canterbury District Transport Strategy which seeks to investigate a facility along the A290 from the north of the City.

University Parking Strategy

- 4.3.11. The UoK parking strategy allows for all staff to park on site on a first come first served basis with no exclusions based on postcode. Whilst for students there is a student exclusion zone which prohibits students living within certain CT postcodes from applying for a permit and means they are not entitled to park on Campus unless for medical reasons or exceptional circumstances.
- 4.3.12. The staff are charged according to their gross salary each month. Pay-as-you-go permits are paid for up front and cover a specified period, with a further charge on each day that parking is required. **Table 4-5** below presents the current staff permit charges.

Table 4-5 – Staff Permit Prices 2022/ 2023

Type	Gross Monthly Salary earnings	Charge
Season Permit	£2,083.33	£4.24/ month (equating to approx. daily cost 20p)
	£2,083.34 to £3,083.33	£7.33/ month (equating to approx. daily cost 33p)
	£3,083.34	£10.57/ month (equating to approx. daily cost 49p)

Pay as You Go	12 month	Permit Charge: £2.50 Daily Voucher Charge: 65p
	3 month	Permit Charge: £2.00 Daily Voucher Charge: 65p
	1 month	Permit Charge: £1.00 Daily Voucher Charge: 65p

4.3.13. Students who are eligible to park are also charged with the charging schedule set out in **Table 4-6**.

Table 4-6 – Student Permit Prices 2022/ 2023

Type	Duration	Charge
Season Permit	Academic Year (9 months)	£25.35 (equating to approx. daily cost: 13p)
	3 month	£9.63 (equating to approx. daily cost 15p)
	1 month	£5.07 (equating to approx. daily cost 23p)
Pay as You Go	12 month	Permit Charge: £2.50 Daily Voucher Charge: 65p
	3 month	Permit Charge: £2.00 Daily Voucher Charge: 65p
	1 month	Permit Charge: £1.00 Daily Voucher Charge: 65p

4.3.14. To understand the level of opportunity for the University to review their current parking strategy a review of parking strategies for other universities across the UK has been undertaken.

Southampton University

4.3.15. At Southampton University staff parking is charged based on the emissions of the vehicle as well as the salary of the staff member. **Table 4-7** sets out the daily staff charging schedule for 2024/25.

Table 4-7 – University of Southampton Daily Staff Parking Prices

Grade	Standard Vehicles (101g CO2 and above)*	Lower Emission Vehicles (up to 100g CO2)*
Up to Spine Point 12 (Grades 1a and 1b)	No Charge	No Charge
Spine points 13 to 27 (Grades 2a, 2b and 3)	£0.73	£0.37
Spine points 28 to 44 (Grades 4 and 5)	£1.85	£0.93
Spine points 45 to 53 (Level 6)	£2.71	£1.36
Level 7 Band A	£3.33	£1.67
Level 7 Band B and C	£3.81	£1.91

* Alongside Grades 1a and 1b, staff whom are Blue Badge holders and Essential Car Users are exempt from parking charges, as are students.

University of Sheffield

- 4.3.16. At the University of Sheffield staff parking is charged based on salary band. **Table 4-8** sets out the staff charging schedule for 2025/26.

Table 4-8 – University of Sheffield Staff Parking Prices

Category	2025/26 Prices
A (Salary -month)	£85
B (Salary -month)	£51
B (PAYG – 2 hours)	£1
B (PAYG – 4 hours)	£1.8
B (PAYG -24 hours)	£3
B (PAYG – 7 days)	£12
B (PAYG – month)	£46 (4 week)
R (Salary – month)	£13

Category	2025/26 Prices
AMRC Runway Park USID (Salary – month)	£13 (from 1/1/26)
AMRC – Runway Park USID PAYG (24 hours)	£2

University of Bath

4.3.17. At the University of Bath staff parking is charged based on salary band and amount of hours worked. **Table 4-9** sets out the annual staff charging schedule for 2024/25.

Table 4-9 – University of Bath Staff Parking Prices

FTE	Above Spinal Point 36	Spinal Points 16–36 inclusive	Spinal Points 6–15 inclusive
1.0	£222.60	£166.92	£111.30
0.9	£200.34	£150.23	£100.17
0.8	£178.08	£133.53	£89.04
0.7	£155.82	£116.84	£77.91
0.6	£133.56	£100.15	£66.78
0.5	£111.30	£83.46	£55.65
0.4	£89.04	£66.77	£44.52
0.3	£66.78	£50.08	£33.39
0.2	£44.52	£33.38	£22.26
0.1	£22.26	£16.69	£11.13

4.3.18. The price of staff parking at other universities across the UK shows that the UoK offers a low parking tariff. In an attempt to reduce vehicular travel to the university there are two potential opportunities for the University to consider as follows:

- Increase Prices: As shown the prices at the UoK could be increased to match those other university examples.
- Staff Exclusion Zone: Implement a staff parking exclusion zone around the University, similar to that provided for the students. To begin with this could only be those within a 20 minute walking distance and could look to be widened if PT accessibility improves

- 4.3.19. To understand the ability for parking tariff changes to influence travel behaviour a literature review has been undertaken. Research undertaken at Cardiff University⁶ investigating the impact of increasing parking charges found through a stated preference survey that significant increases would be required to influence travel choice.
- 4.3.20. The results of the stated preference survey found that to achieve a 6% decrease in parking demand parking charges would need to increase by 100% and to achieve a 10-12% decrease parking charges would need to increase by 200%. The survey also found that rather than purely transport mode the result of increasing parking charges could be that staff find alternative locations to park. This would need to be monitored as part of any strategy.
- 4.3.21. For the purposes of the Transport Strategy a series of scenarios have been devised to identify the potential for reducing parking demand aligned with increases in parking charges. A comparison of the parking tariffs and associated decrease in anticipated parking demand based on the research undertaken at Cardiff University is set out in **Table 4-10**.

Table 4-10 – Parking Strategy Scenarios

Type	Gross Monthly Salary earnings	Existing Charge	Scenario		
			Low	Medium	High
Season Permit	£2,083.33	£4.24/ month (equating to approx. daily cost 20p)	40p	£1	£2
	£2,083.34 to £3,083.33	£7.33/ month (equating to approx. daily cost 33p)	66p	£1.5	£2
	£3,083.34	£10.57/ month (equating to approx. daily cost 49p)	£1	£2	£4

⁶ Parking Prices The Impact of Increasing Parking Charges at Cardiff University (2014)

Type	Gross Monthly Salary earnings	Existing Charge	Scenario		
			Low	Medium	High
Pay as You Go	12 month	Permit Charge: £2.50 Daily Voucher Charge: 65p	£1	£2	£4
	3 month	Permit Charge: £2.00 Daily Voucher Charge: 65p	£1	£2	£4
	1 month	Permit Charge: £1.00 Daily Voucher Charge: 65p	£1	£2	£4
Anticipated reduction in parking demand			1-2%	5-6%	10-12%

4.3.22. The strategy would need to apply to both staff and students and the charges would be expected to be aligned.

4.4 University Traffic Flows on Highway Network

4.4.1. In May 2019, Stantec produced a Movement and Transport Strategy for the UoK as a supporting document to the University Masterplan. Automatic Number Plate Recognition (ANPR) surveys were conducted which identified the number of trips on the surrounding highway network associated with the University. The document included a series of traffic flow diagrams summarising the outputs of the ANPR and identifying the number of university trips on the highway network during the peak hours. The traffic flow diagrams are presented in **Appendix B** and **Table 4-11** below presents the arrivals and departures from each of the key access points along with a 10% reduction on all the approaches.

Table 4-11 - Traffic Flows associated with UoK based on Movement and Transport Strategy

Link	AM Peak				PM Peak			
	Arrivals	Departures	Arrivals (10%)	Departures (10%)	Arrivals	Departures	Arrivals (10%)	Departures (10%)
A290 (N)	459	117	46	12	133	347	13	35
A290 (S)	392	154	39	15	134	314	13	31
Canterbury Hill	355	29	36	3	37	255	4	26
St Stephens Hill	322	54	32	5	126	249	13	25
Total	1528	354	153	35	430	1165	43	117

- 4.4.2. Based on the flows associated with the UoK in the AM peak if a 10% reduction in flows can be achieved by increasing the price of parking and/or providing a staff exclusion zone, then the decrease in two way flows on the A290 into Canterbury would be 54 two-way movements and on the A290 north towards Whitstable the reduction would be 58 movements. Whilst in the PM peak the reduction would be 31 two-way movements towards Canterbury City Centre and 35 two-way movements to the north on the A290.

4.5 Reduction of Existing Traffic Flow Summary

- 4.5.1. **Table 4-12** presents a summary of the Scenario 2 traffic flows on the A290 Whitstable Road between University Road and Forty Acres Road. The Scenario 2 traffic flows have been used as it includes all the Local Plan growth alongside the proposed infrastructure improvements up until 2040 excluding the UoK development. **Table 4-12** then shows the potential effect with the University traffic management measures applied.

Table 4-12 – Reduction in Existing Traffic Flows compared to Scenario 2

	AM Peak			PM Peak		
	Northbound	Southbound	Two-Way	Northbound	Southbound	Two-Way
Scenario 2	584	679	1,263	591	600	1,191
Scenario 2 (Reducing Existing Demand)	545	596	1,141	513	569	1,082
Difference (%)	-39 (-7%)	-83 (-12%)	-122 (-10%)	-78 (-13%)	-31 (-5%)	-109 (-9%)

- 4.5.2. **Table 4-12** shows that post application of the traffic management measures traffic flows on the A290 south of the University could reduce by approximately 10% in the AM and PM peaks.

5 Monitor and Manage Strategy

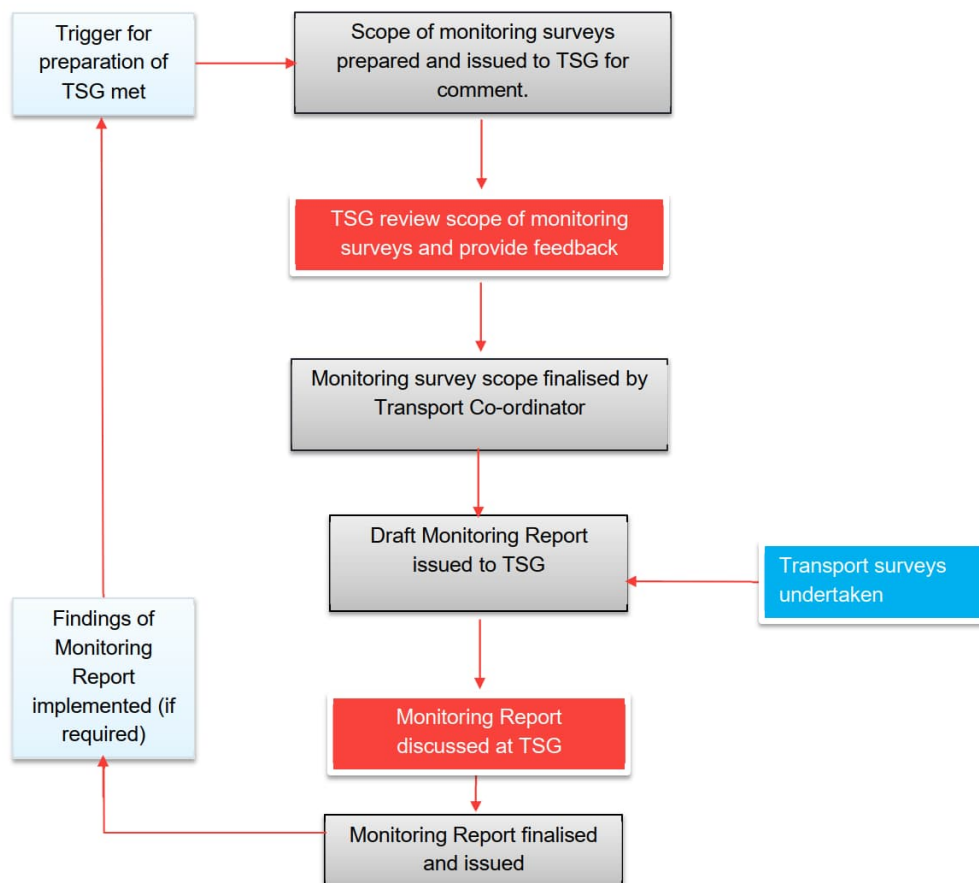
5.1 Introduction

- 5.1.1. The vision led approach to the trip generation for the Site identifies a series of transport scenarios that could result from the Site depending on the success of the transport strategy to encourage travel by sustainable modes and reduce the reliance on private car travel.
- 5.1.2. A monitor and manage strategy provides the framework to enable the impacts of a development to be reviewed throughout its build-out and refinements made both to the on-site transport strategy (normally through the Travel Plan) and off-site transport mitigation package with the overall aim of minimising the impacts of the development and achieving the target trip generation.
- 5.1.3. Examples of monitor and manage strategies for consented developments that are currently being implemented and WSP are involved in include:
 - Barking Riverside – London Borough of Barking and Dagenham – 18/00940/FUL
 - South West Milton Keynes – Buckinghamshire Council and Milton Keynes Council – 15/00916/FUL
- 5.1.4. At UoK a two staged approach to managing transport impacts is proposed. The primary focus for the Transport Strategy will be for the Site to work towards achieving Vision Max Scenario outlined in Section 3. This will be supplemented by the University continuing to implement its Travel Plan to achieve the targets set out.
- 5.1.5. The level of success in achieving this Vision Max scenario will be documented through a Transport Monitoring Strategy.
- 5.1.6. The UoK as a minimum will review their parking charges as part of the Travel Plan with the aim of reducing the number of people travelling by car to/from the University Campus.
- 5.1.7. Should it be identified that further measures are required then the UoK have the ability to modify their parking strategy and/or implement the Park and Bus Strategy.
- 5.1.8. The way in which the monitor and manage strategy would operate is that a Transport Steering Group (TSG) would be established and made up of representatives from the local highway authority (KCC), local planning authority (CCC), the UoK and the appointed developer for the Site.
- 5.1.9. A monitoring report would be prepared at agreed trigger points throughout the build-out of the development. This could be tied to phasing or occupation triggers (i.e. the number of homes occupied). At this trigger point monitoring surveys would be conducted to understand the trip making characteristics of the Site. As the site will be primarily accessed from the A290 utilising an access road that will service only the Site the survey should be able to capture accurately the level of trip making associated with the Proposed Development. This form of quantified survey would be supplemented by a travel survey to

understand attitudes towards sustainable travel and measure the success of the Travel Plan.

- 5.1.10. Using these data sources, it will be possible to quantify a mode share which can then be reviewed against the target mode shares established in this Transport Strategy.
- 5.1.11. Off-site the key concern raised by KCC has been the impact of the proposals on the A290 Whitstable Road corridor and in particular the ability of the A290/London Road mini-roundabout to continue to operate. Monitoring of traffic conditions at this junction could also be undertaken to enable review against the impacts identified in the Transport Assessment (when prepared for the purposes of a planning application).
- 5.1.12. Should the measures and initiatives for achieving the target mode shares not be achieved, and the monitoring of the A290/London Road junction identify that traffic volumes are exceeding those identified in the Transport Assessment the supplementary measures identified (Parking Strategy and Park and Bus) could then be triggered. The anticipated process for how the monitor and manage strategy would operate is shown in **Figure 5-1**.

Figure 5-1 Monitor and Manage Process Diagram



- 5.1.13. The monitor and manage strategy would be secured through the S106 Agreement.

6 Potential Transport Vision Impact

6.1 Introduction

- 6.1.1. This Chapter sets out the potential impacts on traffic flows based on the measures set out in Chapter 3 and 4.
- 6.1.2. At this stage no modelling has been undertaken to quantify potential impacts. Instead the analysis focuses on the change in traffic flow that could result on the A290 using the traffic flows provided from the STM. It is acknowledged that as the STM is a dynamic model the change in traffic flows resulting from decreasing the trip generation of the Site and neighbouring University will not be directly replicated. However, the change presented in this Chapter provides an indication of the benefits that the Vision Led approach could have.

6.2 Traffic Flow Impacts

- 6.2.1. **Table 6-1** presents the Scenario 2 and 8 traffic flows on the A290 South of University Road; taken from the STM. The rest of table presents the forecast traffic flow on the A290 with the reduction in existing traffic flows presented in Chapter 4 and the Transport Vision Scenario's presented in Chapter 3.

Table 6-1 – Existing and Site traffic reduction on the A290 south of University Road

A290 (South of University Road)	AM Peak			PM Peak		
	Northbound	Southbound	Two-way	Northbound	Southbound	Two-way
Scenario 2	584	679	1,263	591	600	1,191
Scenario 8	710	792	1,502	791	718	1,509
Scenario 8 (Transport Vision Max)	647 (-9%)	609 (-23%)	1,256 (-16%)	565 (-29%)	613 (-15%)	1,178 (-22%)
Scenario 8 (Transport Vision Average)	656 (-8%)	639 (-19%)	1,295 (-14%)	610 (-23%)	637 (-11%)	1,248 (-17%)
Scenario 8 (Transport Vision Low)	665 (-6%)	685 (-13%)	1,351 (-10%)	678 (-14%)	670 (-7%)	1,347 (-11%)

- 6.2.2. **Table 6-1** shows that with the Transport Vision Max scenario and the reduction in existing traffic flows the forecast flow is lower than the Scenario 2 flows without the development,

highlighting the forecast limited impact of the development on a key corridor into the city. Whilst for the Transport Vision Average and Low scenarios the forecast increases in flows compared to the Scenario 2 flows ranges between 3-7% two-way in the AM peak and 5-13% in the PM peak.

- 6.2.3. In Summary, the reduction of the existing traffic flows and the transport vision associated with the development has the potential to significantly reduce the highway impacts of the Site on this key corridor serving the City Centre.

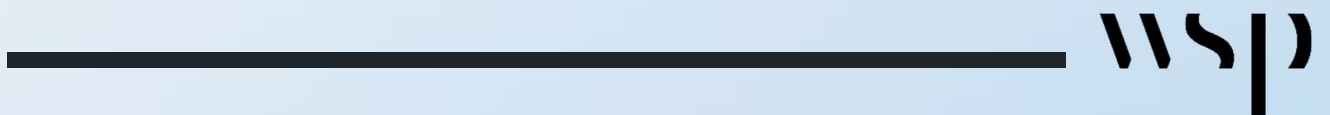
7 Summary and Conclusion

- 7.1.1. WSP has been commissioned by the UoK to provide transport and environmental advice for the development of proposals to the north of their Canterbury Campus known as Sites BCD, the Site.
- 7.1.2. This report has been prepared to provide further information relating to the transport strategy associated with the Site following discussions with Kent County Council (KCC) Highways on the outputs and resulting highway impacts identified from strategic highway modelling undertaken to support an allocation in the Canterbury Local Plan.
- 7.1.3. The Transport Strategy for the Site demonstrates how the site's location, adjacent to the UoK means that it can benefit from the critical mass and associated infrastructure and amenities to ensure a sustainable development is achieved. Key components of the Transport Strategy include the provision of a high frequency bus service serving both the City Centre but also destinations to the north in Herne Bay and Whitstable, coupled with improvements to walking and cycling routes to connect the Site with key local destinations.
- 7.1.4. The Transport Strategy has then be used in the consideration of a vision led approach to the trip generation. Taking the agreed trip generation used in the strategic model as the starting point a review of origin-destination data has been used to identify the propensity for trips to transfer from the private car to more sustainable modes of transportation (public transport, walking and cycling). Three scenarios have been outlined which could achieve a reduction in the vehicular trip generation of between 192 and 352 trips equating to between a 23-34% reduction in the AM and PM peak hours respectively.
- 7.1.5. Reducing travel demand arising from the Site would be the main focus of the Transport Strategy and form the basis of the monitor and manage approach to be secured for the development.
- 7.1.6. Separately the UoK already have a comprehensive Travel Plan with targets established to reduce vehicular trips. The current Travel Plan cycle runs through to 2027. This Travel Plan will assist in reducing impacts on the surrounding highway network, freeing up capacity to accommodate traffic associated with the Proposed Development.
- 7.1.7. In addition to achieving the targets set out in the Travel Plan two additional measures have been identified that could be triggered through the monitor and manage approach that would further reduce trips on the surrounding highway network. These are the provision of a Park and Bus facility and changes to the parking strategy, over and above those already committed to within the Travel Plan.
- 7.1.8. The analysis presented shows that based on the flows provided from the strategic modelling that with the implementation of the Vision Max scenario and the additional measures at the University that traffic flows on the A290 south of the University (a key area of concern for KCC) could reduce to below levels without the Proposed Development but including other Local Plan growth.

- 7.1.9. It is therefore concluded that through the use of a Vision Led approach to the trip generation supplemented by additional measures at the UoK that the impacts of the Site on the highway network can be significantly reduced when compared to the modelling undertaken to date. This level of trip reduction is considered significant enough that any residual impacts arising from the Site with respect to the A290 Whitstable Road corridor could be reduced to a level whereby they are not considered severe.

Appendix A

Appendix A - Strategic Modelling
Technical Note (November 2024)



TECHNICAL NOTE 1

DATE:	27 November 2024	CONFIDENTIALITY:	Public
SUBJECT:	University of Kent – Strategic Modelling Assumptions – Revision 2		
PROJECT:	70080896 – University of Kent, Canterbury Campus	AUTHOR:	Sarah Thomas
CHECKED:	David Dixon	APPROVED:	Justin Sherlock

INTRODUCTION

- 1.1. The University of Kent (UoK) have commissioned Jacobs to undertake strategic model runs of their draft allocation site (Policy C12 – Land north of the University of Kent) in the Canterbury Transport Model. This Technical Note (TN) has been prepared by WSP to provide a summary of the input assumptions that are proposed to be used for agreement with Kent County Council (KCC) highways and National Highways (NH) prior to the model runs being undertaken.
- 2.1. This TN provides a summary of assumptions used to represent the UoK site allocation in the strategic modelling work completed to date (understood to have been agreed with KCC and NH) and what is now proposed to be modelled. The review of currently completed modelling is based on information received from Jacobs on 1st August 2024 which included the following:
 - UoK Land Use Assumptions (excel spreadsheet) setting out the trip rates used within the modelling and the land uses applied to date.
 - Canterbury Local Plan Residential Developments (word document)
 - UoK Trip Distribution (excel spreadsheet) setting out the trips between the proposed development site and the model zone. Screenshots have also been provided of the model, showing trips on the network for the AM and PM peak hours.
 - Shapefiles of the model zones.
- 3.1. The information provided by Jacobs has been reviewed against the documentation prepared by WSP to date, which primarily includes the 2024 Transport Appraisal (TA)¹, which has been submitted in response to the consultation on the revised Regulation 18 version of the Draft Local Plan (DLP).
- 4.1. The TA submitted as part of the consultation represents an updated transport position (following on from submissions made between 2021 and 2023) to reflect the latest Canterbury Transport Strategy (TS) for the district which has been prepared as part of the DLP, alongside the Bus Strategy and Local Cycle and Walking Implementation Plan (LCWIP).
- 5.1. Jacobs have undertaken strategic modelling as part of the wider Local Plan process. The scenarios that the UoK have commissioned Jacobs to now undertake in the strategic model are as follows:
 - Scenario A – Local Plan (without UoK). 2040 Forecast base + current Local Plan Reg18 allocations (excluding UoK as currently modelled) + Full Canterbury Transport Strategy infrastructure (which includes the Harbledown Slips) (AM and PM Peaks)
 - Scenario B – Local Plan (inc UoK and proposed access strategy). 2040 Forecast base (removing Local Plan assumptions for UoK) + Local Plan Reg18 allocations + Canterbury Transport Strategy infrastructure (including Harbledown Slips) + UoK as per WSP Transport Strategy (AM and PM Peaks)

¹ University of Kent, Regulation 18 – Transport Appraisal, May 2024

- Scenario C - Sensitivity Assessment no Harbledown Slips (without UoK) 2040 Forecast base + Local Plan Reg18 allocations (excluding UoK as currently modelled) + Canterbury Transport Strategy infrastructure (No Harbledown Slips) (AM and PM Peaks)
- Scenario D – Sensitivity Assessment No Harbledown Slips (with UoK) - 2040 Forecast base + Local Plan Reg18 allocations (including UoK as per WSP Transport Strategy) + Canterbury Transport Strategy infrastructure (No Harbledown Slips) (AM and PM Peaks)

- 6.1. These scenarios have been proposed to understand the impacts of the UoK site allocation on the highway network as well as to understand what affect introducing the Harbledown Slips would have both with and without the development proposals.
- 7.1. This TN sets out the trip rate and trip generation assumptions proposed for the four additional scenarios.
- 8.1. It should be noted that Version 1 of this note proposed a stronger vision for the transport strategy that included a trip generation that considered the potential benefits from the Canterbury Transport Strategy (a vision led approach) which NH accepted. However, KCC as highway authority have requested a more robust position which uses existing mode share assumptions based upon census data for which have been included within this Version 2 of the note. Given that the trip generation in this note is now more robust we would not envisage any concerns being raised by NH on this assessment.

DEVELOPMENT PROPOSALS

- 9.1. The development proposals are outlined within the DLP. As set out in Policy C12, *“Planning permission will be granted for development which meets the following criteria:*

1) Development mix

Across the site, the development mix will include:

a) Approximately 2,000 new dwellings including affordable housing, older persons housing, accessible housing, self-building housing and an appropriate housing mix in line with Policies D1 and D2.

b) Non-residential development:

(i) Provision of a community hub as focal area for the community containing a mix of uses including:

1) Local centre including commercial (minimum 1,250sqm) and local shopping and community uses (minimum 500sqm)

2) Office and business space (minimum 4,000sqm) including flexible working space

3) A mobility hub to serve residents and businesses.

(ii) Provision of a new 3FE Primary School (3 ha) with early years provision, located adjacent to the community hub.

(iii) Re-siting and provision of a new 2FE Primary School (2.05ha) to replace existing capacity at Blean Primary School.”

- 10.1. The only variation from the draft policy is to model a 2FE Primary School instead of a 3FE Primary School.

JACOBS MODELLING ASSUMPTIONS

- 11.1. The UoK Land Use Assumptions spreadsheet details the trip rates used within the strategic modelling that has been undertaken as part of the wider Local Plan process to date. The following assumptions have been made:

- Residential dwellings (1,580 units)
- Old persons units (185 units)
- Business space E(g) (4,000sqm)
- Community Hub
- 2FE Primary School (42 staff members, 1,645sqm)

Residential Land Use

- 12.1. The Jacobs modelling has assumed 1,580 residential dwellings and 185 old persons units, resulting in a total provision of 1,765 units. This is below the proposed development content of 2,000 units. It is understood that this lower number of units has been modelled to reflect the build out trajectory of the proposals to end of the Local Plan period (2040).
- 13.1. The UoK Land Use Assumptions spreadsheet sets out the vehicular trip rates for private dwellings and old persons units. The spreadsheet states that the private dwelling trip rate has been taken from the WSP TA, however, the trip rates set out in the WSP TA are person trip rates, rather than vehicular trip rates. The trip rates and generation used in the modelling are therefore currently likely to be overestimating the residential vehicular trip generation.
- 14.1. Jacobs have then applied a 5% modal shift and a 5% internalisation factor to the trip rates for both unit types.
- 15.1. The trip rate and resultant trip generation (including modal shift and internalisation) used in the strategic modelling to date for the residential land use is set out in **Table 1**.

Table 1 – Strategic Model Residential Vehicular Trip Rate and Trip Generation

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Vehicular Trip Rate (1580 Dwellings)	0.173	0.754	0.927	0.590	0.300	0.890
Vehicular Trip Rate (185 Old Person Unit)	0.000	0.111	0.111	0.222	0.000	0.222
Vehicular Trip Generation (1580 Dwellings) (with 5% internalisation applied)	247	1075	1322	842	428	1270
Vehicular Trip Generation (185 Old person units) (with 5% internalisation applied)	0	19	19	37	0	37

- 16.1. The WSP TA did not set out any trip rates for the old persons units. Jacobs are understood to have taken the trip rates from the TRICS database and calculated the trip generation based on 185 old persons units. It is noted that these trip rates are significantly lower than the private dwelling trip rate.

Office Land Use

- 17.1. No reference to this land use was made in the WSP TA. The UoK Land Use Assumptions spreadsheet states that following communication with Canterbury City Council (CCC), vehicular trip rates have been taken from the TRICS database, detailed in **Table 2**.

Table 2 - Office Vehicular Trip Rate and Trip Generation

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Office Vehicular Trip Rate (100sqm)	2.678	0.204	2.882	0.101	2.839	2.940
Office Vehicular Trip Generation (4000sqm)	107	8	115	4	114	118

Education Land Use

- 18.1. The spreadsheet states that a two-form of entry primary school has been assumed, with a floorspace of 1,645sqm and 42 jobs. The vehicular trip rates have been taken from the TRICS database, detailed in **Table 3**.

Table 3 - Education Vehicular Trip Rate and Trip Generation

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Education Vehicular Trip Rate	5.468	4.613	10.081	0.267	0.576	0.843

- 19.1. For the education land use, the UoK Land Use Assumptions spreadsheet does not specify the trip rate parameter, and it is therefore not known how Jacobs have applied the education trip rate within the strategic modelling or whether they have assumed trips are internal to the development.

Local Centre

- 20.1. In accordance with the WSP TA, no trip generation has been assumed associated with this land use as it is expected that the local centre would serve the needs of the development site and therefore no result in significant external trip making.

WSP PROPOSED MODELLING ASSUMPTIONS

- 21.1. The previous section set out the assumptions that have been made by Jacobs to date within the strategic modelling. Moving forwards and as part of the UoK commissioned work it is proposed that some changes are made to the assumptions within the modelling, as set out in this section. These changes have been discussed with both National Highways (NH) and Kent County Council (KCC) and it was agreed that they should be revised as per this note.

Development Proposals to be Modelled

- 22.1. It is proposed that the modelled scenarios that include the UoK site will include the following land uses:
- Residential (2,000 dwellings of which 10% will be for senior living units equating to 200 dwellings)
 - Employment Area (4,000sqm of predominantly office type land use)
 - Primary School (3FE)
 - Local Centre

Vision and Validate Approach

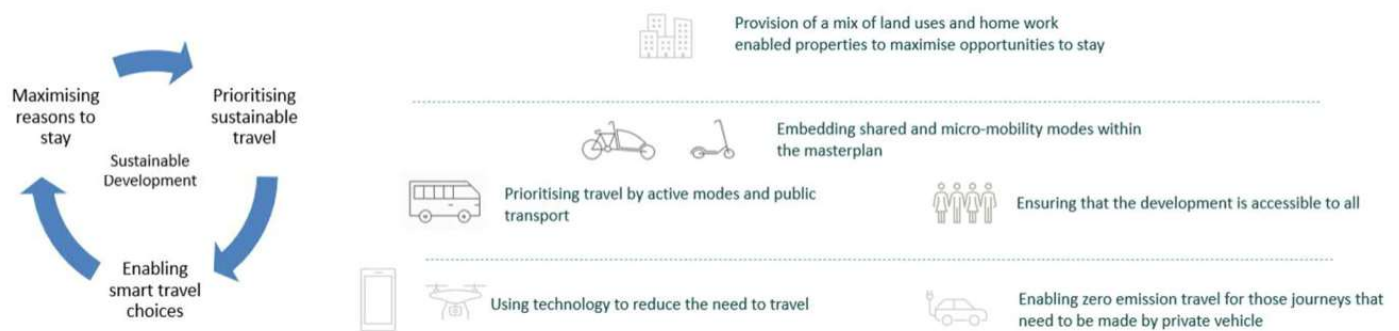
- 23.1. The masterplan for the Proposed Development and the associated transport strategy which has evolved for the site has been developed with reference to relevant planning policy. Of key importance to the Transport Strategy is the National Planning Policy Framework (NPPF), the latest version being dated 2023 but noting that the government published in July 2024 a consultation which seeks to revise the NPPF. Given the scale of the site and proximity to the strategic highway network consideration has also been given to the requirements of Department for Transport (DfT) Circular 01/2022.
- 24.1. The draft NPPF requires in Policy 112 a vision led approach to promoting sustainable transport modes and stipulates that any significance impacts from the development on the transport network are cost effectively mitigation to an acceptable degree through a vision led approach.
- 25.1. Policy 113 of the draft NPPF states that, *“development should only be prevented or refused on highway ground if there would be an unacceptable impact on highway safety, if the residual cumulative impacts on the road network would be severe in all tested scenarios.”*

- 26.1. Paragraph 12 of C1/2022 states 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 order to achieve this, development should be promoted in sustainable locations, or in locations that can be made sustainable to maximise active travel and public transport trips. As per paragraph 13, *“where developments are located, how they are designed and how well delivery and public transport services are integrated has a huge impact on people’s mode of travel for short journeys.”*
- 27.1. Paragraph 15 sets out the movement towards the ‘vision led’ planning approach, stating that, *“The Transport Decarbonisation Plan and the Future of Freight Plan also recognise that local planning and highway authorities need help when planning for sustainable transport and developing innovative policies to reduce car dependency. This includes moving away from transport planning based on predicting future demand to provide capacity (‘predict and provide’) to planning that sets an outcome communities want to achieve and provides the transport solutions to deliver those outcomes (vision-led approaches including ‘vision and validate,’ ‘decide and provide’ or ‘monitor and manage’).”* This is supported by the draft NPPF (July 2024), which states in paragraph 112 that *“In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*
- a) A vision led approach to promoting sustainable transport modes is taken, taking account of the type of development and its location.*
 - b) Safe and suitable access to the site can be achieved for all users.*
 - d) Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision led approach.”*
- 28.1. This vision led approach which has been adopted by NH, pulls away from the predict and provide approach commonly used in more traditional transport planning practices. The vision led approach follows a decide and provide methodology, seeking to decide on the preferred future outcome, and understanding how we can provide the means to work towards that, whilst accommodating uncertainty.
- 29.1. Paragraph 43 of C1/2022 states that, *“The company expects development promoters to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities ahead of capacity enhancements and new connections on the SRN. For residential-led developments, due consideration should be given to home and street layouts, broadband infrastructure, safe and secure cycle parking, and access to local amenities and open space in support of these aims, while mobility or micromobility hubs should be provided in larger schemes.”*
- 30.1. The emerging masterplan for the site has been designed around the principle of enabling sustainable travel maximising the benefits that are afforded by its location on the edge of Canterbury.
- 31.1. The first step in achieving sustainable development is to reduce the need to travel in the first place. Provision of a local centre and primary school on site offering a range of amenities and facilities will assist with this, and the development proposals will provide enhanced connections to the University, where a range of facilities and services are available. The Proposed Development benefits from access by a range of modes of transport and provisional strategies for access by sustainable modes would deliver a sustainable development which would benefit from the critical mass afforded by the neighbouring University Campus.
- 32.1. In accordance with paragraph 42 of 01/2022, *“new developments should give priority to walking, wheeling and cycle movements and facilitate access to high-quality public transport where possible.”* The site will prioritise pedestrian and cycle movements over that of vehicles. To achieve this, it is envisaged that the development will be an early adopter of innovative transport and servicing solutions

based around the “Future Mobility” agenda, namely mechanisation and shared and autonomous transport solutions.

- 33.1. The masterplan that has been developed for the UoK has sought to fully embrace these emerging technologies to create a sustainable development that is able to adapt to a changing environment and respond to a societal shift towards net zero. The Transport Strategy summarised in **Figure 1**, sets out some of the key transport principles that the masterplan will seek to achieve.

Figure 1 – Proposed Transport Strategy



- 34.1. A key principle of the transport strategy² for the Site is the delivery of a transport hub on the development site to focus and provide access to a range of transport options, with the overarching aim of reducing reliance on the private car. This aligns with the vision of the Canterbury Draft Transport Strategy which seeks to ensure that by 2040, more journeys in the district will be made by sustainable transport than by the private car.
- 35.1. The transport hub will be located adjacent to the local centre and be complimentary to the uses within the local centre itself. Whilst the principle of the transport hub is still evolving the key transport components of the facility would likely include:
- Bus stops including access to real time passenger information
 - Cycle parking to facilitate modal interchange including bike pump and repair facilities
 - A focal point for ride sharing and hailing services (such as Uber)
 - Car club spaces
 - Micro-mobility (cycle and scooter hire docking stations)
 - Rapid electric vehicle charging facilities
- 36.1. The Proposed Development will benefit from the adjacency of the University Campus where high frequency bus routes can be accessed, thus reducing the need to travel by private car. The public transport strategy for the site will seek to build on the existing network of bus routes by extension of existing services to serve the on-site public transport hub. The proposed bus strategy which initially assumes an extension to Uni1 and diversion of the 400 and 401 routes to serve the on-site transport hub is consistent with Stagecoach’s approach to serving the University. Both of the above proposals were supported during discussions with Stagecoach and the University, and it was agreed that a positive public transport offering could be delivered at this Site that fulfils the Canterbury Draft Transport Strategy, but also supports the planned improvements sought by Stagecoach and the University. It was agreed that as the wider strategies are progressed within Canterbury, the University would continue to work with the bus operators to finalise the public transport delivery.
- 37.1. A walking and cycling audit of three key movement corridors was undertaken as part of the TA. The three routes selected followed the main desire lines between the Proposed Development and

² University of Kent, Transport Strategy: Disposal Sites, August 2021

Canterbury City Centre. The audit identified a suite of potential improvements that could be undertaken to maximise walking and cycling trips to and from the Proposed Development.

38.1. Further information on the Transport Strategy is presented within the separate 2024 TA.

Trip Generation

39.1. This Section presents an updated trip generation that is proposed to be used within the strategic modelling. This trip generation differs from that proposed in the TA as it includes updated land use assumptions and reflects more recent discussions held with CCC and NH.

Office Land Use

40.1. No reference to the office land use was made in the WSP 2024 TA. Policy C12 of the DLP states that the community hub will include office and business space (minimum 4,000sqm).

41.1. The TRICS database has been interrogated to identify trips rates for the office use. The AM and PM peak person trip rates (per 100sqm) extracted from TRICS are shown in **Table 4** along with the resultant person trip generation (based on a floorspace of 4,000sqm). The TRICS output files are provided at **Appendix A**.

Table 4 - Office Person Trip Rate and Trip Generation

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Person Trip Rate (100sqm)	2.306	0.144	2.45	0.013	2.057	2.07
Person Trip Generation (4000sqm)	92	6	98	1	82	83

42.1. A 10% internalisation factor has been applied to the person trip generation to reflect the presence of the 1,800 dwellings on site. The adjusted AM and PM peak person trip rates (per 100sqm) are shown in **Table 5** along with the resultant person trip generation.

Table 5 - Office Person Trip Rate and Trip Generation (including internalisation)

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Person Trip Rate (100sqm)	2.075	0.130	2.205	0.012	1.851	1.863
Person Trip Generation (4000sqm)	83	5	88	0	74	75

43.1. A review of the 2011 and 2021 Census Travel to Work (Workday population) data was undertaken to identify the likely mode share of office workers to the site. The mode share was derived for the Mid Layer Super Output Area (MSOA) that the site is located within (Canterbury 012). The census data has been presented alongside the 2040 target set out in the Canterbury Draft TS.

44.1. The Draft TS forecasts that a combination of the measures set out in the bus strategy, and improvements to rail infrastructure will result in a 63% increase in mode shift to public transport, with a further 128% to walking and cycling by the horizon year of 2040. The number of people working from home is estimated to remain higher than was predicted in the previous TS, resulting in fewer trips.

45.1. It is anticipated that the combination of the measures will lead to a reduction in the volume of traffic on the district's roads, specifically on the city centre roads, where the majority of congestion is experienced, and therefore the volume of traffic is expected to reduce more significantly as the potential for walking, cycling and local bus is greater.

46.1. The census and 2040 target mode shares taken from the Draft TS across the Canterbury District are set out in **Table 6**.

Table 6 - Office Land Use – Mode Share

Mode	2011 Census	2021 Census	2040 Target
Rail (including underground)	3.8%	2.8%	7.3%
Bus	9.4%	5.8%	8.5%
Taxi	0.2%	0.5%	1.0%
Motorcycle	0.4%	0.7%	1.5%
Car Driver	59.3%	66.6%	43.4%
Car Passenger	5.1%	5.2%	7.9%
Bicycle	3.7%	3.5%	6.1%
Foot	17.8%	13.7%	24.4%
Other	0.2%	1.2%	0.0%
Total	100%	100%	100%
Vehicular Total	60.0%	67.8%	45.9%

47.1. **Table 6** shows a vehicular mode share of 60.0% based on the 2011 census. In the 2021 census, there was an increase in the vehicular mode share. It is considered that the 2021 census data was still impacted by Covid-19, evident from the reduction in bus travel and increase in private car travel. The Canterbury Draft Transport Strategy reflects a relative decrease in the proportion of people working from home compared to the 2021 census. For the purpose of the trip generation, the 2011 census mode share has been used.

48.1. The vehicular trip generation and trip rate based on the 2011 census mode share, and a floorspace of 4,000sqm is set out in **Table 7**.

Table 7 - Office Land Use – Vehicular Trip Generation and Trip Rate

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Vehicular Trips (based on 2011 census mode share) (4000sqm)	50	3	53	0	44	45
Vehicular Trip Rate (based on 2011 census mode share) (per 100sqm)	1.244	0.078	1.322	0.007	1.110	1.117

Residential Land Use – Private Housing

49.1. The TRICS trip generation database was used to identify trip rates for the residential land use. The residential trip generation has been calculated on the basis of 2,000 dwellings (of which 10% will be senior living units, equating to 200 dwellings). Five sites were included in the trip generation calculations. Two of the surveys were undertaken in 2021, whilst the remaining three surveys were undertaken prior to the Covid-19 pandemic.

50.1. Approximately 30% of the 1,800 dwellings will be affordable units. The TRICS database Houses Privately Owned (C3) has been used to derive person trip rates for use in the trip generation. The TRICS definition³ of this trip rate category is, “*housing developments where at least 75% of units are*

³ Add footnote reference

*privately owned. The TRICS definition of a privately owned dwelling is a dwelling at which residents have any degree of equity, or a dwelling that is owned by a private landlord and rented at market rates.” Affordable units generally have lower trip rates, and it is therefore considered that applying this trip rate category provides an appropriate and robust representation of the Proposed Development. The TRICS output is provided at **Appendix A**.*

51.1. The AM and PM peak person trip rates (per dwelling) are shown in **Table 8** along with the resultant person trip generation (based on 1,800 dwellings).

Table 8 - Residential Person Trip Rate and Person Trip Generation

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Person Trip Rate (Private dwelling)	0.173	0.754	0.927	0.590	0.300	0.890
Person Trip Generation (1,800 dwellings)	311	1,357	1,669	1,062	540	1,602

52.1. The person trip generation in **Table 8** was then disaggregated by journey purpose and mode. This approach enabled detailed consideration of internalisation as well as providing an opportunity for different mode shares to be applied to each journey purpose.

53.1. The methodology utilised the National Travel Survey (NTS0502) data which identified journey purpose by time of day as shown in **Table 9**.

Table 9 – NTS0502 Journey Purpose by Start Time (2019)

Journey Purpose	AM Peak (08:00 – 09:00)	PM Peak (17:00 – 18:00)
Commuting	20%	32%
Business	3%	3%
Education	29%	3%
Escort Education	23%	2%
Shopping	4%	12%
Other work, other escort or personal business	14%	20%
Visiting friends / entertainment / sport	3%	20%
Holiday / Day Trip / Other	4%	8%
Total	100%	100%

54.1. **Table 10** presents the residential person trip generation split by journey purpose based upon the person trip generation shown in **Table 8**.

Table 10 – Residential Person Trip Generation by Journey Purpose

Time Period	Commuting / Business	Retail	Education	Education Escort	Other work, visiting friends, holiday	Total
AM Peak (08:00 – 09:00)	382	70	477	381	359	1,669
PM Peak (17:00 – 18:00)	569	193	48	35	757	1,602

55.1. The following mode share and internalisation assumptions were applied after the trips were split by journey purpose using National Travel Survey (NTS) data.

- Retail – 10% of the trips were internalised reflecting the presence of a local centre on site to serve the needs of the development.
- Escort Education – 75% of the trips were internalised to reflect the presence of a primary school on site.

- **Commuting / Business** – A 10% internalisation factor has been applied to the office land use, as shown in Tables 4 and 5. These trips have then been removed from the commuting / business journey purpose.

56.1. **Table 11** presents the residential person trip generation split by journey purpose with internalisation based upon the assumptions set out above.

Table 11 – Residential Person Trip Generation by Journey Purpose (including internalisation)

Time Period	Commuting / Business	Retail	Education	Education Escort	Other work, visiting friends, holiday	Total
AM Peak (08:00 – 09:00)	372	63	477	95	359	1,366
PM Peak (17:00 – 18:00)	561	174	48	9	757	1,548

Journey Purpose - Education

57.1. For the education trip generation, a review was undertaken to identify a more locally specific mode share relevant to education trips. NTS Table 9908 provides the mode share of education trips split down by region of England. Information is available for each year between 2002 and 2020. Data for 2018/2019 for the south-east of England was extracted and is summarised in **Table 12**. Whilst the mode-share is for the entire south-east it is considered appropriate for use as the UoK benefits from close proximity to the Archbishop's Secondary School and University Campus.

Table 12 – NTS Mode Shares - Education

Mode	NTS 9908 – 2018/2019 South-East
Rail (including underground)	2%
Bus	9%
Taxi	0%
Motorcycle	0%
Car Driver	39%
Car Passenger	
Bicycle	3%
Foot	42%
Other	1%
Total	100%

58.1. It should be noted that there is no distinction made in NTS Table 9908 regarding car driver or passenger. For robustness it was assumed that for every car passenger trip there would be a corresponding car driver trip. The education trip generation by mode is detailed in **Table 13**.

Table 13 – Education Trip Generation (including escort education)

Mode	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	16	70	86	6	3	8
Taxi	0	0	0	0	0	0
Motorcycle	0	0	0	0	0	0
Car Driver	42	181	223	15	7	22
Car Passenger						
Bicycle	3	14	17	1	1	2
Foot	45	195	240	16	8	24
Other	1	5	6	0	0	1
Total	107	465	572	37	19	56
Vehicular Total⁴	42	181	223	15	7	22

Journey Purpose - Retail, Other Work, Visiting Friends, Holiday

59.1. A review of 2011 Census Travel to Work data was undertaken to identify the likely mode share of residential external trip making by all journey purposes (excluding education). 2011 Census data has been used, as it is considered to provide a more robust assessment in comparison to the 2021 Census Travel to Work data which was skewed by the Covid-19 pandemic. The Draft Transport Strategy mode share targets were not used in this, as they are more focused on work related journeys. Whilst the bus targeted strategy, and other measures associated with the development will likely lead to reduced private car usage across the site compared to the 2011 census, this mode share data has been used to provide a robust assessment.

60.1. **Table 14** illustrates the mode share derived for the Mid Layer Super Output Area (MSOA) that the site is located within (Canterbury 012) using 2011 census data. The trip generation by mode is provided in **Table 15**.

Table 14 – 2011 Census Travel to Work Mode Share

Mode	%
Rail (including underground)	5.4%
Bus	8.0%
Taxi	0.8%
Motorcycle	0.5%
Car Driver	58.3%
Car Passenger	4.9%
Bicycle	4.2%
Foot	17.8%
Other	0.0%
Total	100.0%
Vehicular Total	59.6%

⁴ Vehicular total includes taxi, motorcycle and car driver.

Table 15 – Retail, Other Work, Visiting Friends, Holiday Trip Generation

Mode	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	11	46	57	83	42	125
Taxi	1	3	4	5	3	8
Motorcycle	0	2	2	3	1	4
Car Driver	46	200	246	360	183	543
Car Passenger	4	17	21	30	15	46
Bicycle	3	14	18	26	13	39
Foot	14	61	75	110	56	166
Other	0	0	0	0	0	0
Total	79	343	422	617	314	931
Vehicular Total	47	205	252	368	187	555

61.1. As set out in paragraph 58.1, the mode share for the journey purposes of retail, other work, visiting friends and holiday has been based on 2011 census data. It is considered that this provides a very robust assessment, as it does not take account of transport improvements around the Proposed Development or the proposed provision of the on-site transport hub. The Draft TS mode share targets were not used in the assessment, as they are more focused on work related journeys, however, it is considered that the proposals set out in the Draft TS, and the development specific sustainable transport measures will result in lower levels of vehicle trips than set out in **Table 15**.

Journey Purpose - Commuting / Business

62.1. The Draft Transport Strategy forecasts that a combination of the measures set out in the bus strategy, and improvements to rail infrastructure will result in a 63% increase in mode shift to public transport, with a further 128% increase in walking and cycling by the horizon year of 2040. The number of people working from home is estimated to remain higher than was predicted in the 2011 Census Data, resulting in fewer trips.

63.1. It is anticipated that the combination of the measures will lead to a reduction in the volume of traffic on the district's roads, specifically on the city centre roads, where the majority of congestion is experienced, and therefore the volume of traffic is expected to reduce more significantly as the potential for walking, cycling and local bus is greater.

64.1. The census and target mode shares taken from the Draft Transport Strategy across the Canterbury District indicate a reduction in private car trips, and a subsequent increase in walking, cycling and public transport trips. Notwithstanding the above, and as per the request from KCC, the 2011 census mode shares have been used in the trip generation assessment. For the purpose of the trip generation, the 'Other' mode share has been reassigned to motorcycle and taxi, and the 'Working mainly at home' has been removed reflecting the fact that the TRICS trip rates will already allow for a proportion of work from home activity within them.

65.1. The 2011 census mode share is set out in **Table 16**, with the 2040 Target mode share also provided for comparison purposes. The trip generation by mode is provided in **Table 17**. This takes account of the 10% internalisation.

Table 16 – Census Mode Share and Target Mode Share

Mode	2011 Census Mode Share	2040 Target Mode Share
Rail (including underground)	5.4%	7.3%
Bus	8.0%	8.5%
Taxi	0.8%	1.5%
Motorcycle	0.5%	1.0%
Car Driver	58.3%	43.3%
Car Passenger	4.9%	7.9%
Bicycle	4.2%	6.1%
Foot	17.8%	24.4%
Other	0.0%	0.0%
Total	100.0%	100.0%
Vehicular Total	59.6%	45.8%

Table 17 – Commuting / Business Trip Generation

Mode	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	8	42	50	51	25	75
Taxi	1	3	3	3	2	5
Motorcycle	0	1	2	2	1	3
Car Driver	36	181	217	220	107	327
Car Passenger	3	15	18	18	9	27
Bicycle	3	13	16	16	8	24
Foot	11	55	66	67	33	100
Other	0	0	0	0	0	0
Total	62	310	372	377	184	561
Vehicular Total	37	185	222	225	110	335

66.1. **Table 18** sets out the full residential trip generation by mode for the 1,800 dwellings.

Table 18 - Residential Person Trip Generation by Mode (1800 dwellings)

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	35	158	193	139	70	209
Taxi	1	5	7	8	4	13
Motorcycle	1	3	4	5	2	7
Car Driver	124	562	686	595	298	892
Car Passenger	7	32	39	49	24	73
Cycle	9	41	51	43	22	64
Pedestrian	70	312	382	193	97	289
Other	1	5	6	0	0	1
Total	247	1,118	1,366	1,032	516	1548

67.1. The vehicular trip generation (car driver, taxi and motorcycle trips) for the residential land use (1,800 dwellings) is set out in **Table 19**.

Table 19 - Residential Person Vehicular Trip Generation (1,800 dwellings)

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Car Driver	124	562	686	595	298	892
Taxi	1	5	7	8	4	13
Motorcycle	1	3	4	5	2	7
Total Vehicular Trips	126	571	697	608	304	912

68.1. The vehicular trip rate (per dwelling) has been calculated for the site based on the vehicular trip generation and is provided in **Table 20**.

Table 20 - Residential Person Vehicular Trip Generation and Trip Rate

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Vehicular Trip Generation (1,800 dwellings)	126	571	697	608	304	912
Vehicular Trip Rate (per dwelling)	0.070	0.317	0.387	0.338	0.169	0.507

Residential Land Use – Senior Living Units

69.1. The TRICS trip generation database was used to identify trip rates for the senior living units which fall within the residential land use. The trip generation has been calculated on the basis of 200 units. The TRICS output files are provided at **Appendix A**.

70.1. The AM and PM peak person trip rates (per unit) are shown in **Table 21** along with the resultant person trip generation (based on 200 units).

Table 21 - Residential (Senior Persons Living) Person Trip Rate and Person Trip Generation

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Person Trip Rate (per unit)	0.156	0.218	0.374	0.190	0.136	0.326
Person Trip Generation (200 units)	31	44	75	38	27	65

71.1. 10% of the trips were internalised reflecting the presence of a local centre on site to serve the needs of the development. The resulting person trip generation is set out in **Table 22**.

Table 22 - Residential (Senior Persons Living) Person Trip Rate and Person Trip Generation (with internalisation)

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Person Trip Generation (200 units)	28	39	67	34	24	59

72.1. A review of 2011 Census Travel to Work data was undertaken to identify the likely mode share of residential external trip making by all journey purposes. 2011 Census data has been used, as it is considered to provide a more robust assessment in comparison to the 2021 Census data which was skewed by the Covid-19 pandemic. The Draft Transport Strategy mode share targets were not used in this, as they are more focused on work related journeys. Whilst the bus targeted strategy, and other measures associated with the development will likely lead to reduced private car usage across the site compared to the 2011 census, this mode share data has been used to provide a robust assessment.

73.1. **Table 23** illustrates the mode share derived for the Mid Layer Super Output Area (MSOA) that the site is located within. The trip generation by mode is provided in **Table 24**.

Table 23 – 2011 Census Travel to Work Mode Share

Mode	%
Rail (including underground)	5.4%
Bus	8.0%
Taxi	0.8%
Motorcycle	0.5%
Car Driver	58.3%
Car Passenger	4.9%
Bicycle	4.2%
Foot	17.8%
Other	0.0%
Total	100.0%
Vehicular Total	59.6%

Table 24 – Senior Living Units - Trip Generation by Mode

Mode	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	4	5	9	5	3	8
Taxi	0	0	1	0	0	0
Motorcycle	0	0	0	0	0	0
Car Driver	16	23	39	20	14	34
Car Passenger	1	2	3	2	1	3
Bicycle	1	2	3	1	1	2
Foot	5	7	12	6	4	10
Other	0	0	0	0	0	0
Total	28	39	67	34	24	59
Vehicular Total	17	23	40	20	15	35

74.1. The vehicular trip rate (per unit) has been calculated for the site based on the vehicular trip generation and is provided in **Table 25**.

Table 25 - Residential (Senior Living Unit) - Person Vehicular Trip Generation and Trip Rate

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Vehicular Trip Generation (200 units)	17	23	40	20	15	35
Vehicular Trip Rate (per unit)	0.084	0.117	0.201	0.102	0.073	0.175

Education Land Use

75.1. A new 3FE primary school is proposed to serve the needs of the Proposed Development. The only trips associated with this land use will therefore be staff trips and a limited number of servicing trips. A provisional external to site trip generation has been developed on the basis of provision of a 3FE primary school.

76.1. **Table 26** presents the staff trip rate and trip generation on the basis of the following assumptions:

- A three-form of entry primary school would have approximately 63 full time equivalent staff of which 69% would be teaching staff and 31% non-teaching staff.
- 75% of teaching staff would arrive and depart in the peak hours. 90% of non-teaching staff would arrive in the AM peak and 10% would depart in the PM peak.
- Staff trips will be 100% via private vehicle.

77.1. **Table 26** sets out the vehicular trip generation and trip rate based on a 3FE primary school.

Table 26 - Primary School Vehicular Trip Generation and Trip Rate

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Vehicular Trip Generation (63 staff)	50	0	50	0	35	35
Vehicular Trip Rate (per staff member)	0.797	0.000	0.797	0.000	0.549	0.549

78.1. In accordance with Policy C12, a new 2FE primary school will also be provided within the Site. This will be a re-provision of Blean Primary School. As the size and relative location will be unchanged, it is considered that any vehicular trips associated with the school will already be on the highway network, and the new primary school does therefore not need to be added into the modelling.

Local Centre Land Use

79.1. The local centre is proposed to serve the needs of the Proposed Development and as such will not attract trips external to the development except a limited number of staff and servicing trips. No trip generation has been assumed associated with this land use.

Total Development Trip Generation

80.1. **Table 27** sets out the total vehicular trip generation based on the following land uses:

- Residential – 1,800 dwellings
- Residential (Senior Living Units) – 200 units
- Office – 4,000 sqm
- Education – 3FE Primary School

Table 27 - Total Vehicular Trip Generation

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Residential – Private Housing (1,800 Dwellings)	126	571	697	608	304	912
Residential – Senior Living (200 units)	17	23	40	20	15	35
Office (4000sqm)	50	3	53	0	44	45
Education – 3FE Primary School	50	0	50	0	35	35
Vehicular Total	242	598	840	628	398	1,026

COMPARISON AND PROPOSED MODELLING METHODOLOGY

81.1. **Table 28** provides a comparison of the WSP proposed modelling assumptions against the Jacobs modelling assumptions. The WSP proposed trip rates shown in **Table 28** below should be used in the four additional scenarios.

Table 28 – Vehicular Trip Rate Comparison

Land Use	Dev. Content	Parameter	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
			Arrivals	Departures	Total	Arrivals	Departures	Total
WSP Proposed Modelling Assumptions								
Residential	1,800 dwellings	Vehicular Trip Rate (per dwelling)	0.070	0.317	0.387	0.338	0.169	0.507
	200 senior living units	Vehicular Trip Rate (per dwelling)	0.084	0.117	0.201	0.102	0.073	0.175
Office	4,000sqm	Vehicular Trip Rate (per 100sqm)	1.244	0.078	1.322	0.007	1.110	1.117
Education	3FE Primary School	Vehicular Trip Rate (per staff member)	0.797	0.000	0.797	0.000	0.549	0.549
Jacobs Modelling Assumptions								
Residential	1,580 dwellings	Vehicular Trip Rate (per dwelling)	0.173	0.754	0.927	0.590	0.300	0.890
Residential	185 senior living units	Vehicular Trip Rate (per senior living unit)	0.000	0.111	0.111	0.222	0.000	0.222
Office	4,000sqm	Vehicular Trip Rate (per 100sqm)	2.678	0.204	2.882	0.101	2.839	2.940
Education	2FE Primary School	Information not provided	5.468	4.613	10.081	0.267	0.576	0.843

82.1. As shown in **Table 28**, there are a number of key differences between the WSP Proposed Modelling Assumptions and the Jacobs Modelling Assumptions, as detailed below.

Residential

83.1. In terms of the development content modelled for the residential land use, Jacobs have assumed 1,580 dwellings and 185 senior living units.

84.1. The modelling of the four scenario tests should include 1,800 residential dwellings and 200 senior living units. Whilst the full build out is unlikely to take place before the end of the local plan period (2040), modelling the full development content will enable the understanding of the impacts of the development on the local network.

Office

85.1. For the office development, the vehicular trip rate used by Jacobs appears unrealistically high. WSP propose that the trip rate provided in **Table 28** is used in the modelling. The trip rates put forward by Jacobs should be reviewed to ensure that these are vehicular trip rates and not person trip rates.

Education

86.1. For the new 3FE primary school, the parameter has not been provided, and further information is required to understand how the trip rate should be applied. WSP propose that the trip rate provided in **Table 28** is used in the modelling.

SUMMARY

- 87.1. The WSP modelling assumptions set out within this Technical Note have been agreed with both National Highways and Kent County Council, with KCC agreeing with the latest trip generation methodology. The trip generation set out in Table 27, and the WSP trip rates set out in Table 28 should be used in the Jacobs modelling.

APPENDIX A – TRICS OUTPUTS

Filtering Summary

Land Use	03/A	RESIDENTIAL/HOUSES PRIVATELY OWNED
Selected Trip Rate Calculation Parameter Range	250-2500 DWELLS	
Actual Trip Rate Calculation Parameter Range	266-918 DWELLS	
Date Range	Minimum: 01/01/11	Maximum: 23/09/21
Parking Spaces Range	All Surveys Included	
Parking Spaces Per Dwelling Range:	Selected: 1 to 3	Actual: 0.23 to 8.75
Bedrooms Per Dwelling Range:	All Surveys Included	
Percentage of dwellings privately owned:	All Surveys Included	
Days of the week selected	Monday	1
	Tuesday	1
	Wednesday	2
	Thursday	1
Main Location Types selected	Suburban Area (PPS6 Out of Centre)	1
	Edge of Town	4
Population within 500m	All Surveys Included	
Population <1 Mile ranges selected	5,001 to 10,000	2
	10,001 to 15,000	2
	20,001 to 25,000	1
Population <5 Mile ranges selected	5,001 to 25,000	1
	25,001 to 50,000	1
	50,001 to 75,000	2
	75,001 to 100,000	1
Car Ownership <5 Mile ranges selected	0.6 to 1.0	1
	1.1 to 1.5	4
PTAL Rating	No PTAL Present	5

Calculation Reference: AUDIT-100321-211222-1258

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
	WS WEST SUSSEX	1 days
04	EAST ANGLIA	
	NF NORFOLK	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	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: 266 to 918 (units:)
 Range Selected by User: 250 to 2500 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: Selected: 1 to 3 Actual: 0.23 to 8.75

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: 01/01/11 to 23/09/21

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

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	2 days
Thursday	1 days

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

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
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:

Residential Zone	3
Out of Town	1
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

C3 5 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	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	1 days
1.1 to 1.5	4 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	3 days
No	2 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	5 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

Site(1): KC-03-A-06
 Development Name: MIXED HOUSES & FLATS
 Location: HERNE BAY
 Postcode: CT6 6DF
 Main Location Type: Suburban Area (PPS6 Out of Centre)
 Sub-Location Type: Residential Zone
 PTAL: n/a

Site area: 8.00 hect
 No of Dwellings: 363
 Housing density: 73
 Total Bedrooms: 1007
 Survey Date: 27/09/17
 Survey Day: Wednesday
 Parking Spaces: 789

Site(2): NE-03-A-02
 Development Name: SEMI DETACHED & DETACHED
 Location: SCUNTHORPE
 Postcode: DN15 8GS
 Main Location Type: Edge of Town
 Sub-Location Type: No Sub Category
 PTAL: n/a

Site area: 12.00 hect
 No of Dwellings: 432
 Housing density: 133
 Total Bedrooms: 1174
 Survey Date: 12/05/14
 Survey Day: Monday
 Parking Spaces: 432

Site(3): NF-03-A-23
 Development Name: MIXED HOUSES & FLATS
 Location: WYMONDHAM
 Postcode: NR18 9FP
 Main Location Type: Edge of Town
 Sub-Location Type: Out of Town
 PTAL: n/a

Site area: 26.43 hect
 No of Dwellings: 514
 Housing density: 27
 Total Bedrooms: 1606
 Survey Date: 22/09/21
 Survey Day: Wednesday
 Parking Spaces: 1274

Site(4): NF-03-A-30
 Development Name: MIXED HOUSES
 Location: SWAFFHAM
 Postcode: PE37 8JE
 Main Location Type: Edge of Town
 Sub-Location Type: Residential Zone
 PTAL: n/a

Site area: 11.77 hect
 No of Dwellings: 266
 Housing density: 27
 Total Bedrooms: 709
 Survey Date: 23/09/21
 Survey Day: Thursday
 Parking Spaces: 795

Site(5): WS-03-A-11
 Development Name: MIXED HOUSES
 Location: WEST HORSHAM
 Postcode: RH12 3LN
 Main Location Type: Edge of Town
 Sub-Location Type: Residential Zone
 PTAL: n/a

Site area: 50.00 hect
 No of Dwellings: 918
 Housing density: 50
 Total Bedrooms: 2865
 Survey Date: 02/04/19
 Survey Day: Tuesday
 Parking Spaces: 1894

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): 1.62

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.068	5	499	0.298	5	499	0.366
08:00 - 09:00	5	499	0.125	5	499	0.387	5	499	0.512
09:00 - 10:00	5	499	0.134	5	499	0.145	5	499	0.279
10:00 - 11:00	5	499	0.106	5	499	0.135	5	499	0.241
11:00 - 12:00	5	499	0.119	5	499	0.133	5	499	0.252
12:00 - 13:00	5	499	0.136	5	499	0.126	5	499	0.262
13:00 - 14:00	5	499	0.141	5	499	0.139	5	499	0.280
14:00 - 15:00	5	499	0.143	5	499	0.177	5	499	0.320
15:00 - 16:00	5	499	0.256	5	499	0.172	5	499	0.428
16:00 - 17:00	5	499	0.294	5	499	0.167	5	499	0.461
17:00 - 18:00	5	499	0.363	5	499	0.172	5	499	0.535
18:00 - 19:00	5	499	0.313	5	499	0.185	5	499	0.498
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.198			2.236			4.434

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

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

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Parameter summary

Trip rate parameter range selected:	266 - 918 (units:)
Survey date range:	01/01/11 - 23/09/21
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
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 shown. 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 TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.002	5	499	0.002	5	499	0.004
08:00 - 09:00	5	499	0.004	5	499	0.004	5	499	0.008
09:00 - 10:00	5	499	0.003	5	499	0.001	5	499	0.004
10:00 - 11:00	5	499	0.000	5	499	0.001	5	499	0.001
11:00 - 12:00	5	499	0.001	5	499	0.001	5	499	0.002
12:00 - 13:00	5	499	0.000	5	499	0.000	5	499	0.000
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.002	5	499	0.002	5	499	0.004
15:00 - 16:00	5	499	0.004	5	499	0.002	5	499	0.006
16:00 - 17:00	5	499	0.002	5	499	0.002	5	499	0.004
17:00 - 18:00	5	499	0.000	5	499	0.000	5	499	0.000
18:00 - 19:00	5	499	0.001	5	499	0.001	5	499	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.019			0.016			0.035

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL OGVS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.000	5	499	0.000	5	499	0.000
08:00 - 09:00	5	499	0.000	5	499	0.001	5	499	0.001
09:00 - 10:00	5	499	0.001	5	499	0.001	5	499	0.002
10:00 - 11:00	5	499	0.002	5	499	0.003	5	499	0.005
11:00 - 12:00	5	499	0.002	5	499	0.002	5	499	0.004
12:00 - 13:00	5	499	0.001	5	499	0.002	5	499	0.003
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.001	5	499	0.000	5	499	0.001
15:00 - 16:00	5	499	0.001	5	499	0.000	5	499	0.001
16:00 - 17:00	5	499	0.002	5	499	0.000	5	499	0.002
17:00 - 18:00	5	499	0.000	5	499	0.001	5	499	0.001
18:00 - 19:00	5	499	0.000	5	499	0.000	5	499	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.010			0.020

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.000	5	499	0.000	5	499	0.000
08:00 - 09:00	5	499	0.001	5	499	0.001	5	499	0.002
09:00 - 10:00	5	499	0.000	5	499	0.000	5	499	0.000
10:00 - 11:00	5	499	0.000	5	499	0.000	5	499	0.000
11:00 - 12:00	5	499	0.000	5	499	0.000	5	499	0.000
12:00 - 13:00	5	499	0.000	5	499	0.000	5	499	0.000
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.000	5	499	0.000	5	499	0.000
15:00 - 16:00	5	499	0.000	5	499	0.000	5	499	0.000
16:00 - 17:00	5	499	0.000	5	499	0.000	5	499	0.000
17:00 - 18:00	5	499	0.000	5	499	0.000	5	499	0.000
18:00 - 19:00	5	499	0.000	5	499	0.000	5	499	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.001			0.001			0.002

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.002	5	499	0.007	5	499	0.009
08:00 - 09:00	5	499	0.002	5	499	0.014	5	499	0.016
09:00 - 10:00	5	499	0.002	5	499	0.002	5	499	0.004
10:00 - 11:00	5	499	0.002	5	499	0.002	5	499	0.004
11:00 - 12:00	5	499	0.002	5	499	0.002	5	499	0.004
12:00 - 13:00	5	499	0.003	5	499	0.002	5	499	0.005
13:00 - 14:00	5	499	0.002	5	499	0.001	5	499	0.003
14:00 - 15:00	5	499	0.003	5	499	0.002	5	499	0.005
15:00 - 16:00	5	499	0.007	5	499	0.002	5	499	0.009
16:00 - 17:00	5	499	0.006	5	499	0.004	5	499	0.010
17:00 - 18:00	5	499	0.010	5	499	0.006	5	499	0.016
18:00 - 19:00	5	499	0.009	5	499	0.007	5	499	0.016
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.050			0.051			0.101

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL VEHICLE OCCUPANTS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.081	5	499	0.395	5	499	0.476
08:00 - 09:00	5	499	0.141	5	499	0.621	5	499	0.762
09:00 - 10:00	5	499	0.158	5	499	0.188	5	499	0.346
10:00 - 11:00	5	499	0.137	5	499	0.176	5	499	0.313
11:00 - 12:00	5	499	0.153	5	499	0.176	5	499	0.329
12:00 - 13:00	5	499	0.171	5	499	0.160	5	499	0.331
13:00 - 14:00	5	499	0.181	5	499	0.177	5	499	0.358
14:00 - 15:00	5	499	0.185	5	499	0.225	5	499	0.410
15:00 - 16:00	5	499	0.427	5	499	0.222	5	499	0.649
16:00 - 17:00	5	499	0.451	5	499	0.231	5	499	0.682
17:00 - 18:00	5	499	0.521	5	499	0.245	5	499	0.766
18:00 - 19:00	5	499	0.443	5	499	0.275	5	499	0.718
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.049			3.091			6.140

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.015	5	499	0.041	5	499	0.056
08:00 - 09:00	5	499	0.030	5	499	0.111	5	499	0.141
09:00 - 10:00	5	499	0.021	5	499	0.018	5	499	0.039
10:00 - 11:00	5	499	0.019	5	499	0.021	5	499	0.040
11:00 - 12:00	5	499	0.015	5	499	0.013	5	499	0.028
12:00 - 13:00	5	499	0.018	5	499	0.016	5	499	0.034
13:00 - 14:00	5	499	0.018	5	499	0.022	5	499	0.040
14:00 - 15:00	5	499	0.031	5	499	0.030	5	499	0.061
15:00 - 16:00	5	499	0.101	5	499	0.032	5	499	0.133
16:00 - 17:00	5	499	0.039	5	499	0.019	5	499	0.058
17:00 - 18:00	5	499	0.048	5	499	0.048	5	499	0.096
18:00 - 19:00	5	499	0.048	5	499	0.050	5	499	0.098
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.403			0.421			0.824

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL BUS/TRAM PASSENGERS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.002	5	499	0.018	5	499	0.020
08:00 - 09:00	5	499	0.000	5	499	0.004	5	499	0.004
09:00 - 10:00	5	499	0.001	5	499	0.006	5	499	0.007
10:00 - 11:00	5	499	0.001	5	499	0.002	5	499	0.003
11:00 - 12:00	5	499	0.002	5	499	0.004	5	499	0.006
12:00 - 13:00	5	499	0.002	5	499	0.002	5	499	0.004
13:00 - 14:00	5	499	0.002	5	499	0.001	5	499	0.003
14:00 - 15:00	5	499	0.003	5	499	0.003	5	499	0.006
15:00 - 16:00	5	499	0.011	5	499	0.002	5	499	0.013
16:00 - 17:00	5	499	0.010	5	499	0.001	5	499	0.011
17:00 - 18:00	5	499	0.006	5	499	0.001	5	499	0.007
18:00 - 19:00	5	499	0.006	5	499	0.000	5	499	0.006
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.046			0.044			0.090

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL RAIL PASSENGERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.000	5	499	0.004	5	499	0.004
08:00 - 09:00	5	499	0.000	5	499	0.002	5	499	0.002
09:00 - 10:00	5	499	0.000	5	499	0.002	5	499	0.002
10:00 - 11:00	5	499	0.000	5	499	0.000	5	499	0.000
11:00 - 12:00	5	499	0.000	5	499	0.000	5	499	0.000
12:00 - 13:00	5	499	0.000	5	499	0.000	5	499	0.000
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.000	5	499	0.000	5	499	0.000
15:00 - 16:00	5	499	0.000	5	499	0.000	5	499	0.000
16:00 - 17:00	5	499	0.001	5	499	0.000	5	499	0.001
17:00 - 18:00	5	499	0.004	5	499	0.000	5	499	0.004
18:00 - 19:00	5	499	0.002	5	499	0.000	5	499	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.007			0.008			0.015

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.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL COACH PASSENGERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.000	5	499	0.000	5	499	0.000
08:00 - 09:00	5	499	0.000	5	499	0.001	5	499	0.001
09:00 - 10:00	5	499	0.000	5	499	0.000	5	499	0.000
10:00 - 11:00	5	499	0.000	5	499	0.000	5	499	0.000
11:00 - 12:00	5	499	0.000	5	499	0.000	5	499	0.000
12:00 - 13:00	5	499	0.000	5	499	0.000	5	499	0.000
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.000	5	499	0.000	5	499	0.000
15:00 - 16:00	5	499	0.000	5	499	0.000	5	499	0.000
16:00 - 17:00	5	499	0.000	5	499	0.000	5	499	0.000
17:00 - 18:00	5	499	0.000	5	499	0.000	5	499	0.000
18:00 - 19:00	5	499	0.000	5	499	0.000	5	499	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.001			0.001

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.002	5	499	0.021	5	499	0.023
08:00 - 09:00	5	499	0.000	5	499	0.008	5	499	0.008
09:00 - 10:00	5	499	0.001	5	499	0.008	5	499	0.009
10:00 - 11:00	5	499	0.001	5	499	0.002	5	499	0.003
11:00 - 12:00	5	499	0.002	5	499	0.004	5	499	0.006
12:00 - 13:00	5	499	0.002	5	499	0.002	5	499	0.004
13:00 - 14:00	5	499	0.003	5	499	0.001	5	499	0.004
14:00 - 15:00	5	499	0.004	5	499	0.003	5	499	0.007
15:00 - 16:00	5	499	0.012	5	499	0.002	5	499	0.014
16:00 - 17:00	5	499	0.011	5	499	0.001	5	499	0.012
17:00 - 18:00	5	499	0.010	5	499	0.002	5	499	0.012
18:00 - 19:00	5	499	0.007	5	499	0.000	5	499	0.007
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.055			0.054			0.109

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

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

TRIP RATE for Land Use 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): 1.62

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.100	5	499	0.464	5	499	0.564
08:00 - 09:00	5	499	0.173	5	499	0.754	5	499	0.927
09:00 - 10:00	5	499	0.181	5	499	0.216	5	499	0.397
10:00 - 11:00	5	499	0.159	5	499	0.202	5	499	0.361
11:00 - 12:00	5	499	0.172	5	499	0.195	5	499	0.367
12:00 - 13:00	5	499	0.194	5	499	0.181	5	499	0.375
13:00 - 14:00	5	499	0.205	5	499	0.202	5	499	0.407
14:00 - 15:00	5	499	0.223	5	499	0.260	5	499	0.483
15:00 - 16:00	5	499	0.546	5	499	0.259	5	499	0.805
16:00 - 17:00	5	499	0.507	5	499	0.255	5	499	0.762
17:00 - 18:00	5	499	0.590	5	499	0.300	5	499	0.890
18:00 - 19:00	5	499	0.507	5	499	0.333	5	499	0.840
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.557			3.621			7.178

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CARS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.058	5	499	0.265	5	499	0.323
08:00 - 09:00	5	499	0.106	5	499	0.360	5	499	0.466
09:00 - 10:00	5	499	0.115	5	499	0.130	5	499	0.245
10:00 - 11:00	5	499	0.087	5	499	0.112	5	499	0.199
11:00 - 12:00	5	499	0.098	5	499	0.111	5	499	0.209
12:00 - 13:00	5	499	0.121	5	499	0.112	5	499	0.233
13:00 - 14:00	5	499	0.126	5	499	0.119	5	499	0.245
14:00 - 15:00	5	499	0.125	5	499	0.160	5	499	0.285
15:00 - 16:00	5	499	0.232	5	499	0.154	5	499	0.386
16:00 - 17:00	5	499	0.263	5	499	0.150	5	499	0.413
17:00 - 18:00	5	499	0.336	5	499	0.157	5	499	0.493
18:00 - 19:00	5	499	0.289	5	499	0.168	5	499	0.457
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.956			1.998			3.954

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL LGVS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.008	5	499	0.030	5	499	0.038
08:00 - 09:00	5	499	0.012	5	499	0.018	5	499	0.030
09:00 - 10:00	5	499	0.015	5	499	0.012	5	499	0.027
10:00 - 11:00	5	499	0.016	5	499	0.018	5	499	0.034
11:00 - 12:00	5	499	0.018	5	499	0.018	5	499	0.036
12:00 - 13:00	5	499	0.014	5	499	0.012	5	499	0.026
13:00 - 14:00	5	499	0.014	5	499	0.020	5	499	0.034
14:00 - 15:00	5	499	0.015	5	499	0.014	5	499	0.029
15:00 - 16:00	5	499	0.016	5	499	0.014	5	499	0.030
16:00 - 17:00	5	499	0.025	5	499	0.014	5	499	0.039
17:00 - 18:00	5	499	0.025	5	499	0.013	5	499	0.038
18:00 - 19:00	5	499	0.019	5	499	0.013	5	499	0.032
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.197			0.196			0.393

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL MOTOR CYCLES
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	499	0.000	5	499	0.001	5	499	0.001
08:00 - 09:00	5	499	0.000	5	499	0.003	5	499	0.003
09:00 - 10:00	5	499	0.000	5	499	0.000	5	499	0.000
10:00 - 11:00	5	499	0.000	5	499	0.001	5	499	0.001
11:00 - 12:00	5	499	0.000	5	499	0.001	5	499	0.001
12:00 - 13:00	5	499	0.000	5	499	0.001	5	499	0.001
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.000	5	499	0.000	5	499	0.000
15:00 - 16:00	5	499	0.002	5	499	0.001	5	499	0.003
16:00 - 17:00	5	499	0.002	5	499	0.001	5	499	0.003
17:00 - 18:00	5	499	0.002	5	499	0.001	5	499	0.003
18:00 - 19:00	5	499	0.004	5	499	0.003	5	499	0.007
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.013			0.023

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-100321-241101-1125

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

04	EAST ANGLIA	
	NF NORFOLK	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	AK WAKEFIELD	1 days
	NY NORTH YORKSHIRE	1 days
09	NORTH	
	CU CUMBERLAND	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: 500 to 3697 (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: 01/01/16 to 23/11/22

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

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	1 days
Friday	2 days

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

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town Centre	2
Edge of Town	3

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	1
Residential Zone	1
No Sub Category	2

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	14 days - Selected
Servicing vehicles Excluded	9 days - Selected

Secondary Filtering selection:

Use Class:

Not Known	5 days
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This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:

All Surveys Included

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
15,001 to 20,000	2 days
20,001 to 25,000	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	3 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
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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	5 days
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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	5 days
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AK-02-A-01 PIONEER WAY CASTLEFORD WHITWOOD Edge of Town No Sub Category Total Gross floor area: 1230 sqm Survey date: TUESDAY 23/05/17	OFFICES	WAKEFIELD	Survey Type: MANUAL
2	CU-02-A-02 PORT ROAD CARLISLE Edge of Town Centre Industrial Zone Total Gross floor area: 925 sqm Survey date: FRIDAY 24/06/16	OFFICE	CUMBERLAND	Survey Type: MANUAL
3	NF-02-A-04 WHITING ROAD NORWICH Edge of Town Commercial Zone Total Gross floor area: 500 sqm Survey date: WEDNESDAY 13/11/19	BUILDING CONSULTANT	NORFOLK	Survey Type: MANUAL
4	NF-02-A-05 YARMOUTH ROAD NORWICH Edge of Town Residential Zone Total Gross floor area: 3697 sqm Survey date: MONDAY 12/09/22	COUNCIL OFFICES	NORFOLK	Survey Type: MANUAL
5	NY-02-A-03 STATION ROAD RICHMOND Edge of Town Centre No Sub Category Total Gross floor area: 1590 sqm Survey date: FRIDAY 06/05/22	DISTRICT COUNCIL OFFICES	NORTH YORKSHIRE	Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BC-02-A-08	Location is not comparable
BH-02-A-05	Location is not comparable
DY-02-A-01	Location is not comparable
DY-02-A-02	Location is not comparable
GM-02-A-09	Location is not comparable
GM-02-A-10	Location is not comparable
MS-02-A-02	Location is not comparable
MS-02-A-04	Location is not comparable
NF-02-A-02	Location is not comparable
NF-02-A-03	Location is not comparable
NY-02-A-01	Location is not comparable
TW-02-A-08	Location is not comparable
WK-02-A-02	Location is not comparable
WK-02-A-03	Location is not comparable
WS-02-A-05	Location is not comparable
WS-02-A-06	Location is not comparable
WS-02-A-07	Location is not comparable

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): 1.38

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	5	1526	0.917	5	1526	0.066	5	1526	0.983
08:00 - 09:00	5	1526	2.306	5	1526	0.144	5	1526	2.450
09:00 - 10:00	5	1526	0.812	5	1526	0.170	5	1526	0.982
10:00 - 11:00	5	1526	0.537	5	1526	0.275	5	1526	0.812
11:00 - 12:00	5	1526	0.210	5	1526	0.301	5	1526	0.511
12:00 - 13:00	5	1526	0.668	5	1526	1.245	5	1526	1.913
13:00 - 14:00	5	1526	1.179	5	1526	0.734	5	1526	1.913
14:00 - 15:00	5	1526	0.341	5	1526	0.590	5	1526	0.931
15:00 - 16:00	5	1526	0.223	5	1526	0.681	5	1526	0.904
16:00 - 17:00	5	1526	0.262	5	1526	1.166	5	1526	1.428
17:00 - 18:00	5	1526	0.013	5	1526	2.057	5	1526	2.070
18:00 - 19:00	4	1601	0.047	4	1601	0.250	4	1601	0.297
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			7.515			7.679			15.194

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-100321-241101-1108

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : N - RETIREMENT FLATS
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	NF NORFOLK	1 days
05	EAST MIDLANDS	
	DY DERBY	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	AL CALDERDALE	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: 30 to 48 (units:)
 Range Selected by User: 17 to 76 (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: 01/01/16 to 02/11/23

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 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 undertaken using machines.

Selected Locations:

Edge of Town Centre 1
 Suburban Area (PPS6 Out of Centre) 1
 Neighbourhood Centre (PPS6 Local Centre) 2

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

Selected Location Sub Categories:

Residential Zone 3
 High Street 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 12 days - Selected
 Servicing vehicles Excluded X days - Selected

Secondary Filtering selection:

Use Class:

C3 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

Secondary Filtering selection (Cont.):

Population within 1 mile:

10,001 to 15,000	1 days
25,001 to 50,000	2 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:

100,001 to 125,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	1 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:

No	4 days
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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
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AL-03-N-01	RETIREMENT BUNGALOWS	CALDERDALE
	GROVE AVENUE		
	HALIFAX		
	WHEATLEY		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	34	
	Survey date: TUESDAY	23/10/18	Survey Type: MANUAL
2	CA-03-N-01	RETIREMENT FLATS	CAMBRIDGESHIRE
	UNION LANE		
	CAMBRIDGE		
	CHESTERTON		
	Neighbourhood Centre (PPS6 Local Centre)		
	High Street		
	Total No of Dwellings:	30	
	Survey date: MONDAY	26/06/23	Survey Type: MANUAL
3	DY-03-N-02	RETIREMENT FLATS	DERBY
	LEAPER STREET		
	DERBY		
	Edge of Town Centre		
	Residential Zone		
	Total No of Dwellings:	35	
	Survey date: WEDNESDAY	20/10/21	Survey Type: MANUAL
4	NF-03-N-02	RETIREMENT FLATS	NORFOLK
	YARMOUTH ROAD		
	NORWICH		
	THORPE SAINT ANDREW		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	48	
	Survey date: WEDNESDAY	20/11/19	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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
HF-03-N-01	Location is not comparable
IW-03-N-01	Location is not comparable
NF-03-N-02	location is not comparable
NF-03-N-02	location is not comparable
NF-03-N-02	location is not comparable
NF-03-N-02	location is not comparable
NF-03-N-02	location is not comparable
SH-03-N-02	Location is not comparable
TW-03-N-03	Location is not comparable
WK-03-N-01	Location is not comparable
WS-03-N-02	location is not comparable
WS-03-N-03	location is not comparable
WS-03-N-03	location is not comparable

TRIP RATE for Land Use 03 - RESIDENTIAL/N - RETIREMENT FLATS
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): 1.87

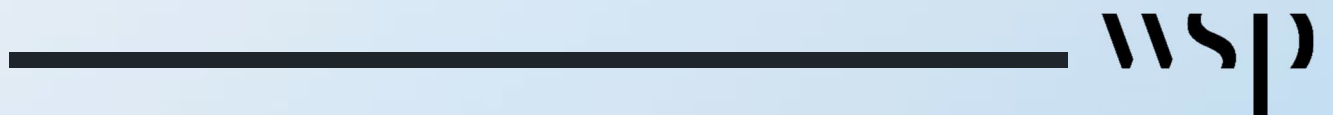
Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.061	4	37	0.143	4	37	0.204
08:00 - 09:00	4	37	0.156	4	37	0.218	4	37	0.374
09:00 - 10:00	4	37	0.238	4	37	0.279	4	37	0.517
10:00 - 11:00	4	37	0.299	4	37	0.347	4	37	0.646
11:00 - 12:00	4	37	0.211	4	37	0.184	4	37	0.395
12:00 - 13:00	4	37	0.313	4	37	0.143	4	37	0.456
13:00 - 14:00	4	37	0.238	4	37	0.333	4	37	0.571
14:00 - 15:00	4	37	0.231	4	37	0.252	4	37	0.483
15:00 - 16:00	4	37	0.231	4	37	0.170	4	37	0.401
16:00 - 17:00	4	37	0.265	4	37	0.184	4	37	0.449
17:00 - 18:00	4	37	0.190	4	37	0.136	4	37	0.326
18:00 - 19:00	4	37	0.143	4	37	0.170	4	37	0.313
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.576			2.559			5.135

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

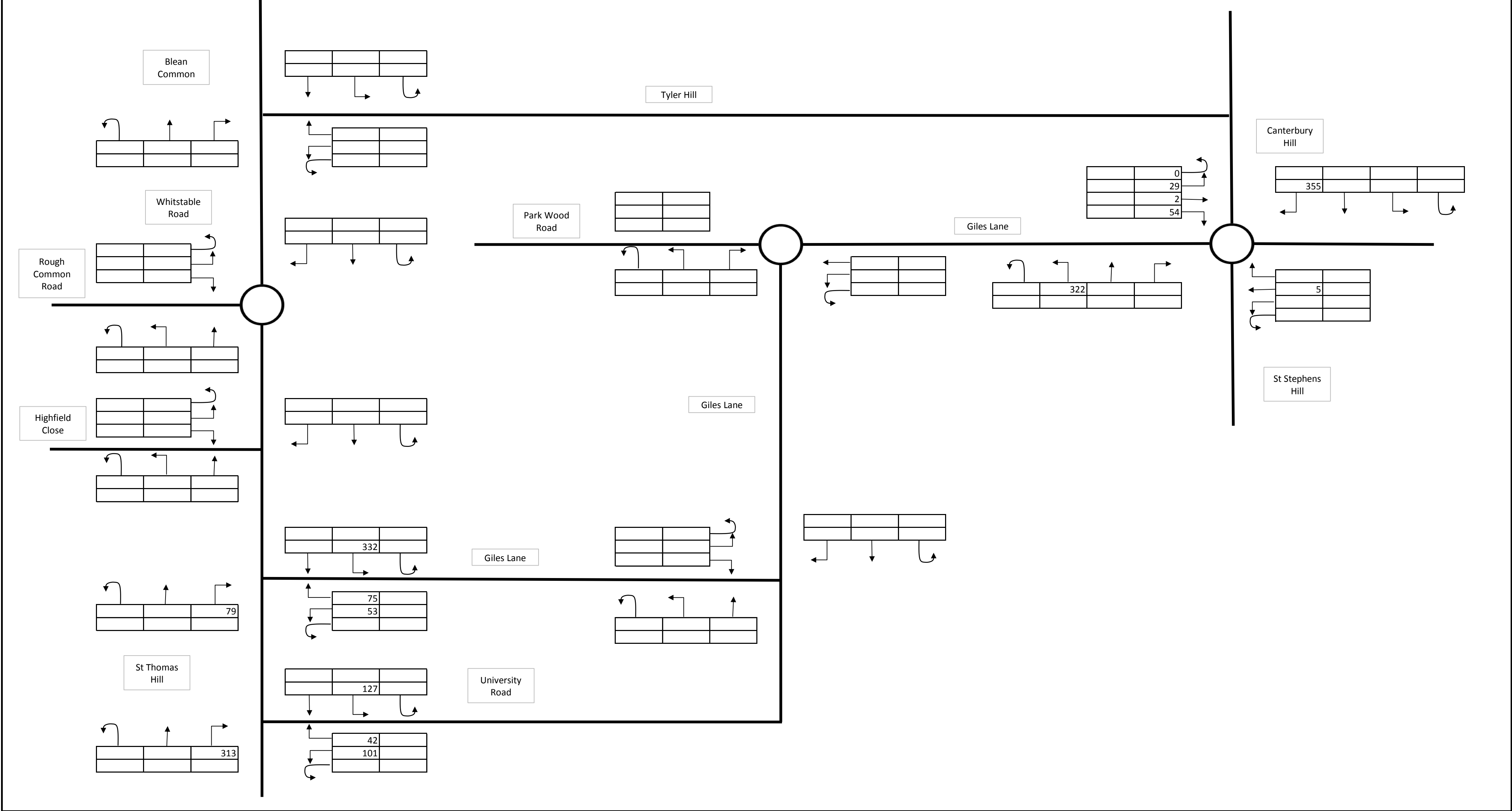
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected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

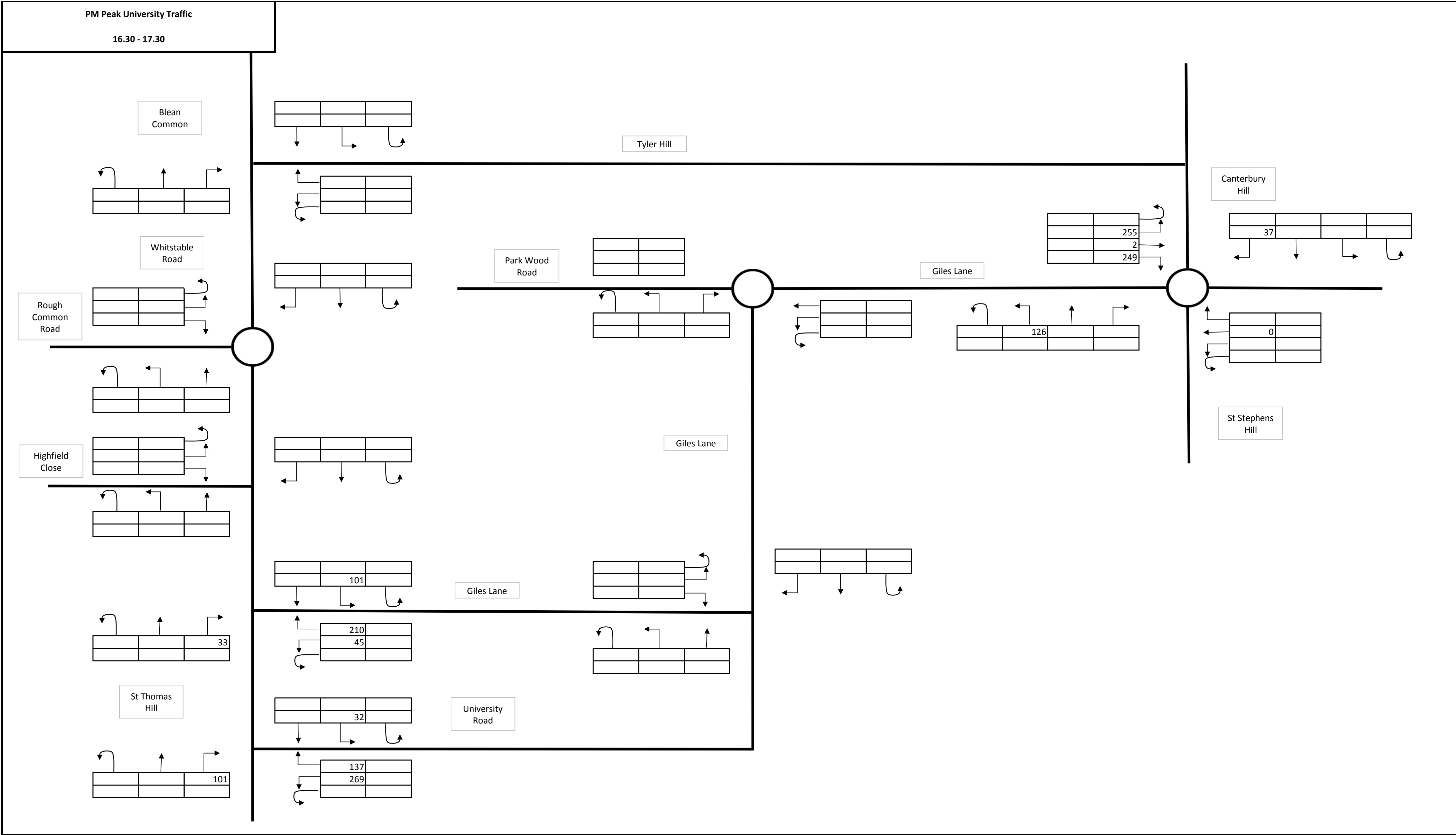
Appendix B

Appendix B - University Masterplan -
Traffic Flow Diagrams



AM Peak University Traffic
08.00 - 09.00







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