Canterbury Local Plan Evidence Vol 2 - Traffic Impact Assessment

Land North of Hollow Lane, Canterbury

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1 Introduction

1.1 Overview

1.1.1 C&A have been appointed by Quinn Estates to provide transport and highways support for their site promotion activities associated with the emerging Canterbury City Council (CCC) Local Plan (2040). This is Volume 2 of the evidence and should be read alongside Volume 1 - Sustainable Transport Strategy.

1.1.2 In 2025 CCC carried out a Regulation 18 consultation on the Local Plan (2040) which included the neighbouring sites C6 “Merton Park” and C7 “Land north of Hollow Lane”, both being promoted by Quinn Estates as a combined sustainable urban extension to Canterbury. It had been anticipated that CCC would move latterly to Regulation 19 stage and as part of this, the promoter had been actively engaged with both CCC and Kent County Council (KCC) in the preparation of transport evidence to support those draft allocations. However, in the summary of 2025 CCC instead reverted to Regulation 18 stage with a ‘focused consultation’ on a revised Local Plan strategy. This retained Merton Park, now referred to as Site N1, but removed the Land north of Hollow Lane site. This change in strategy is understood to have been informed by concerns raised by KCC Highways – in particular with respect to perceived concerns regarding residual traffic impact when considered alongside the draft CCC Transport Strategy.

1.1.3 In this context, this report presents the findings of a traffic impact assessment of Land north of Hollow Lane, originally prepared in anticipation of support of a Regulation 19 allocation, but now provided in support of site’s reinstatement within the Local Plan strategy.

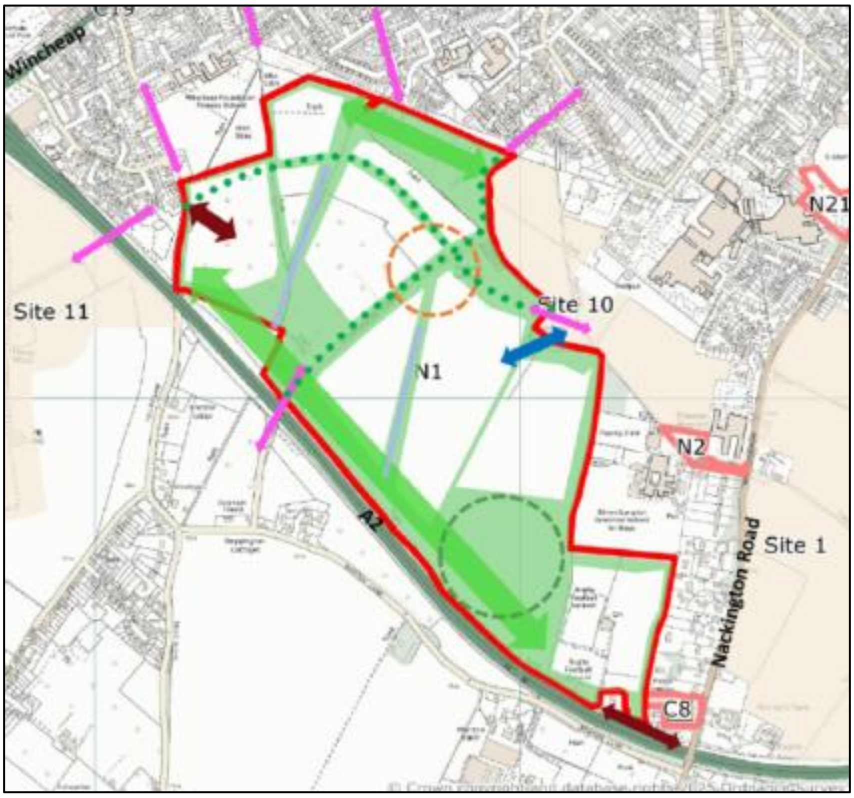
1.1.4 The focused consultation also includes changes to the Transport Strategy, including relocation of Wincheap Park & Ride to a larger site at Thanington Recreation Ground (Site N3). This is considered in the assessment as part of an additional assessment scenario that also responds to informal comments received recently from KCC on the original draft of this report.

1.1.5 As originally proposed, the Land north of Hollow Lane site includes the potential for approximately 800 dwellings including affordable housing, community and commercial uses, as illustrated below.

Figure 1.1: Land North of Hollow Lane - Concept Masterplan

1.1.6 This site adjoins recently permitted development on the land immediately to the north and northwest, which forms Site 11 from the adopted Canterbury Local Plan. Also notable is the draft Policy N1 for approximately 1,930 dwellings, community facilities and associated transport services on a site between the A2 Dover Road and the Old Dover Road, as illustrated below.

Figure 1.2 – Site N1 (Merton Park) Concept Masterplan



1.2 Report Purpose

1.2.1 This report provides a Traffic Impact Assessment of the Land north of Hollow Lane site, cumulatively with the proposed development at Merton Park (Site N1). The assessment results are compared against a scenario where neither development is delivered. This scenario tests the resilience of the network to cumulative impact of the two developments, in the context of a wider transport strategy that now excludes major highway infrastructure such as the South West Canterbury link or new/relocation slip roads at Merton Park. However, it does assume that all sustainable transport schemes proposed within the Sustainable Travel Strategy will be in place, to promote sustainable travel from the onset.

1.2.2 The traffic generating implications of Merton Park are inherited from that site's Sustainable Transport Strategy and Traffic Assessment, which are submitted as part of the Reg 18 response for completeness.

1.2.3 This is based on the Kent Transport Model, which is a strategic model in the VISUM platform maintained by KCC Highways. In addition, C&A have developed a VISSIM model of the A28 Wincheap corridor to provide a more detailed assessment of this area.

1.2.4 This report reflects the vision-led approach which has emerged in UK transport planning over the last few years. The NPPF as of February 2025 now states:

> *109. Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places.*
>
> *…*
>
> *116. Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.*

1.2.5 As shown in the accompanying Volume 1 - Sustainable Transport Strategy, it is critical that the opportunity for forming sustainable habits is provided prior to the provision of any highway capacity enhancement schemes. This approach takes advantage of both the improved sustainable links for pedestrians, cyclists and public transport users, as well as the increased levels of congestion anticipated in the future year scenarios that would discourage car use, in order to accomplish the optimal achievable mode shift and highest sustainable travel levels for the proposed allocation. This would constitute a carrot and stick approach, where the initiatives for mode shift are both positive, promoting sustainable modes, as well as adverse, discouraging car use. This approach is also used in the emerging Transport Strategy as part of the Canterbury Local Plan.

1.2.6 As will be noted from the above, the 2025 NPPF also reinforces the need to consider the inherent uncertainties in forecasting when assessing impact, hence reference in paragraph 116 to *'…taking into account all reasonable future scenarios.'*. This is most importantly considered in the context of the NPPF's wider requirement to adopt a vision-led approach to transport planning. With reference to Annex 2: Glossary on p80 of the 2025 NPPF, we can see that vision-led in contrasted with the conventional approach of seeking to define a single, often robust, prediction of the future against which infrastructure, most notably highways, in provided against.

> ***Vision-led approach:*** *an approach to transport planning based on setting outcomes for a development based on achieving well-designed, sustainable and popular places, and providing the transport solutions to deliver those outcomes as opposed to predicting future demand to provide capacity (often referred to as 'predict and provide').*

1.2.7 Further details are provided on the wider implications of uncertainty in forecasting in the next section. The core scenario discussed in this report and tested through the application off the KCC strategic model and the local VISSIM model represents a vision-led assessment, with an aspirational anticipated outcome from sustainable travel interventions and resultant mode share.

1.2.8 This approach is entirely in-line with the current NPPF. At paragraph 109, the NPPF discusses how transport issues should be considered early in the plan-making stage and that a vision-led approach should be adopted to identifying transport solutions such that they are focused on well-designed, sustainable and popular places.

1.2.9 To understand the importance of focusing on a vision-led approach in plan-making, it is useful to consider the implications of alternatively adopting a more pessimistic approach, which relies on seeking to predict the future and assessing infrastructure need. The most sustainable developments, those with greatest opportunity for change in travel patterns, will necessarily carry the burden of the greatest uncertainty in any forecasting. They will also invariably be located in the areas most subject to existing highway constraints. A plan making process based on a pessimistic predict and provide approach will fail to capture the inherent potential in the most sustainable sites and will be disposed towards dismissing sites due to perceived impact on constrained networks.

1.2.10 It is of course accepted that latterly in the development process, most notably at the decision-taking stage, it is appropriate that consideration is given to the implications of other forecast scenarios (as required by NPPF paragraph 116), including those which reflect a successful vision outcome and those with a more pessimistic outcome. This exercise should be undertaken at a planning application stage, through appropriate Transport Assessment, in order to identify possible mitigation strategies that may require implementation through the monitor and manage approach.

1.2.11 Notwithstanding the above, for the purposes of this assessment of development, at the plan making stage, a further forecast scenario has been introduced, complementing the evidence base. This scenario considers a possible future outcome where the vision-led is less fully realised; a greater proportion of trips are undertaken by car and thus the assessment of network impact is more pessimistic. Whilst arguably ‘robust’ this approach, if used in isolation in decision making and in particular if used to inform infrastructure/mitigation requirements, would be contrary to the expectations of NPPF – being commensurate with the legacy ‘predict and provide’ approach.

1.2.12 That notwithstanding, the additional scenario does benefit from also providing a response to KCC Highways' concerns regarding the assumed trip rates in the core scenario, but applying considerably more conservative assumptions of mode shift and aligning more closely to conventional 'TRICS based' trip rates from historical observations. For completeness in undertaking this work, the locally relevant modifications to the CCC Park & Ride strategy have also been incorporated.

1.2.13 For expediency and pending wider updates to the strategic modelling to reflect the preferred Local Plan strategy, only the local VISSIM corridor modelling has been undertaken for the additional scenario. While a full explanation of the methodology is provided below, it is relevant to note that the additional scenario builds on strategic modelling work in the core scenario, making manual adjustments to reflect the changes in demand. It should be noted that while this additional scenario continues to test the cumulative implications of Merton Park (Site N1) and Hollow Lane together, the demand assumptions for Merton Park are unchanged from those developed in its separate impact assessment and are the same in both the core and additional scenarios.

2 Assessment Methodology (Core Scenario)

2.1 Overview

2.1.1 As discussed above, the purpose of this report is to assess the cumulative implications of both Land north of Hollow Lane and Merton Park in the absence of the introduction of any highway infrastructure schemes other than those absolutely necessary for the delivery of the developments themselves. At the same time, numerous sustainable measures included within the proposals are considered to be in place for this assessment.

2.1.2 The assessment considers a Vision-led approach for the development that aims to maximise active travel as much as possible. Although the concept of this approach is already discussed within the Sustainable Travel Strategy, this was done in a more abstract manner that explored the maximum potential for non-vehicles trips from the development based primarily on the site's location and the assumed travel patterns.

2.1.3 The methodology adopted for this core assessment presents a more comprehensive approach that amalgamates potential with reasonable assumptions of mode choice based on distance, route conditions and attractiveness over car, as further discussed below.

2.1.4 This approach was also adopted for the Merton Park (Site N1) impact assessment for consistency.

2.2 Uncertainty in Forecasting and Vision-Led Planning

2.2.1 It is beyond the scope of this report to provide a comprehensive discussion on the importance uncertainty plays in forecasting of transport networks and critically within the vision-led approach to planning. For further information reference should be made to the following:

- Circular 01/2022 from DfT
- Transport Assessment Guidance (TAG) Uncertainty Toolkit from DfT
- Decide and Provide Guidance Summary from TRICS Consortium.

2.2.2 Uncertainty has always been a fundamental component of transport network modelling and forecasting – simply because the future is unknown, for a wide variety of reasons. The purpose of transport network modelling is to attempt to make a forecast of the influence certain changes in parameters may have on the network and to do so with appropriate awareness of the inherent uncertainties of doing so.

2.2.3 Whilst such uncertainty has always been inherent to forecasting, whether in transport network or any other system, there has historically been an overreliance on predictive abilities of such forecasts to present ‘accurate’ predictions of the future, against which to plan. This has increasingly led to the process known as ‘predict and provide’, discussed previously, whereby forecast models are developed to make absolute ‘predictions’ of the future against which suitable ‘provision’ of infrastructure is made to accommodate this demand and derive a notional effective operational network. The prevalence of congested highway networks, where demand (particularly in peak periods) exceeds capacity, despite efforts to predict and provide, demonstrates the fallacy of this approach.

2.2.4 There are numerous reasons for these undesirable outcomes, including a misguided belief in the ability to predict the future, but also critically because of the concept of unintended consequences, most notably the propensity for provision of capacity to induce demand. A conventional response to this might be to seek to predict the induced demand (for instance making robust assumptions of growth and trip rates) – but this simply falls foul of the same issues.

2.2.5 Vision-led planning represents a paradigm shift in the way forecasting is used to inform the decision-making process. Rather than seeking to forecast what might happen (predicting) and accordingly providing; it instead poses the question of what should be aspired to and forecasting on this basis. All prevailing and emerging national and local policy, most importantly those derived from the overarching objective of addressing the climate emergency, make clear that what should be aspired to is a maximisation of sustainable travel (active and public transport) and minimising unsustainable modes, in particular the private car. That being said; there is also uncertainty in such vision-led forecasting, hence this report complements the core scenario with an additional scenario based on alternative assumptions of outcomes from sustainable interventions.

2.3 Monitoring and Management

2.3.1 Given the uncertainty in trip rate forecasting, it is important to monitor transport conditions going forward, such as through annual surveys on key highway links, and then manage these with interventions only if these are required by the actual conditions, as opposed to implementing all potential measures at the start of the development and finding that some are ultimately not needed. This is endorsed in the TRICS Decide and Provide Guidance:

The traditional approach to TAs and TSs does not prescribe Monitoring & Evaluation (M&E). Yet M&E is key in being able to respond to uncertainty in a changing world. Strong planning should include design provision that allows for adaptation over time – in response to changing circumstances. Rather than designing for the 'worst', design instead is focused upon intending to achieve the 'best' while being prepared to respond, through the build-out period and ongoing changing behaviours, to what may further be required.

2.3.2 Any planning approval for development would be appropriately conditioned to secure a Monitor and Evaluation Plan (MEP). This would be informed by comprehensive impact assessment undertaking during the application process, establishing the range of possible interventions/mitigation required to support the development. The MEP would establish the mechanism by which the development's impact would be monitored and how this will inform decisions as the need for and timing of such mitigation. It is accepted that clarity on the scope for mitigation will be required prior to determination of any planning application and this would need to include possible mitigation that would be needed, in the event that the full expectations of the development are not realised.

2.4 The Aspirational (Core) Scenario

2.4.1 As indicated earlier, it important to note that this assessment is not presented as a replacement or alternative singular prediction of the future. It complements earlier initial traffic appraisal work and is now also complemented by further scenarios in due course to provide a comprehensive assessment to inform decision making.

2.4.2 This 'aspirational' or core scenario is intended to inform decision making regarding the scope for development to maximise sustainable travel opportunities and reduce counter-productive highway infrastructure. It should be used together with the 'additional' scenario, which provides a more pessimistic forecast of outcomes, to inform decision making.

2.5 Summary Methodology

2.5.1 The methodology adopted for this core scenario provides an evidence-led approach that seeks to quantifiably assess the travel demand context using a contemporary approach to allow forecasting of an aspirational mode split (and thus residual car trip rates) that can be plausibly anticipated as an outcome from the vision-led approach to the relevant transport strategy.

2.5.2 Forecasting of the future year demand inherently contains a certain level of uncertainty. The Predict and Provide (P&P) approach that had been adopted in the transport planning industry up until the recent years is based on just one of the multiple potential outcomes of the future. P&P adopts a robust forecast that is heavily based on provision of highway infrastructure and enhancement of capacity of links and junctions.

2.5.3 It is widely acknowledged, by both the industry and the national guidance, that the introduction of new highway schemes and the pursuit of additional capacity is a self-fulfilling prophecy. Introducing new links or enhancement schemes has long been proven that does not provide long-lasting benefits to the network. It rather means that the newly introduced improvements in capacity terms of a link or a junction will unequivocally induce more demand, referred to as latent demand. Trips that were previously made with different modes or at different times of day will take advantage of the additional capacity and switch to car-based peak-hour trips, adding to the capacity reaching previous levels of congestion.

2.5.4 An alternative to this deterministic approach is provided with the Decide and Provide (D&P) concept that embraces the uncertainty in the forecasting of traffic demand and suggests provision of infrastructure based on the travel behaviour that is sought to be promoted, i.e. active travel and public transport trips instead of vehicle ones. The D&P approach is based on the idea of multiple forecast scenarios, a plausibility envelope in which the P&P scenario is on one end of the scale, among the more robust and pessimist predictions, while an aspirational scenario with minimal vehicle trips and maximum active travel is on the optimistic end of the scale.

2.5.5 The accompanying Volume 1 - Sustainable Travel Strategy discussed the maximum potential for the development, providing a very optimistic scenario that sits on the very edge of the plausibility envelope.

2.5.6 By applying reasonable assumptions to the maximum potential, a more realistic scenario is produced that sits between the two extremes of ultra-sustainable and D&P approaches and has a higher possibility of happening.

2.5.7 By breaking down the assumptions, a higher level of confidence is provided. This is due to the fact that the variables are easier and more tangible to consider and estimate. The disaggregation of the assumptions also provides a tangible way to link interventions to anticipated outcomes. By breaking down the assumptions to subsets it is feasible to correlate cause with effect.

2.5.8 For example, a generic approach, quite often applied to trip generation in order to account for improved sustainability, is a slicing of the total vehicle trips demand. The approach adopted for this assessment considers each origin-destination (OD) trip to/from the development separately. In this way, it is easier and more credible to make assumptions for trips to the city centre, based on existing conditions and the proposed sustainable measures, than generic assumptions regarding all trips. The assumptions are explained further in the next chapter.

3 Core Scenario Demand Assumptions

3.1 Introduction

3.1.1 The supporting Sustainable Transport Strategy provides the maximum potential for the site when eliminating car trips as much as possible. It is acknowledged that this provides a very high target. Nevertheless, it is considered a valuable step in identifying the potential of the site based solely on its location and its proximity and connectivity to anticipated destinations.

3.1.2 Taking this further, a number of assumptions were adopted for each OD pair to help establish the realistic target for sustainable travel to and from the site. Where the maximum potential considered only distance, for this exercise other factors like quality of the route and attractiveness over car were taken into account.

3.2 Source Demand Data

3.2.1 In order to identify travel patterns and attraction areas, OD matrices from the strategic model were interrogated, with focus on the trips to and from the development zone.

3.2.2 Examination of the OD matrices also helped identify the OD pairs and routes that could be more affected by interventions both in the form of improving the quality of walking and cycling routes as well as improving the travel time (which for the purposes of this exercise translates as quality) for PT – by means of service diversion or reduction of walking time as a result of the introduction of the fast bus service through the site.

3.2.3 Strategic models differentiate vehicle trips in user classes based on trip purpose. The user classes for cars, when excluding HGVs and LGVs are:

1. User Class 1 (UC1) – car commute;
2. User Class 2 (UC2) – car employer's business;
3. User Class 3 (UC3) – car other.

3.2.4 It was considered that the trips that could be made by sustainable modes instead of car involved only User Classes 1 and 3, while trips under User Class 2 were more difficult to affect.

3.2.5 An initial examination of the trips associated with UC1, UC2 and UC3 showed that the trips included in the strategic model, when considering 800 units, correspond to a trip rate lower than the respective rates for Merton Park. This was not considered to be reasonable, as it might be reasonably assumed that Lane at Hollow Lane would have at least comparable over vehicle trips rates to Merton Park.

3.2.6 Although this information was imbedded within the KCC strategic model and therefore might be assumed reasonable to retain, it was nonetheless considered a sensible approach to match the starting trip rates of the two sites, before applying any sustainability assumptions. As such, before progressing further, all matrices associated with the Hollow Lane Site were uplifted by factors of 1.20 in the AM and 1.13 in the PM to bring them to parity with Merton Park – before moving on to make site-specific assumptions for sustainable travel.

3.3 Propensity for sustainable travel

3.3.1 While the overall sustainability uptake of an OD pair is a combination of the sustainability of the two most attractive modes available for the specific pair/route, the sustainability uptake for each mode was calculated based on three parameters:

1. Distance:
   - For walking and cycling the actual distance from the site to the destination was inversely proportional to the propensity to walk/cycle.
   - For Public Transport, travel time was considered instead – both actual time on the service and walking time to/from PT stops/stations.
2. Route Quality:
   - For walking and cycling, route quality was assessed based on walking and cycling audits undertaken on site, as shown in Chapter 3 of the Sustainable Transport Strategy. The audit scores were adjusted on routes where improvements are proposed within the STS.
   - For Public Transport, the quality of the service was assessed based on the frequency of the service. For buses, 1 service per hour was considered sub-standard, 2 services per hour average, while 4 services per hour, either by a single bus or for destinations served by multiple bus lines, the quality was considered excellent. Connectivity to the city centre was also enhanced due to the proposed fast bus connection. For train services, 1 train per hour was considered average with 2 trains being assessed as good.

3. Attractiveness over Car Travel: this considered the levels of existing congestion on the network as well as available parking at the destinations. For example, walking was considered more attractive than car for destinations within the city centre as it would avoid congestion or parking charges - both important constraints against car trips to the city centre. Nevertheless, for trips to less congested areas closer to a mile (i.e. 21-22 minutes walking), where parking was not a constraint, car trips were faster than sustainable modes and thus more attractive.

3.3.2 For each sustainable mode the parameters were weighted differently as shown below. It is important to note that this weighting is applied in addition to the assumptions of distance limitations for active travel modes. While distance is generally considered a key factor for walking and cycling, in this case this has already been considered as such modes were only identified as an available travel option within their respective catchment areas, with walking destinations up to 1.6 km from the site and cycling from 1.6km to 5 km. No further weighting was applied within this, so a walking journey of 800m was considered to be equally attractive as one over 1600m. Introducing such weighting would have been particularly onerous to the complexity of the methodology and would be contrary to the aspirational principles which accept that walking should be primary mode for under 1600m trips.

Table 3.1: Parameter Weighting

	Distance	Quality	Attractiveness over car
Walking	20%	70%	10%
Cycling	10%	50%	40%
Public Transport	60%	10%	30%

3.3.3 For walking, the quality of the routes, as defined by the route audits template, was considered the key factor to weight against car trips, when considering that this involved trips of up to 1 mile.

3.3.4 For cycling, it was acknowledged that cyclists with different levels of confidence exist, so quality is very important, but equally not everyone would be convinced to cycle even under the best route conditions. Which is why the attractiveness over the car is almost equally important.

3.3.5 For Public Transport, it was considered that the travel time was the most crucial factor, and as travel time by PT interrelates with the attractiveness over car, although the attractiveness was considered a major factor, it got a lower weight as the two values were not mutually exclusive. Quality came last, as it was not considered as highly constraining a factor as the other two parameters.

3.3.6 When assessing the attractiveness of each sustainable mode, the site location as well as the proposed connectivity to the existing network was taken into account.

3.4 Realistic Targets

3.4.1 Building on the maximum potential of the site, as discussed above, more realistic targets are being explored when considering the propensity for sustainable travel. For this exercise, up to two different modes were assumed per OD pair.

3.4.2 For trips within 1 mile, cycling was not considered an attractive option as it was assumed that for short trips walking was a more suitable option. Equally, for trips greater than a mile, walking was not accounted for, although in reality the ability to walk to one's destination is not constrained within the 1 mile catchment area. Nevertheless, cycling, for distances of up to 5km, and PT, where applicable, provided better alternatives.

3.4.3 For destinations where more than two options were available, a prioritisation was done based on distance. Walking and cycling were the first option for destinations within their respective catchment areas, whereas for multiple PT options the alternatives with less walking to the corresponding PT stops/stations.

3.4.4 Each OD pair, and the respective route between the site and the destination, was assigned a percentage on the level of trips that are expected to be made sustainably. This is considered as the overall sustainability uptake of the route and was calculated as the sum of the uptake of the first mode and half of the uptake of the second mode, of course with 100% as an upper limit, signifying that all trips between this OD pair would be made sustainably – an approach endorsed by Transport for London (TfL) when calculating Public Transport Accessibility Levels (PTAL)[1] for sites within London.

3.4.5 Although it is acknowledged that traffic volumes may increase by the completion year of the development, existing traffic levels were considered for the attractiveness parameter.

[1] Transport for London https://content.tfl.gov.uk/connectivity-assessment-guide.pdf

3.4.6 These levels were also taken into account for bus services, making buses equally unattractive as cars when congestion is concerned. It is understood that the Local Plan Transport Strategy aims to prioritise buses, but no specific plans have come forward at the time of this exercise, hence it was not possible to reasonably forecast where buses might, in the future, have an advantage over cars (e.g. through bus lanes that do not yet exist).

3.4.7 The conclusion is that around one third of all peak hour trips to/from the development which were previously assumed to be car-based in the strategic model, would now be made by sustainable modes.

3.4.8 For a development of 800 units, as discussed before, this result in net two-way vehicle trip rates of 0.21 and 0.23 per dwelling for the AM and PM peak hours respectively.

3.4.9 Those trips, along with the vehicular access and connectivity assumptions, were inserted again into the strategic model to provide the assessment results discussed below.

4 Proposed Access Strategy (All Scenarios)

4.1 Vehicle Access

4.1.1 As already discussed, this assessment assumes that the development will come forward without any large-scale highway infrastructure beyond that necessary to support immediate access. That same assumption applies to the Merton Park site, the assumptions for which are now consistent with that included in the Regulation 18 Local Plan strategy and draft allocation policy. Accordingly, it is assumed that all motor vehicle access will be via the Saxon Fields development which is currently under construction.

4.2 Access Modelling

4.2.1 The strategic model includes two access points between the Hollow Lane site and the wider Saxon Fields development; the latest scheme layout includes three access points but this difference would not materially affect traffic assignment on the wider network. Free assignment between the two accesses was modelled to allow development traffic to choose the optimal path for each OD pair, rather than assuming a split between the two access points.

4.2.2 The results indicate a stronger preference for routeing to/from the east, with 65% using Basing Avenue to reach the A28 / A2 junction and the remaining 35% using Fairbrass Way which leads to the A28 corridor towards Ashford. This assignment is derived from the strategic model and is considered appropriate to retain, rather than applying manual assignment from other sources.

4.2.3 As a result of the sustainability exercise discussed above, the total two-way vehicle trips to and from site are estimated at 165 in the AM peak hour and 185 in the PM peak hour. Due to the anticipated low flows within the Saxon Fields internal road network, it is expected that the development flows will be easily accommodated with simple priority junctions, with approximately 60-70 hourly vehicle trips via the western access and around 100-110 via the eastern access.

5 Impact on the wider network (Core Scenario)

5.1 Introduction

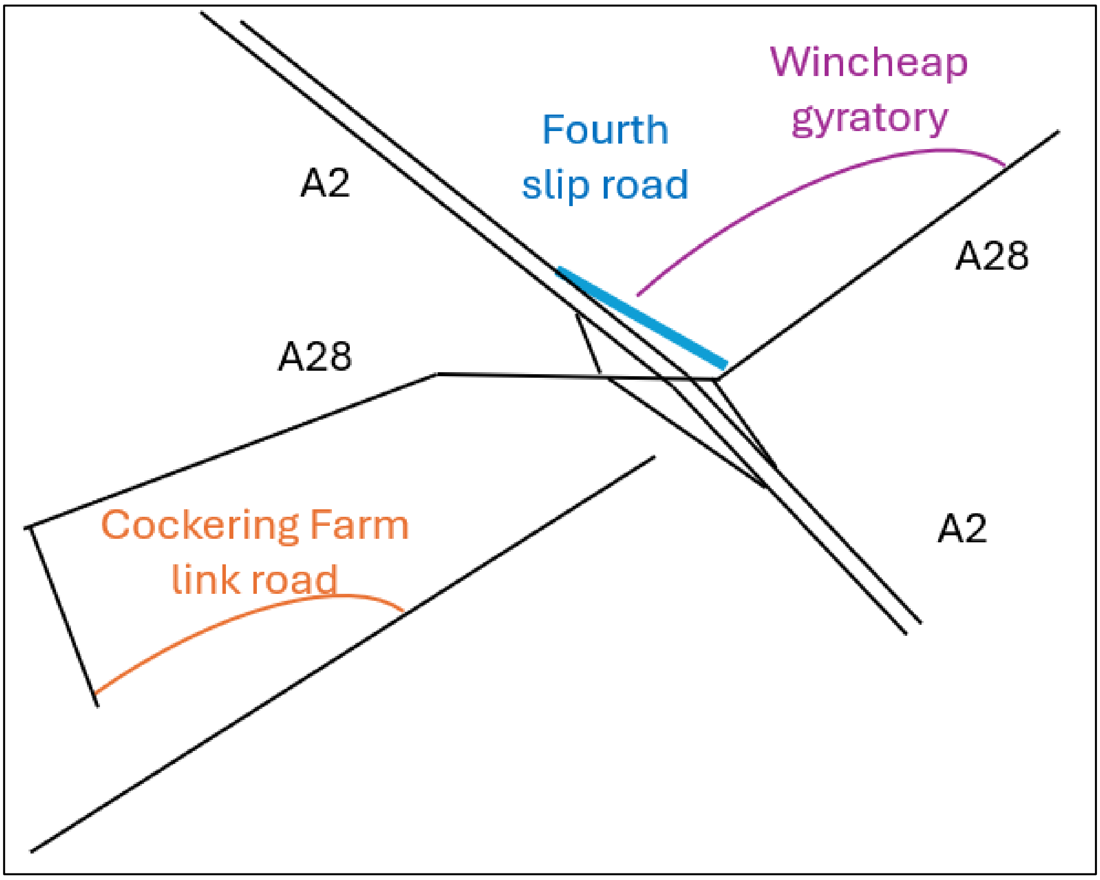
5.1.1 Strategic modelling of the cumulative impact of the two sites under the core scenario has been undertaken using the Kent Transport Model is shown in **Appendix A**.

5.1.2 The 2040 Do Minimum (DM) scenario includes traffic associated with committed developments and committed improvement schemes across the district, as well as a reflection of emerging Local Plan growth across the district. This modelling work was undertaken at the time of the previous Regulation 18 stage and thus reflect the wider Local Plan site allocation strategy at the time. For completeness, this was a model scenario referred to as LP Option 5V3.

5.1.3 While it is accepted that the current Regulation 18 plan reflects an alternative land use strategy, a version of the model reflecting this was not understood to be available in sufficiently timely manner to inform this work. Albeit that the site specific allocations are different, the use of this LP Option 5V3 model has the distinct benefit of retaining the overall quantum of LP growth across the district and therefore ensure that the assessment is appropriate cumulative.

5.1.4 In the vicinity of assessment site, the committed schemes include the fourth slip road at the A2/A28 junction, the Wincheap Gyratory scheme and the Cockering Farm spine road as shown indicatively below.

Figure 5.1: Committed improvement schemes at Thanington and Wincheap



5.1.5 The 2040 Updated Do Something (UDS) scenario within LP5V3 includes the above plus the traffic (as derived through the application of aspirational trip rate assumptions) and site access points relating to both Merton Park and Land north of Hollow Lane. In the case of Merton Park, the access and broad development assumptions align with that now set out in Policy N1, albeit with a slightly higher overall residential scale of 2,000 dwellings. It also includes the closure of Stuppington Lane which is proposed as part of the Merton Park access arrangements.

5.2 Development Trip Assignment

5.2.1 As the impact discussed below presents a cumulative test of both Merton Park and Land north of Hollow Lane, it is useful to firstly understand how Land north of Hollow Lane traffic uses the network in isolation. The vehicle trips relating this site in isolation are shown below.

Figure 5.2: Hollow Lane trip assignment – AM Peak Hour

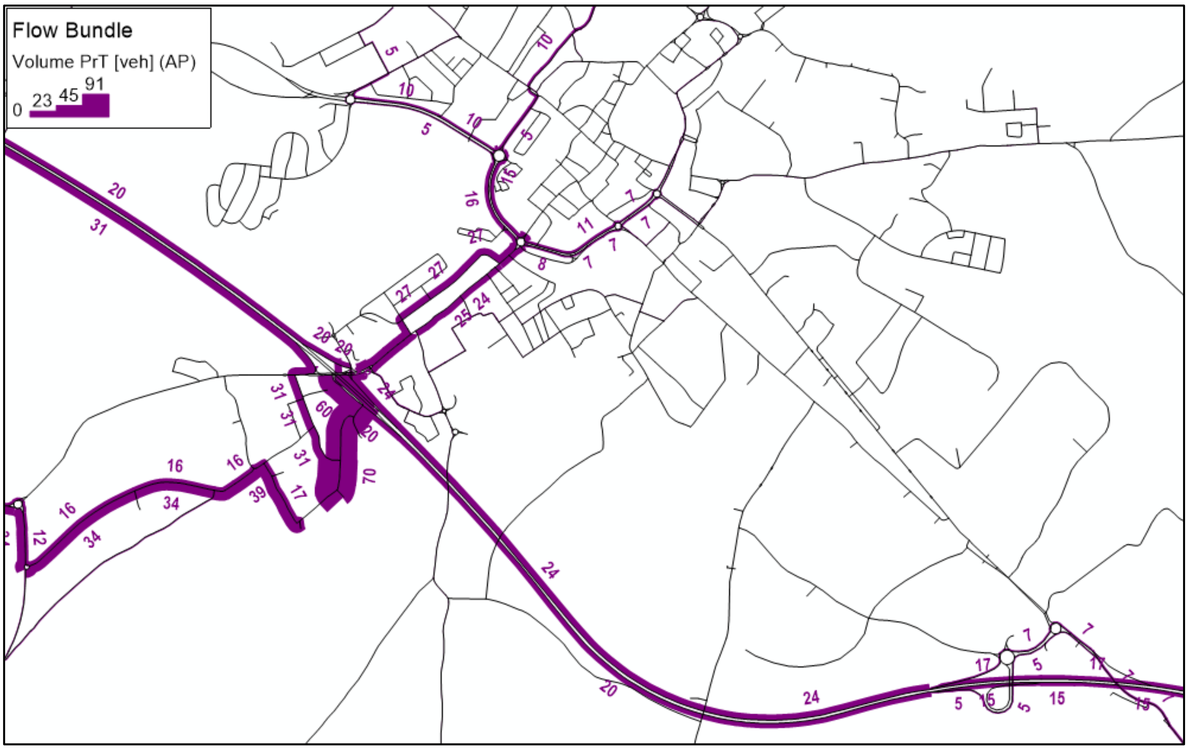
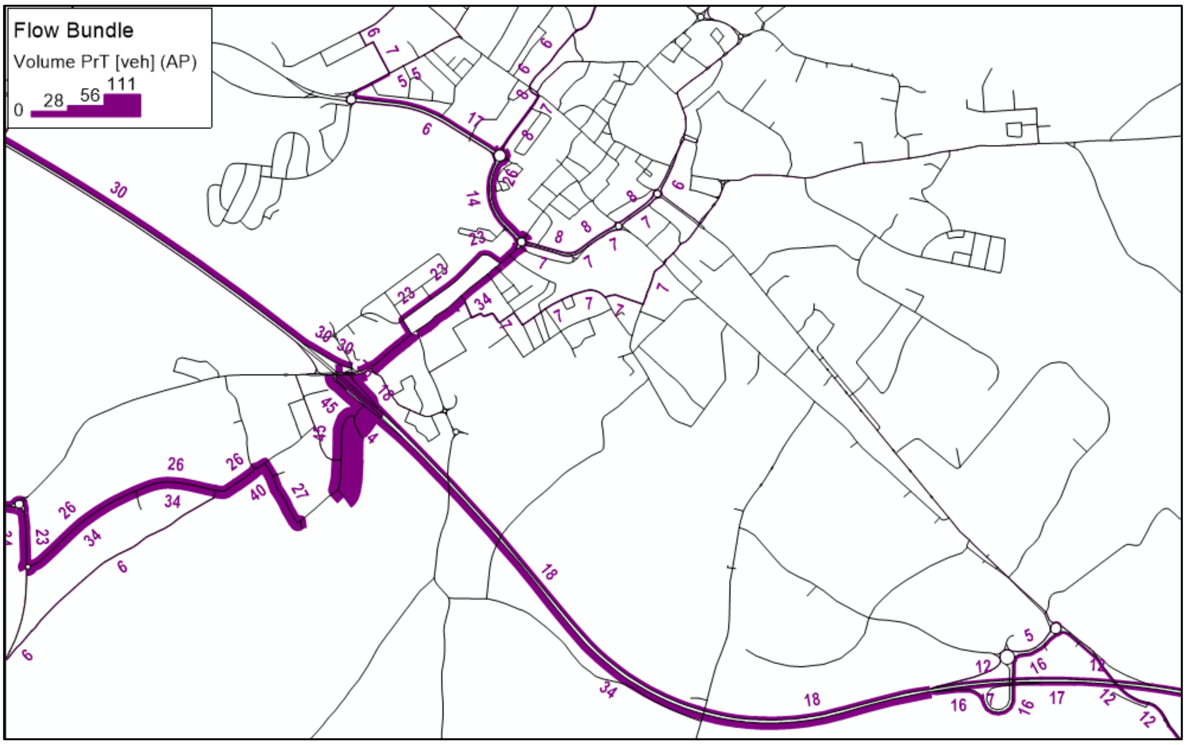


Figure 5.3: Hollow Lane trip assignment - PM Peak Hour



5.2.2 The plots for both peaks show that the majority of trips would assign onto the A2 dual carriageway and the A28 through Wincheap, with some trips dispersing around both directions of the Canterbury Ring Road. Flows to/from the west assign via the proposed Cockering Farm link road to reach the A28 at Chartham.

5.2.3 These numbers show only the discrete development impact and should not be inferred to correlate to the net development impact, which would include potential reassignment of existing traffic. However, they do provide a stepping stone in better understanding the results that are discussed below. In that regard, it should be noted that trips along the A28 towards the city centre are low in numbers, while no flows are shown in the more residential network south of the A28 corridor to the east.

5.3 Impact to the West

5.3.1 The flow differences between the Do Minimum and Updated Do Something scenarios are shown in the plots below for the network broadly west of the A2 dual carriageway. Represented in these plots are the forecast net implications of the two development sites. In this regard, they account for both developments traffic impact and any resulting reassignment/displacement of traffic forecast by the strategic model.

Figure 5.4: Flow Difference UDS-DM, AM Peak Hour (West)

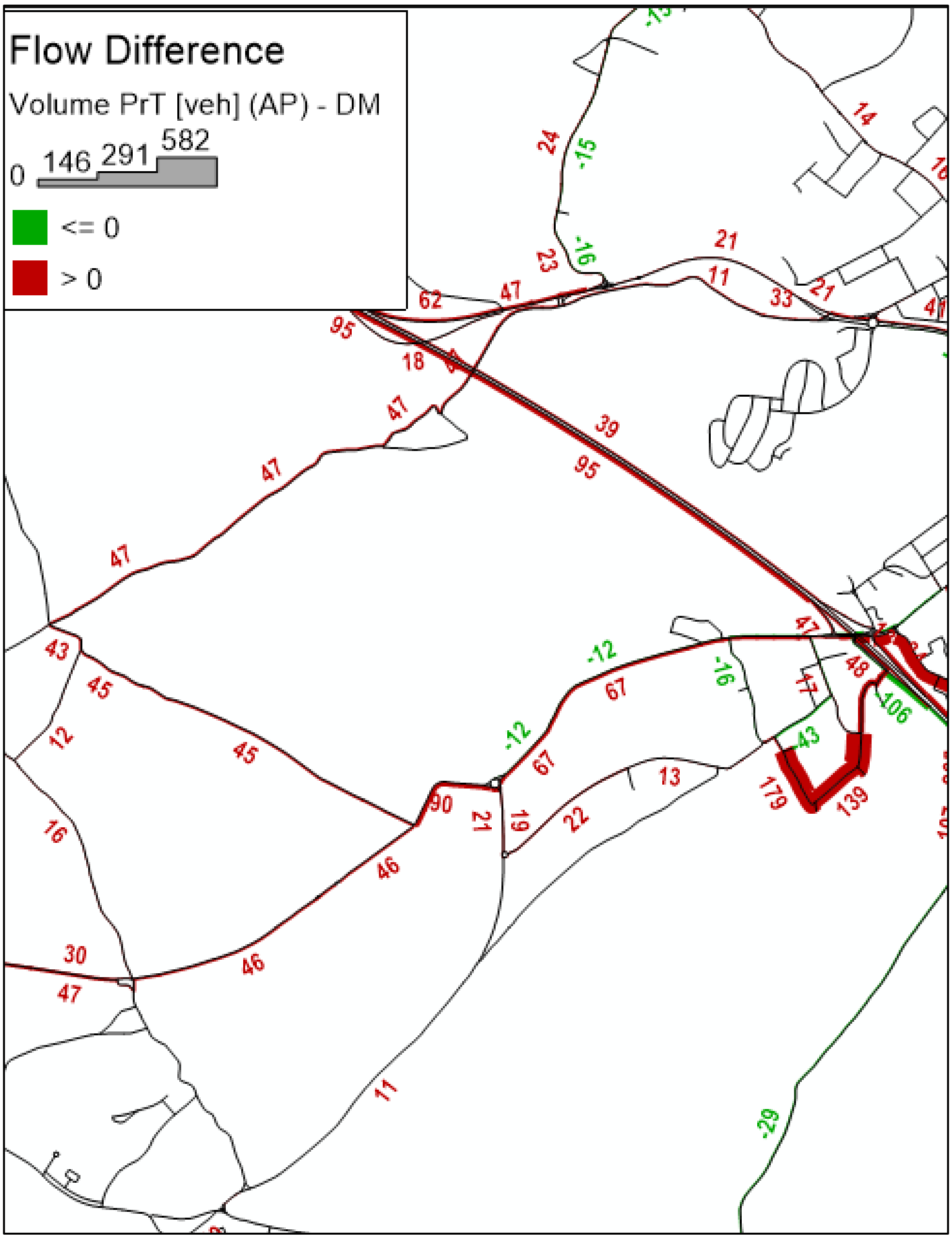
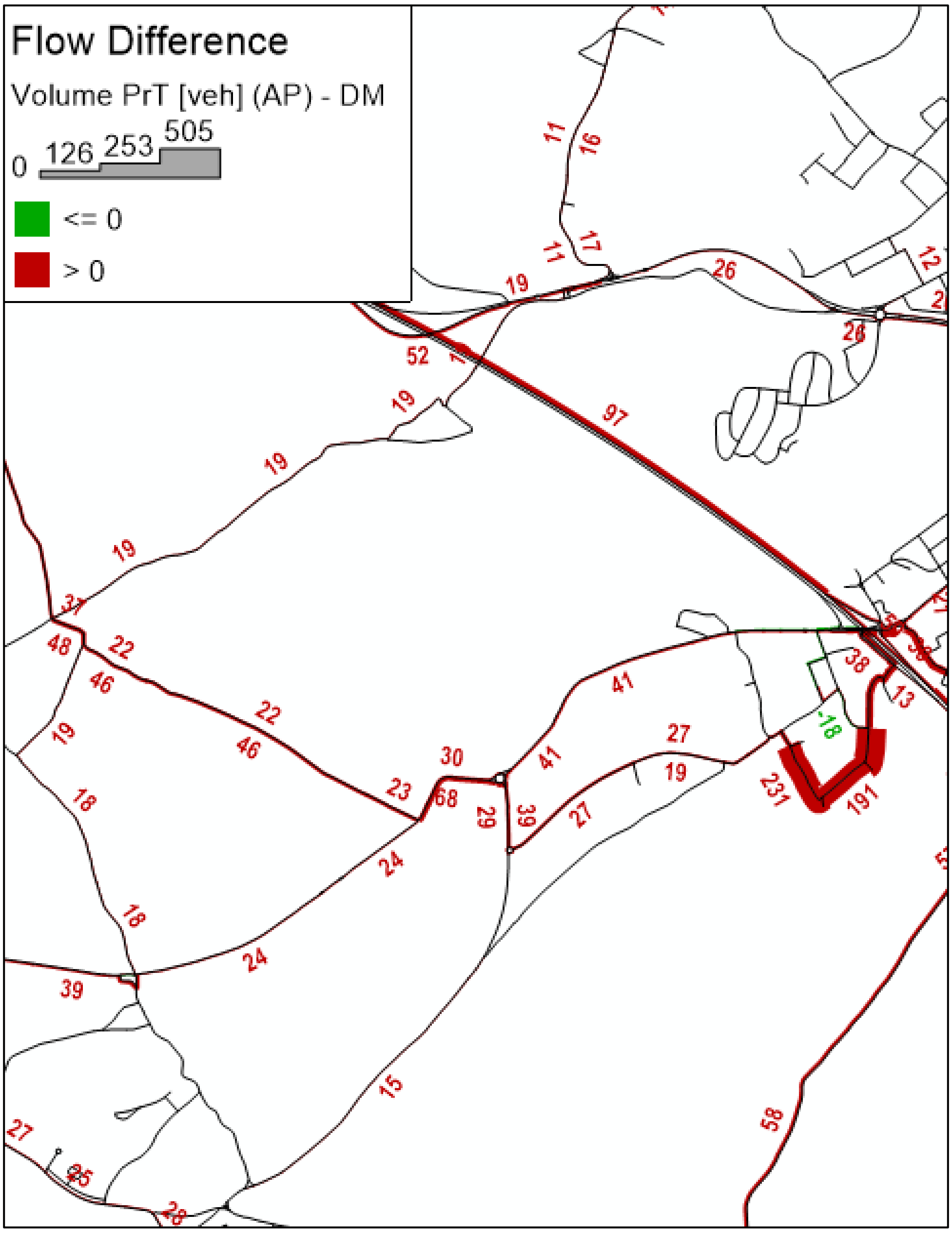


Figure 5.5: Flow Difference UDS-DM, PM Peak Hour (West)



5.3.2 This shows that flows on the A28 west of Wincheap would increase by around 10% in both peaks, which is to be expected with two strategic sites.

5.3.3 There would also be a moderate impact on the rural lanes in Chartham Hatch, specifically Howfield Lane and Bigbury Road which lead to/from the villages northwest of Canterbury. It may be appropriate to introduce traffic calming to avoid creating a 'rat run' on these rural lanes.

5.4 Impact to the South and East

5.4.1 Similarly, the flow differences between the Do Minimum and Updated Do Something scenarios are shown in the plots below for the network broadly east of the A2 including central Canterbury.

Figure 5.6: Flow Difference UDS-DM, AM Peak Hour (East)

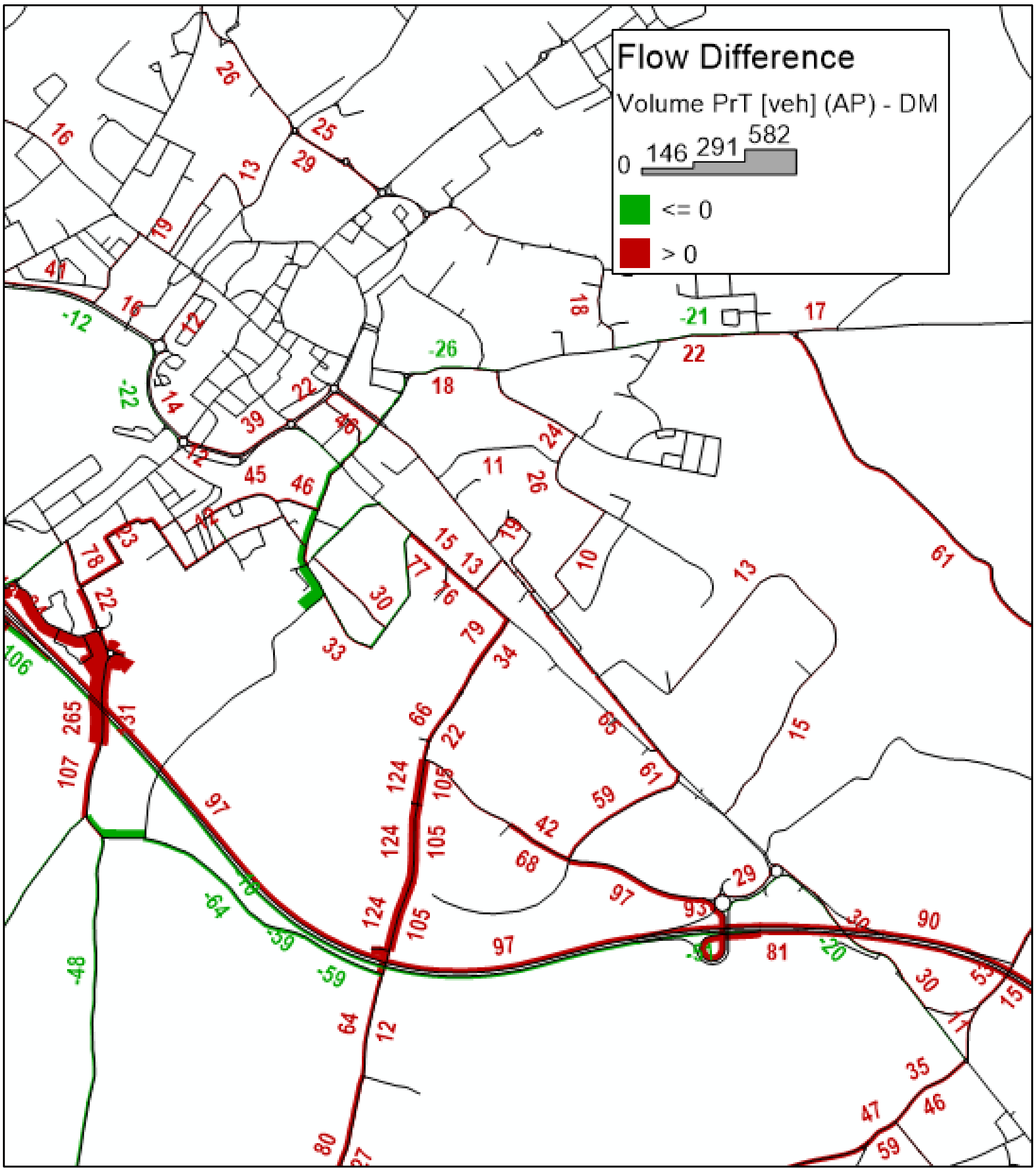
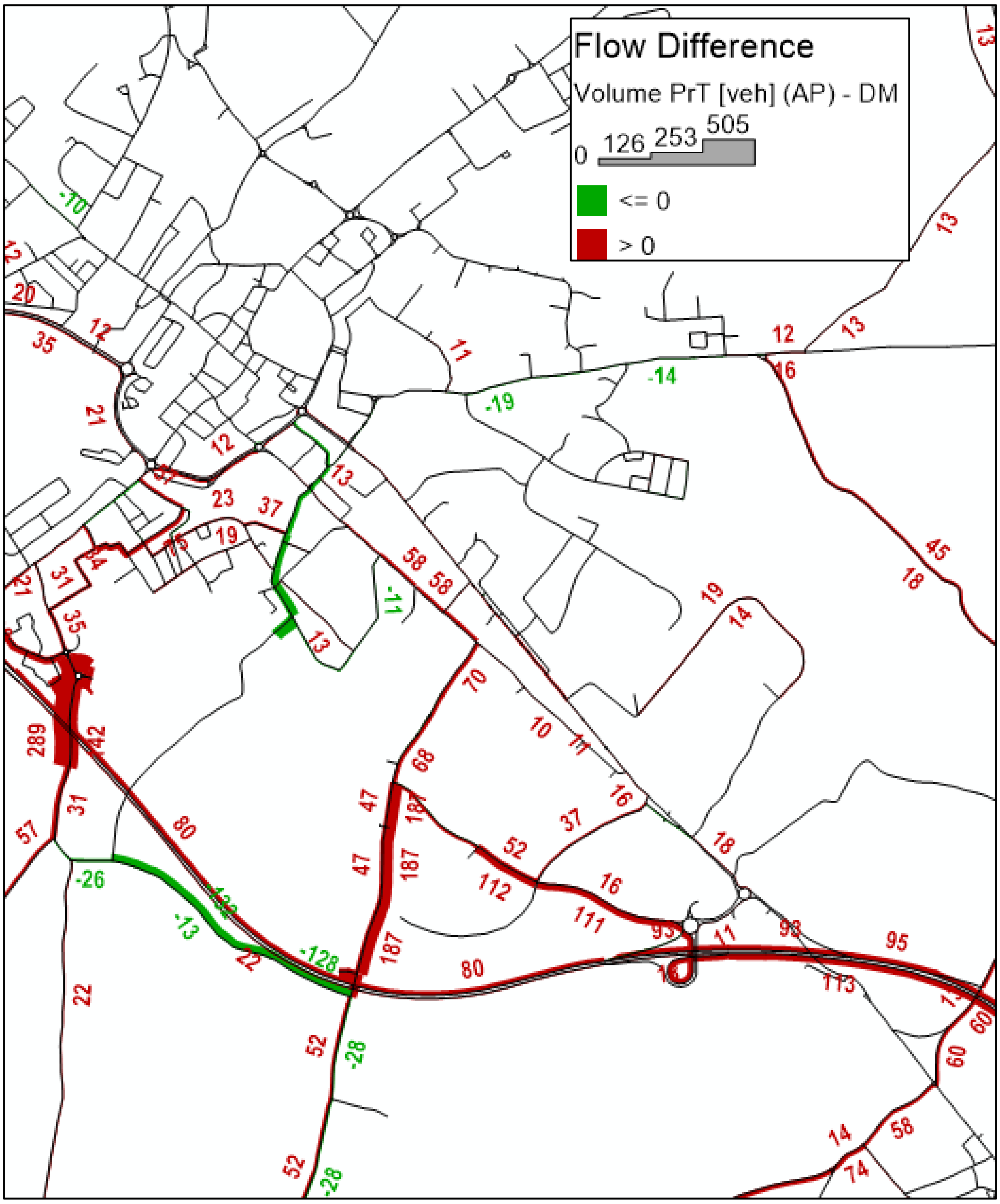


Figure 5.7: Flow Difference UDS-DM, PM Peak Hour (East)



5.4.2 As expected, the highest increases would occur on Hollow Lane which provides the western access to Merton Park; Nackington Lane which provides the eastern access to Merton Park, and the Mountfield Park spine road which will form a new route to the A2 to/from Dover. Further work will be undertaken during the Local Plan evidence gathering to ensure that there is adequate capacity on these local links.

5.4.3 This also shows that the two sites would have zero impact on the A28 Wincheap between the A2 junction and the Ring Road under this core scenario. However there would be a net increase of around 50 vehicles on the 'back streets' route which runs to the south of the A28 via St Mildred's Place. It may be appropriate to introduce Low Traffic Neighbourhood type measures in this area to ensure that through traffic remains on the A28 and Ring Road.

5.4.4 The A28 corridor has been assessed in more detail later in this report, with application of the VISSIM strategic model.

6 Additional Demand Scenario Methodology

6.1 Purpose

6.1.1 The core scenario discussed thus far represents a plausible forecast of the traffic generation and network impact based on a successful implementation of a vision-led approach to development and resultant model shift outcomes. In the context of vision-led planning, this represents the outcome to which the development aspires.

6.1.2 Following an initial informal review of this scenario, KCC Highways highlighted a need to understand the implications of a scenario where such a vision-led approach is less successful and outcomes more aligned with historical patterns of trip generation. This has been referred to as an analysis based on 'TRICS real world data'. The implication of this is appreciated. However, as discussed above it is considered important to highlight that while TRICS data is real world insofar as it is based on observations of actual sites, when applied to derive trip rates it is not necessarily any more accurate as a forecast than other approaches. A more robust forecast scenario such as this, based on vehicle trip rates more closely aligned to TRICS, will no doubt be a plausible forecast scenario, just as the previously discussed aspirational (core) scenario discussed above is. However, neither scenario should be considered to be representative of a true 'prediction' of the future. Rather, both can be considered plausible and reasonable forecast scenario in an NPPF context, when considering the inherent uncertainties in such forecasts of the future. These must be used together; along with any other plausible scenario, in the decision-making process.

6.1.3 As noted earlier in this report, this evaluation of all reasonable scenarios, as required by NPPF, is a matter for the decision-making process. This report is prepared in the plan-making context, during which NPPF emphasises a focus on the vision-led approach. Care must be taken to avoid reverting to the superseded 'Predict & Provide' approach, particularly so early in the plan-making process.

6.1.4 That notwithstanding and in response to KCC's comments, for the purpose of this consultation process an additional, more pessimistic and robust scenario has been included in the assessment.

6.2 Scenarios

6.2.1 To account for the changes to the wider transport strategy and to also reflect alternative development demand assumptions, an additional set of do-minimum and with-development models were required. The parameters of these are tabulated for reference below:

Table 6.1 – Additional Scenario Assumptions

	Demand	Infrastructure
2040 Do-Minimum (Additional)	As core scenario, thus consistent with previous strategic model demand (LP5V3)	As core scenario, but with changes to the Wincheap/Thanington P&R
2040 With-Development (Additional)	As core scenario, with Merton Park retained as before. Hollow Lane based on more pessimistic demand forecast.	As core scenario.

6.3 2040 Do-Minimum (Additional)

6.3.1 While it is impractical to reflect the wider implications of the revised Regulation 18 LP strategy or the CCC transport strategy at this stage, it is notable that the later includes a particularly relevant change within the immediately local area to be subject to modelling – namely the introduction of P&R at Thanington Recreation Ground. This was coupled with closure of the Wincheap P&R facility.

6.3.2 To model the implications of this, C&A engaged with CCC to understand both the proposal for the Thanington P&R and the operational profile of that at Wincheap. Details of the information shared by CCC is included in **Appendix B**.

6.3.3 The assumptions for the P&R reflected in the local modelling are therefore as follows:

- A new 900 space P&R at Thanington Rec Ground;
- Access from A28, assumed by means of a signalised junction, although CCC have not yet provided a scheme design.
- Closure of Wincheap P&R.
- During the plan period, the new P&R would be anticipated to operate at 85% peak occupation.
- The profile of P&R occupation during a typical weekday would be the same as that at Wincheap currently, albeit to increased overall levels.

- Demand for the P&R corridor would come from the A28 corridor (to/from the west) and the A2 (to/from the north only) – the latter by means of the consented fourth slip road.

6.3.4 Based on the above and the data provided by CCC, it was determined that the new P&R could be expected to experience AM peak hour arrivals of 254 vehicles; and PM peak hour departures of 209 vehicles.

6.3.5 In the first instance, this demand was fulfilled to the extent possible by reassigning traffic that would otherwise have been using Wincheap P&R.

6.3.6 To reflect the increased benefits of the P&R expansion as part of the strategy and to also reflect the return to increased utilisation as part of the CCC Transport Strategy, additional traffic between the A2 and A28 corridor and Canterbury City Centre was assumed to be intercepted and directed to the new P&R at Thanington. By these means no traffic was removed from the network, instead it was reassigned from completed movements through the local network to journey terminating in (AM peak) or originating at (PM peak) the Thanington P&R.

6.4 2040 With Development (Additional)

Development Trip Rates

6.4.2 The focus of KCC's concerns appears to have been on the assumption made in the core scenario with respect to the propensity for mode shift and thus further reduction in vehicle trip rates beyond the headline rates already in the strategy model. Accordingly, the simplest means to produce an alternative, more robust forecast would be to revert to those prior vehicle demand matrices, extracted from the strategy model. In this regard, this additional scenario therefore forecasts an outcome where the proposed Sustainable Transport Strategy derives no significantly material shift in travel behaviour over that already imbedded in the strategic models trip rates.

6.4.3 As noted earlier in this report however, the demand included within the original strategic model (as provided to us by KCC) included what were considered to be excessively low trip rates for the Hollow Lane site. When translated from the demand models, this suggested two-way trip rates per dwelling of 0.26 and 0.31 in the AM and PM peak hours – lower than the headline trip rates for Merton Park (Site N1).

6.4.4 For the purposes of the core (aspirational) scenario, these rates were adjusted to be consistent with the headline/starting rates for Merton Park – but before other reductions were made for shift to non-car modes.

6.4.5 For this additional scenario that manual uplift in demand has been retained, such that the demand for the Hollow Lane site was increased by 20% and 13% in the AM and PM peak hours respectively. This corresponded approximately to peak hour two-way trip rates of 0.31 and 0.35 for the AM and PM respectively.

6.4.6 However, for this additional scenario, that demand was then retained with no further reductions to reflect the potential for sustainable travel, hence it is considered to be notably robust.

Application to Model Network

6.4.7 In the core scenario discussed in this report, modified development demand matrices were prepared and re-run within the strategic model to derive the assignment discussed and presented in section 5 of this report. Thereafter, local assignment outputs from the strategic model were extracted and used to populate the local VISSIM model demand, now discussed in the following section for both the core and additional scenarios.

6.4.8 For this additional scenario, for which focus in placed on the local modelling, there was no scope to revisit the strategic modelling. Instead, the changes in the development demand have been reflected by manual modifying the demand in the local VISSIM model to account for the higher development trip rates.

6.4.9 The assignment of traffic is inherited from the original strategic model. As a result, in addition to increasing the overall demand; the focused reductions (associated with sustainable measures) are removed. The net result being that proportionally more traffic from the development is assumed to assign, for instance, to/from Canterbury City Centre. For the reasons discussed above, including the existing constraints on the network, this is considered to be highly robust assumptions. In practice, reductions in vehicle trips will arise through the implementation of the sustainable transport strategy and these will invariably give rise to more notable reductions on route to/from the City Centre, where the alternative options are most prevalent.

7 Impact on the A28 Corridor (All Scenarios)

7.1.1 The A28 corridor through Wincheap includes several signalised junctions with demand-dependent signal timings which are observed to interact at peak times. It is understood to be key area of congestion locally and the part of the network that likely warrants further assessment.

7.1.2 To understand the cumulative impact of both the Merton Park (N1) allocation and the Hollow Lane development, this network has been subject to assessment using a detailed VISSIM microsimulation model. This corridor has been previously assessed using a similar model, including for the developments at Saxon Fields, Cockering Farm and the Wincheap relief road scheme. However, that model was developed some time ago. This assessment is based on a new model of the corridor, using new base data.

7.2 Base model

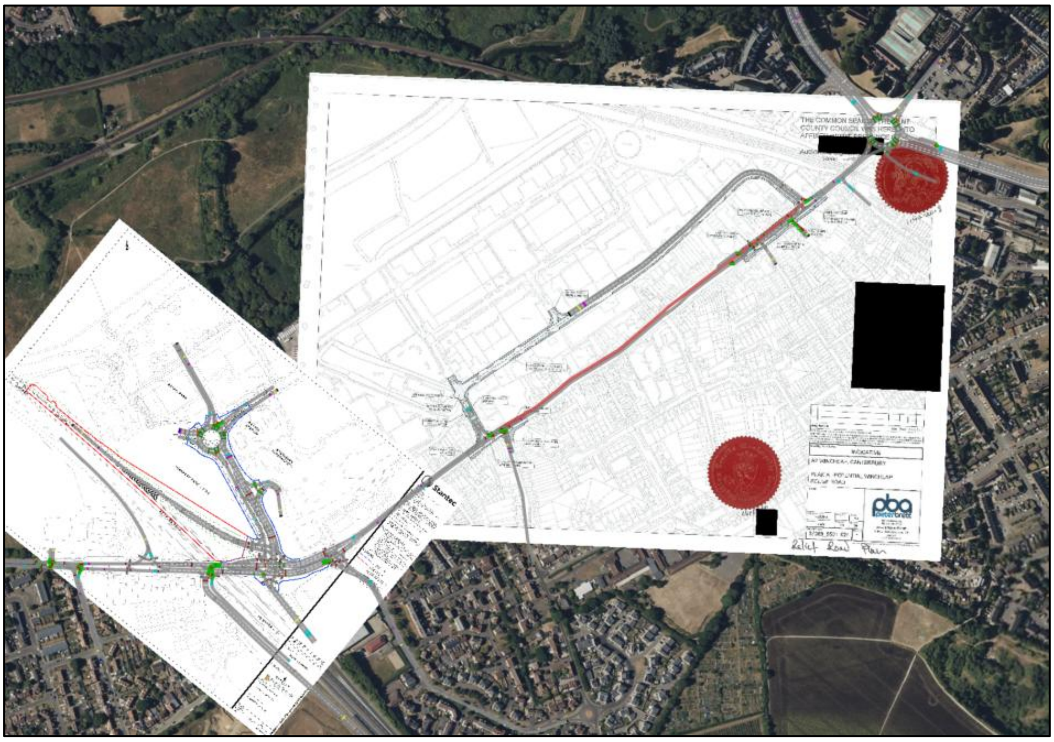
7.2.1 C&A have modelled this corridor at a greater level of detail using the PTV VISSIM microsimulation software.

7.2.2 The Local Model Validation Report for the baseline model using 2023 observations and data is provided in **Appendix C**.

7.3 2040 Do-Minimum Network

7.3.1 Following validation, the model was used to model the Do Minimum scenario in line with the strategic modelling above. The forecast scenarios include coding of the committed A2/A28 fourth slip road and Wincheap Gyratory improvement scheme as shown in the screenshot below.

Figure 7.1: VISSIM forecast model including committed improvements



7.4 Core Scenario Forecast Model Results

7.4.1 For the Core Scenario, the model recorded the total flows and average delay across the peak hours in each scenario as summarised below.

Network Performance

Table 7.1: VISSIM Flow Results (Core Scenario)

Vehicle throughput	2023 Baseline	2040 Do Minimum (Core)	2040 With-Dev (Core)
AM Peak Hour	4,802	5,314	5,611
PM Peak Hour	5,210	5,676	5,781

7.4.2 When reviewing this data it is important to note the demand shown in Table 7.1 is that included in the local model as extracted from strategic model. Therefore, while the demand shows increases between the Do Minimum and With Development scenarios, they do not directly correlate to the absolute increase in traffic arising from the development. The net result of the introduction of the development can be both additional development traffic and reassigning traffic already in the network. This reassignment can be partly or wholly within the local network, or it could be reassignment beyond the local network entirely.

Table 7.2: VISSIM Delay Results (Core Scenario)

Average delay per vehicle (s)	2023 Baseline	2040 Do Minimum (Core)	2040 With-Dev (Core)
AM Peak Hour	106	165	145
PM Peak Hour	160	69	72

7.4.3 These results show that in the AM Peak Hour, the delay per vehicle would increase from the 2023 baseline scenario to the 2040 Do Minimum scenario by around 1 minute and then reduces by around 20 seconds in the With Development scenario. When considering the overall increase in traffic between the latter two scenarios, this result merit further explanation. As explained in section 5.1, the With Development scenario includes the filtering of Stuppington Lane which will result in wider changes to the traffic pattern around the A28. Further interrogation of the modelling suggests that partly as a result of this and other changes in assignment of traffic adopted from the strategy model, there is a notable change in traffic undertaking the full journey through the network. In the do-minimum, more traffic overall routes the entirety of the network, along the A28. The development introduces traffic within the local network; traffic which has overall shorter journeys that impact the network less notably, result in lower local delay, but presumably displace traffic outside of the local network.

7.4.4 The PM Peak Hour results show that delay per vehicle would decrease from the 2023 baseline scenario to the 2040 Do Minimum scenario by around 1 minute. This indicates that the mitigating benefits of the committed infrastructure, including the Wincheap relief road scheme, has a more than mitigating benefits in the PM peak, leading to overall betterment. In this generally more effectively operating network, the cumulative development results in a minor increase in delay in the With Development scenario, commensurate with the increase in traffic.

Queuing

7.4.5 The VISSIM software is able to forecast queue propagation across the network and the results of the 2040 Do Minimum and With Development models can be compared for the AM peak in **Figures 7.2 and 7.3**. For the PM peak, comparisons can be made between **Figures 7.4 and 7.5**.

Figure 7.2 – AM Peak Hour 2040 Do-Min Average Queues (Core Scenario)

Figure 7.3 – AM Peak Hour 2040 With-Dev Average Queues (Core Scenario)

7.4.6 In the AM peak, it is apparent that the pattern of queue formation across the local network remains broadly the same when the cumulative development is included. This is what would be expected given the relatively modest increase in traffic demand. In some areas, there is a proportional increase in average queuing (such as on the Ring Road). There is also an increase on Hollow Lane, which is unsurprising given that this provides principle access to the Merton Park development. In other locations there are minor reductions.

Figure 7.4 – PM Peak Hour 2040 Do-Min Average Queues (Core Scenario)

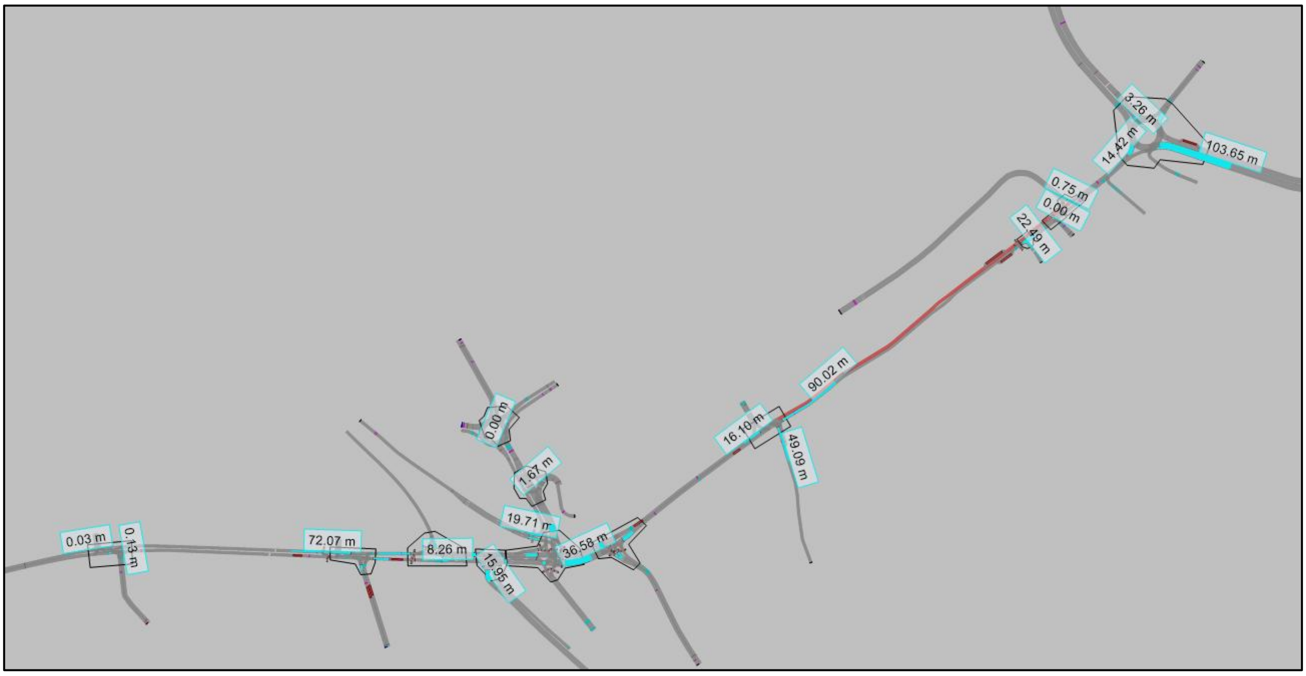
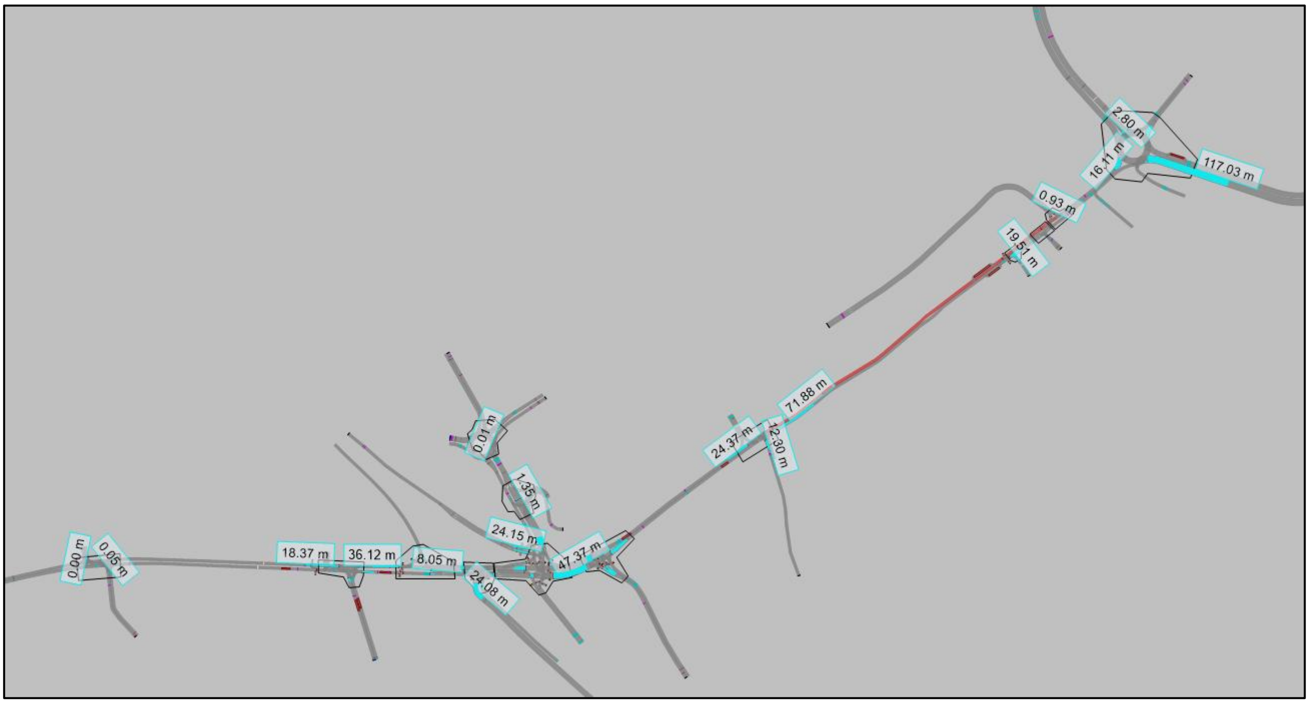


Figure 7.5 – PM Peak Hour 2040 With-Dev Average Queues (Core Scenario)



7.4.7 Again, the same pattern of queues across the network is seen in both the Do Minimum and With Development scenarios in the PM peak. However, in this case the variance between the two scenario is further reduced.

Journey Times

7.4.8 Journey times through the network can provide a useful indication of performance. While journey times can be recorded in any location, it is often desirable to output JTs on routes for which the model has been validated.

7.4.9 Table 7.3 below shows the journey times for the AM and PM peaks, in a do-minimum and with-development scenario on each of the key base model validation routes.

Table 7.3 – Journey Times in Seconds (Core Scenario)

Route	AM Peak		PM Peak	
	Do-Min	With-Dev	Do-Min	With-Dev
Rheims Way to Thanington Rd (Westbound)	454	282	298	306
Thanington Rd to Cow Lane (Eastbound)	213	158	231	228
A2 NB Off-Slip to Cow Lane	83	110	109	118

7.4.10 As with the queue outputs, in the AM peak there is some variance in the modelled journey times, with on some routes and reductions on others. This is to be expected where the change in model demand can have a non-linear response to overall network performance within the model. In the PM peak, the pattern of change is again less pronounced, but is indicative of overall minimal impact.

Summary of Core Scenario

7.4.11 Overall, these results indicate that the two development sites cumulatively would not have a severe residual impact on the local highway network. Further assessment and interrogation will be undertaken as the Local Plan progresses.

7.5 Additional Scenario Forecast Model Results

Network Performance

7.5.2 For the Additional Scenario the model recorded the total flows and average delay across the peak hours in each scenario as summarised below.

Table 7.4: VISSIM Flow Results (Additional Scenario)

Vehicle throughput	2023 Baseline	2040 Do Minimum (Additional)	2040 With-Dev (Additional)
AM Peak Hour	4,802	4,970	5,450
PM Peak Hour	5,210	5,686	5,933

7.5.3 Superficially there appears to be reduction in overall vehicle throughput in the 2040 do-minimum in the additional scenario, as compared to the previous core scenario. This is a quirk of the VISSIM modelling structure related to the Wincheap Relief Road scheme (the gyratory). In order improve consistency with the base model (which does not include the relief road scheme), the gyratory is coded in a manner that allows vehicles heading towards Canterbury City Centre to enter the gyratory as a zone, and thereafter exiting. This only relates to the City Centre bound Simmonds Road section of the relief road scheme only. Accordingly, vehicles using the gyratory heading towards the City Centre are double-counted in the 'vehicle throughput' statistic presented above.

7.5.4 In the additional scenario, which includes the revised P&R strategy, during the AM peak hour a notable volume of traffic is assumed to be intercepted from the A28 (Wincheap) corridor and reassigned to the P&R. No demand is removed from the model, it is simply reassigned. However, where traffic towards the City Centre is removed, the quirk of modelling is such that the removal appears more pronounced.

Table 7.5: VISSIM Delay Results (Additional Scenario)

Average delay per vehicle (s)	2023 Baseline	2040 Do Minimum (Additional)	2040 With-Dev (Additional)
AM Peak Hour	106	166	144
PM Peak Hour	160	51	53

7.5.5 When comparing these results to those for the Core Scenario, it can be seen that the pattern of outcomes is broadly consistent. There is an improvement in delay in the AM peak and small degradation in the PM, the same as under the Core Scenario. The differences between the Core and Additional Scenarios under the Do Minimum can be attributed to the changes to the P&R strategy.

Queuing

7.5.6 Again the 2040 Do Minimum and With Development models for the Additional Scenario can be compared for the AM peak in **Figures 7.6 and 7.7**. For the PM peak, comparisons can be made between **Figures 7.8 and 7.9**.

Figure 7.6 – AM Peak Hour 2040 Do-Min Average Queues (Additional Scenario)

Figure 7.7 – PM Peak Hour 2040 With-Dev Average Queues (Additional Scenario)

7.5.7 When tested under the additional scenarios, the pattern of difference between the queue forecasts in the do-minimum and with-development scenarios is generally consistent with the Core Scenarios.

Figure 7.8 – PM Peak Hour 2040 Do-Min Average Queues (Additional Scenario)

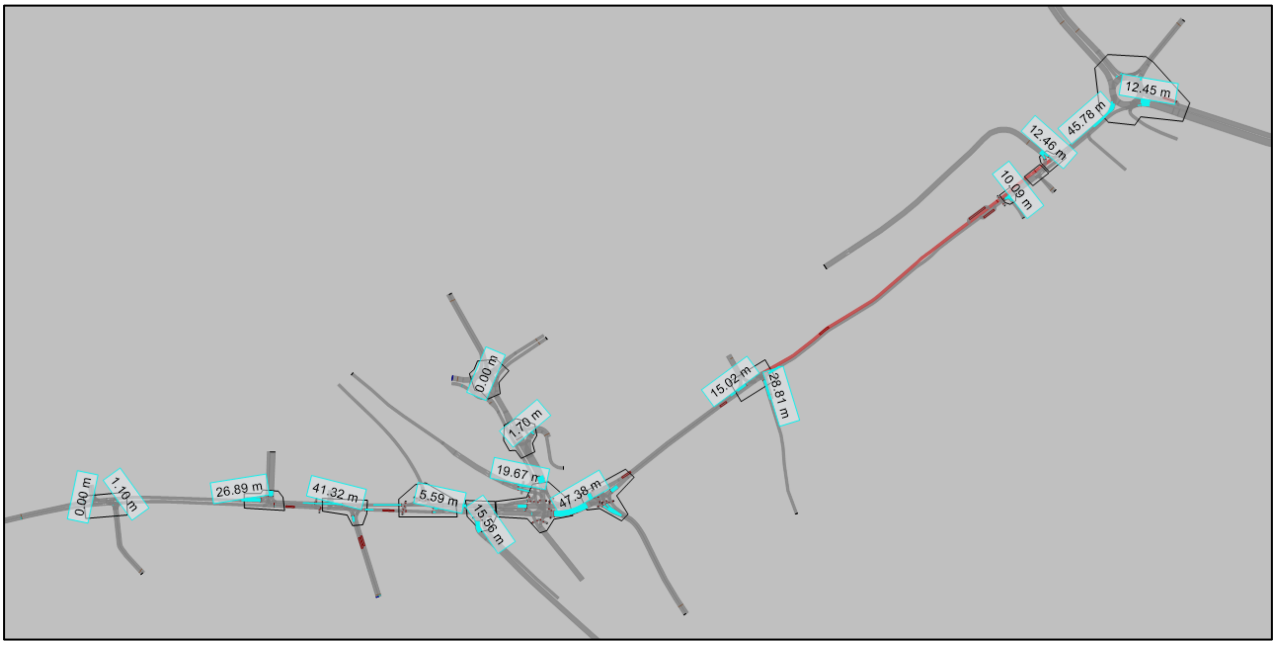
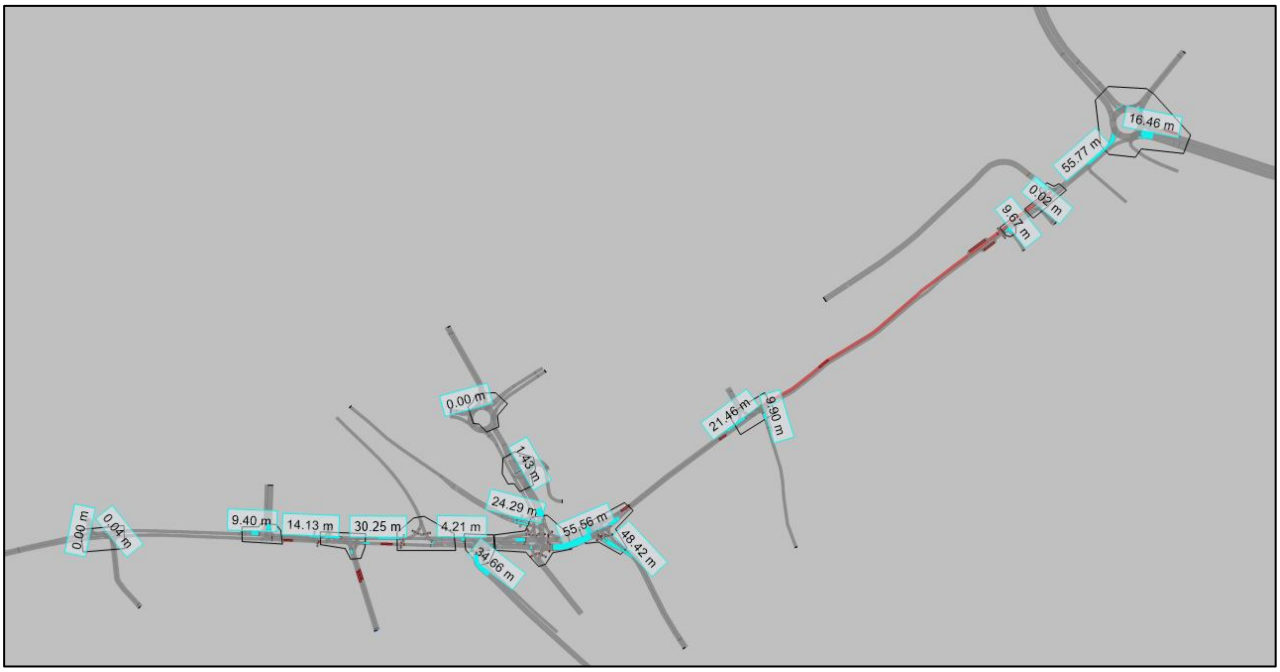


Figure 7.9 – PM Peak Hour 2040 With-Dev Average Queues (Additional Scenario)



7.5.8 Again, the same pattern of queues across the network is seen in both the do-minimum and with development scenarios in the PM peak, under the additional scenario as it was in the core scenario. However, in this case the variance between the two scenario is further reduced.

Journey Times

Table 7.3 below shows the journey times for the AM and PM peaks, in the do-minimum and with-development, for the additional scenario, again on each of the key base model validation routes.

Table 7.6 – Journey Times in Seconds (Additional Scenario)

Route	AM Peak		PM Peak	
	Do-Min	With-Dev	Do-Min	With-Dev
Rheims Way to Thanington Rd (Westbound)	525	292	267	274
Thanington Rd to Cow Lane (Eastbound)	187	145	217	209
A2 NB Off-Slip to Cow Lane	74	93	106	116

7.5.9 The results of the additional scenario show limited change from the Core Scenario. In general, the AM peak continues to show a slight improvement between do-minimum and the with development. In the PM peak, there continues to be slight increase in delay relative to the do-minimum, but again this is proportionally limited.

8 Next Steps and the Role of 'Monitor and Manage'

8.1 Agreement on the Aspirational Forecast Scenario

8.1.1 A critical next step is to reach agreement with key stakeholders on the appropriateness of this aspirational scenario as a valid and plausible forecast of outcome from a vision-led development at Hollow Lane. This is anticipated to be a distinct exercise from a wider appraisal of the development proposals.

8.2 Supporting Mitigation

8.2.1 While the core (aspirational) scenario set out in this report seeks to focus on sustainable travel measures, it forecasts some residual traffic generation that will impact on the wider network. The additional scenario, assuming more pessimistic outcomes from the sustainable transport strategy, similarly forecasts residual traffic. The extent of this is discussed above and while the impact of either scenario is generally manageable, it is accepted that some further highway mitigation may be appropriate, particularly around the site access points.

8.2.2 There is a need to discuss the extent and nature of this mitigation with the relevant authorities; this is likely to include the need for more detailed, localised modelling.

8.3 Further Scenario Testing

8.3.1 Earlier in this report the purpose of the core (aspirational) forecasting scenario was set out; namely that it is intended to form part of a wider suite of evidence, including other forecasting scenarios to inform decision making.

8.3.2 In accordance with the principles of vision-led planning, the development of this aspirational forecast scenario sets out to demonstrate a plausible outcome from vision-led development that focuses on supporting and prioritising sustainable travel, consistent with the wider policy objectives.

8.3.3 The outcome of this scenario represents what could and should happen as an outcome of vision-led planning. It is a plausible and well-evidenced forecast but nonetheless remains subject to the inherent uncertainties in any forecasting. To complement that core scenario, this report now includes additional forecast scenarios to more broadly account for the uncertainty and inform plan-making process.

8.3.4 It is however important to understand that it would be incorrect to treat these pessimistic additional scenarios as benchmarks to develop mitigation strategies against – as to do so would be to entirely undermine the aim of vision-led planning.

8.3.5 The latest NPPF paragraph 116 as drafted makes clear that development should only be refused where residual cumulative impact on the road network would be severe in all reasonable future scenarios. This clearly endorses multiple scenario testing where uncertainty is embraced, but it also provides clarity on how the outcomes of the scenarios should be applied.

8.3.6 This confirms that even if one or more plausible forecast scenarios of development impact do give rise to a severe impact; that would be insufficient to merit refusal as long as at least one plausible outcome does not have a severe impact. In practice, this is the only reasonable way to apply the principles of vision-led planning within the decision-making process and thereafter the purpose of other, more pessimistic forecasts, including those now presented in this report.

8.3.7 As indicated above, conventional wisdom might lead to temptation to treat the pessimistic forecast scenarios as 'what-ifs?' for which answers need to be provided in the form of mitigation, to a level of non-severe impact. Evidently the latest NPPF does not require this. And more importantly - to do so would entirely undermine vision-led planning.

8.3.8 Alongside Merton Park, Land north of Hollow Lane represents a highly sustainable location for development which comes with the inherent challenges on the highway network, to be expected in a constrained urban environment. It is entirely possible that a plausible yet pessimistic forecast of development demand, which applies robust assumptions of vehicular trips rates constrained to historical trends, would give rise to a perceived severe highway impact. It is also possible that, given the constraints, such impact might not be readily mitigated to a level that can be considered not severe by all parties. If this outcome were to be deterministic on the plan-making process (contrary to the latest NPPF) – then it might be concluded that the development should not progress in this location and instead growth be directed elsewhere in the district. This growth would necessarily have to be in a location where constraints are less and mitigation more achievable – but also necessarily in a location less inherently sustainable. The net result of the alternative growth strategy, with development in a less sustainable location and facilitating car use through network mitigation, would be higher overall vehicle trip rates and a failure in the vision of delivering sustainable development.

8.3.9 It is for these reasons that fundamentally vision-led planning and decision-making cannot continue the historical flawed and misguided approach to being informed by 'robust' evidence that poses and is bound to answer the 'what-ifs'?

8.3.10 Notwithstanding this, it likely that further forecast scenarios will continue to be appropriate, in additional to that included in this report, and will have important roles to play in the decision-making process by seeking to reflect the uncertainty of outcomes and the steps to be taken to maximise the scope of the desired outcomes.

8.4 Monitor and Manage

8.4.1 In addition to the above, having multiple scenarios allows benchmarks to be set within a subsequent Monitor and Manage framework during and after implementation of development. Monitoring will need to assess the performance of the development against targets of sustainable travel and thus vehicle trip rates. The 'management' will be a process of response that includes adjusting the trigger points for delivering mitigation measures. For example, if the development is found to exceed targets on sustainable travel mode share and trip rates, physical mitigation to support this might be pushed back in time or ultimately deemed unnecessary – as to do so otherwise would be contrary to the wider vision objectives. Conversely, higher than aspirational trip rates might require mitigation to be brought forward sooner and for a redoubling of efforts to promote sustainable travel.

8.4.2 By extension of the earlier point, the Monitor and Manage strategy is not intended to be a 'predict and provide' approach with respect to mitigation, where any and all demand and impact outcomes would need to be mitigated.

8.4.3 In closing, this framework would support the need for vision-led assessment of the Land North of Hollow Lane development reflecting multiple reasonable scenarios, as required by NPPF paragraph 116.

Appendix A Strategic Modelling

Subject	Site C7 (formerly referred to as Thanington Phase 4)
Attention	Athina Tsolaki, John Wilde
From	Sadie Langdon, Lucy Ankers, Charlotte Saunders
Date	October 2024

1 Introduction

1.1 Introduction

Jacobs has been commissioned by Kent County Council (KCC) to undertake traffic modelling work in order to understand the highway network impact of trips associated with proposed allocation of the combined Merton Park and Site C7 developments in Canterbury. As part of the commission of work, Jacobs have agreed to model the Merton Park and Site C7 developments in the Canterbury VISUM strategic traffic model. Both AM peak and PM peak models have been developed to enable KCC to assess the impact of proposed developments in Canterbury using the Canterbury Local Plan model. This Technical Note sets out the assumptions and methodology used and the results of the analysis.

1.2 Study Area

The proposed Merton Park and Site C7 site allocations are situated in Canterbury, Kent, south of the town centre and Canterbury East railway station. They lie south of the A28 Wincheap Road and both east and west of the A2. The proposed Merton Park development is located northeast of the A2 Dover Road, whilst Site C7 is located to the southwest. The Merton Park and Site C7 Development study area is illustrated in Figure 1-1.

Memorandum

Merton Park, Canterbury

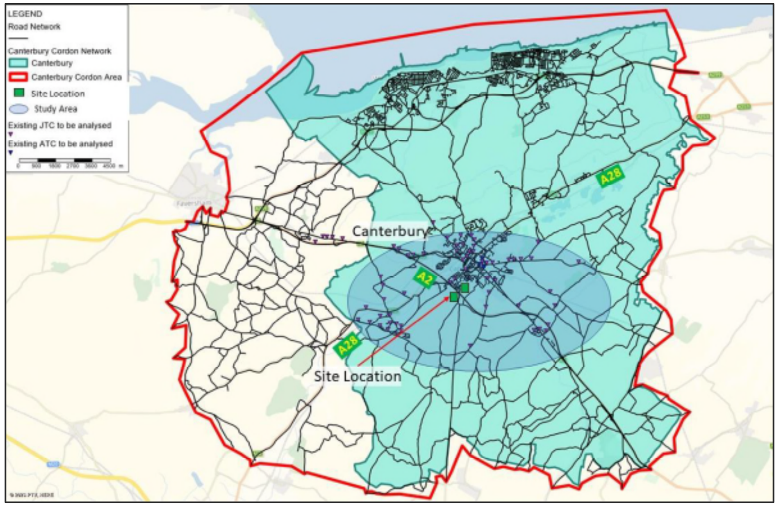


Figure 1-1: Merton Park and Site C7 Developments in Canterbury Study Location

1.3 Relevant Reports

The following reports provide more detail on the Canterbury VISUM model base and forecast year development:

- *Stage 3 Canterbury LP – Local Model Validation Report, KCC, January 2022.* This document describes development and validation of the base transport model to inform spatial assessments for early decision making on the Canterbury Local Plan Review (LPR). Canterbury City Council (CCC)'s LP sets out the requirements for 16,000 new homes and 6,500 jobs by 2031 which have been included in the District Transport Strategy.

- *Merton Park, Canterbury – Base Model Validation Check, September 2023* – this technical note describes previously commissioned work by KCC of the process of recalibration and validation of the Canterbury Base Year model. This included the area surrounding Merton Park Development to match traffic count data which has since been made available.

- *Merton Park, Canterbury – Forecasting Report, December 2023* –this technical note describes the process by which the traffic modelling work was completed in order to understand the highway network impact of trips associated with proposed allocation of the Merton Park development in Canterbury, based on the previous forecast 2045 Canterbury LP model.

- *Canterbury Forecasting Report,* draft version in progress - Jacobs have been commissioned to develop the required strategic modelling necessary to assess the impact of the revised Canterbury LP and provide an evidence base to support decision making of the Bus Strategy for CCC. This commission made use of the 2019 Canterbury Transport Base Model which is based on a parent model, namely the Kent Transport Model (KTM). The 2019 Canterbury Base Transport model has been used as the basis for developing a 2040 Future Baseline ('Do Minimum' (DM) – e.g. without the LP) in which committed developments and infrastructure were modelled, in addition to adjusted background growth. Subsequently a 2040 'Do-Something' (DS) model (e.g. with the LP option) has been developed to assess the proposed LP allocations. A further two 2040 'Do-Something' scenarios will be also developed; one that tests the Canterbury Bus Strategy alongside the LP and another that tests the LP with increased modal shift following modal shift analysis.

- *Merton Park, Canterbury – Forecast Report, September 2024* – this technical note describes the process by which the traffic modelling work was completed in order to understand the highway network impact of trips associated with proposed allocation of the revised Merton Park development in Canterbury, based on the new Future Baseline Canterbury model.

2 Canterbury Model Overview

Jacobs was previously commissioned by Kent County Council (KCC) to undertake traffic modelling work in order to understand the highway network impact of trips associated with proposed allocation of the combined Merton Park and Site C7 developments in Canterbury. As part of that commission of work, traffic models were developed using a version of the Canterbury VISUM model developed in 2020 which was to inform spatial assessments for early decision making on the Canterbury Local Plan Review (LPR).

Recently, a new Future Baseline Canterbury model has been developed for the assessment of the impact of updated Canterbury Local Plan. The model is still in draft and subject to the approval from KCC, CCC and National Highways but it is considered to be a suitable tool to assess the impact of the Merton Park and Site C7 developments.

2.1 Model Version

The model has been built using PTV VISUM software version 2020 (this is an upgraded version of the same software as used in the previous version of the Canterbury Model) and utilises the Intersection Capacity Analysis (ICA) module to enable detailed evaluation of junction performance and represent blocking back and queuing.

2.2 Study Area and Network Coverage

The network of the Canterbury Local Model has been developed based on the cordoned network from the Kent County Model with necessary updates to ensure that the local network replicates base conditions. The Canterbury VISUM model has necessitated a relatively detailed model network in the urban centre of Canterbury but also sufficient detail at the regional level to capture more strategic traffic movements approaching Canterbury.

The location of the cordoned Canterbury Local Area Model (LAM) relative to the fully modelled area of the Kent Transport Model (KTM) is shown in Figure 2-1 and Figure 2-2.

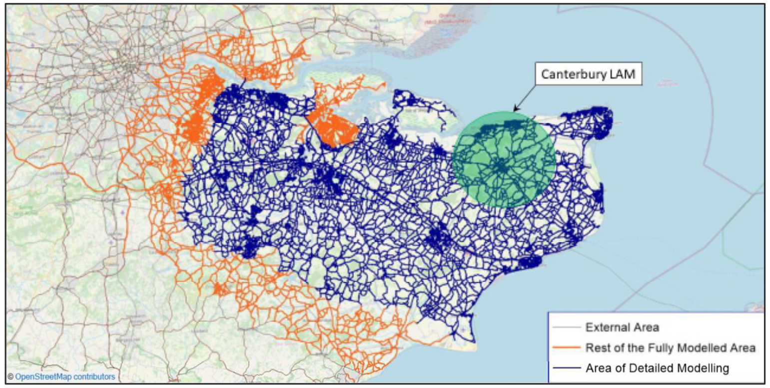


Figure 2-1: Kent Visum Model – Canterbury LAM location in Fully Modelled Area of KTM

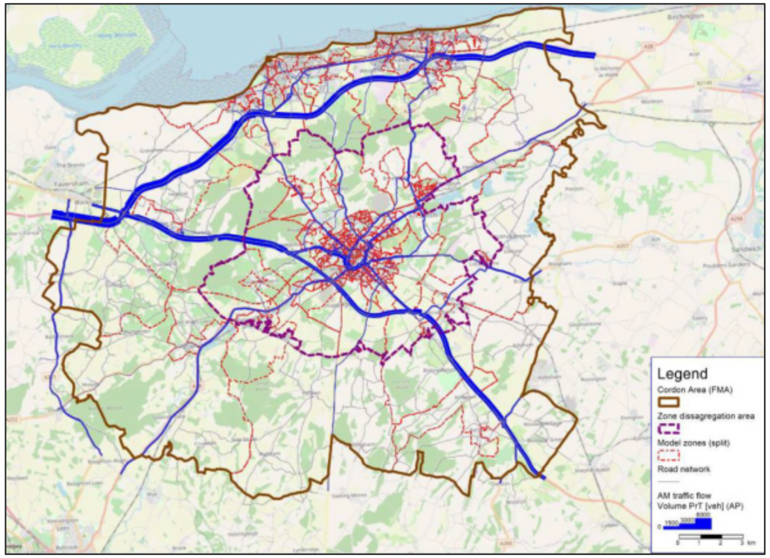


Figure 2-2: Canterbury Local Area Model – Cordon Area from KTM

As shown in Figure 2-1, the Canterbury administrative area is located within the Area of Detailed Modelling, which means that road links and junctions are modelled in more detail in terms of geometry and capacity, and with more granularity / depth of coverage. This detail increases further within the Canterbury urban area. At the same time, the zone system used is increasingly detailed / granular when closer to the Canterbury urban area, meaning that traffic is loaded onto the road network with greater precision which is shown in Figure 2-2.

The highway model represents an average weekday in 2019 at the morning peak hour and evening peak hour level. The demand of the local model is also obtained from the countywide KTM. The initial demand (prior to matrix estimation matrix) was cordoned from the KTM and a matrix estimation process was undertaken for the local model to produce highway peak hour vehicle matrices required for the assignment.

In terms of calibration and validation, the model is considered to be robustly representative of traffic flows and journey times in the Canterbury urban area and on key strategic routes into the city. The strategic model is not validated at a junction turning movement level, however, this is not considered to be a limitation given its size.

Figure 2-3 illustrates the traffic flow screenlines and links used in matrix estimation of the base year matrices.

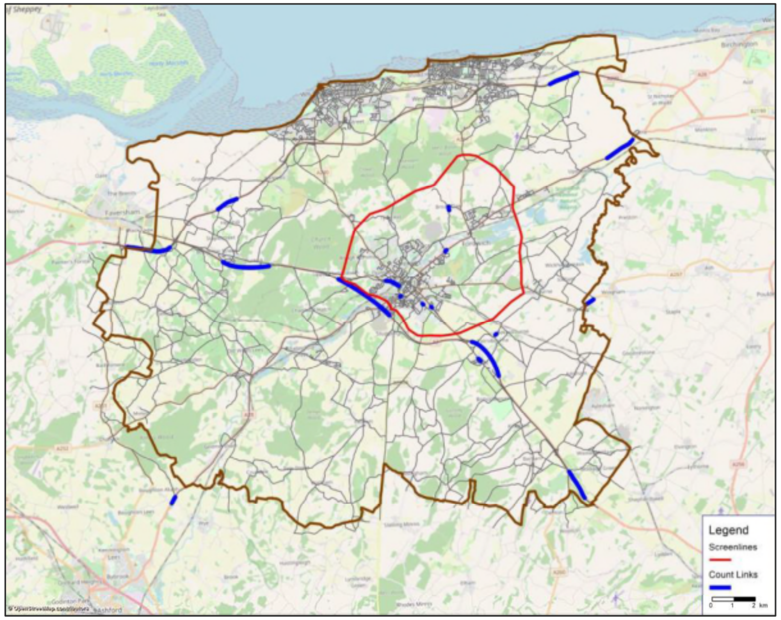


Figure 2-3: Canterbury Visum Model – Screenlines and Links used in Matrix Estimation

2.3 Time Periods

There was a need to provide assessment and forecasting capability to reflect the impact that the schemes have during the busiest parts of the day. Therefore, a morning peak and evening peak model have been developed to allow policy makers to understand local issues/impacts of developments,

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infrastructure improvements, and policy measures. The highway transport assignment model therefore represents an average 2019 weekday in the following two modelled time periods:

- AM peak hour (08:00 to 09:00); and
- PM peak hour (17:00 to 18:00).

3 Canterbury Future Baseline Model Overview

As Kent Transport Model Custodian to KCC, Jacobs have been recently commissioned to develop the strategic modelling necessary to assess the impact of the revised Canterbury LP and provide an evidence base to support decision making of the Bus Strategy for CCC. This commission made use of the 2019 Canterbury Transport Base Model which is based on the KTM.

The 2040 forecast Baseline model have been developed to represent the 2040 forecast road network with the inclusion of committed developments and infrastructure between 2019 and 2040.

3.1 Forecast Demand

The Canterbury Base Transport Model was used as the basis for developing a 2040 Future Baseline in which committed developments and infrastructure were modelled, in addition to adjusted background growth.

The uncertainty log, provided by CCC, was analysed to understand the expected growth of housing and employment between 2019 model base year and the 2040 forecast year within the Canterbury boundary. The uncertainty log was prepared in accordance with TAG Unit M4. For the development of the Canterbury forecast models, all 'near Certain' and key strategic 'more than likely' developments and infrastructure schemes in Canterbury were included. Outside of the Canterbury boundary, growth came solely from TEMPro. Goods vehicle growth from RTF was applied everywhere. Using the information provided in the uncertainty log it was assumed there would be 15,729 dwellings and 204,580sqm of employment floorspace completed between the 2019 Base Year and the 2040 Future Baseline.

The final increase of dwellings and jobs between 2019 and 2040 is shown in Table 3-1; this represents the latest available information at the time of model development.

Table 3-1: Uncertainty Log (2019-2040), Canterbury

Growth	Dwellings	Jobs	Floorspace (sqm)
Future Baseline Total	15,729	8,695	204,580

Housing and employment sites classified as 'near certain' within the uncertainty log (those with planning permission), have been included within the committed development trip generation calculation as well as key strategic 'more than likely' developments (those expected to obtain planning permission imminently).

It was agreed with CCC that developments that meet or exceed certain thresholds should be explicitly modelled, meaning that the trip generation associated with a single specific site was added to a new zone. This allows the more specific impacts of these sites to be determined, and their specific access arrangements coded into the forecast networks. Table 3-2 below shows the explicitly modelled developments in Future Baseline Model.

Table 3-2: Explicitly Modelled Developments, Canterbury

Development Name	Planning Status	HHs	Jobs	Floorspace (sqm)
Broad Oak	Near Certain	456	33	829
Cockering Farm	Near Certain	400	338	3,716
Duncan Down	Near Certain	400	0	0
Greenhill Lidl	Near Certain	0	121	2,125
Grasmere Gardens	Near Certain	300	318	3,500
Greenhill	Near Certain	450	0	0
Herne Bay Golf Club	Near Certain	572	137	4,800
Hoplands Farm	Near Certain	250	278	8,420
Howe Barracks	Near Certain	500	0	
South Canterbury	Near Certain	4060	5692	128,100
Sturry	Near Certain	650	0	0
Hillborough	Near Certain	955	796	27,800
Site C7	Near Certain	750	406	11,000
Strode Farm	Near Certain	731	334	3,916
Hersden	More than Likely	800	241	10,000
Land to the South of Island Road (A28), former Chislet Colliery, Hersden	Near Certain	370	0	0
Land to the South of Church Lane, Saltwater, Whitstable	Near Certain	220	0	0

3.2 Future Baseline Network

Forecast networks were developed using the Base Model with the addition of completed schemes as well as the committed developments and infrastructure schemes defined by CCC as having 'near certain' certainty status. Key Strategic 'more than likely' sites have also been included.

The 2040 Future Baseline network incorporates the following:

- Any infrastructure changes between 2019 and October 2023;
- Any committed infrastructure forecast to be delivered before the 2040 forecast year.
- Explicit model zones for any developments within the Canterbury boundary which exceed the certain thresholds, which can be found in Table 3.2 of the "Canterbury Forecasting Report".
- Behavioural parameters such as values of time and vehicle operating costs have also been derived for the 2040 Forecast Year using data provided in the TAG Databook.

Figure 3-1 and Figure 3-2 present road network schemes modelled for the Canterbury Future Baseline in Canterbury local area and the city centre, respectively.

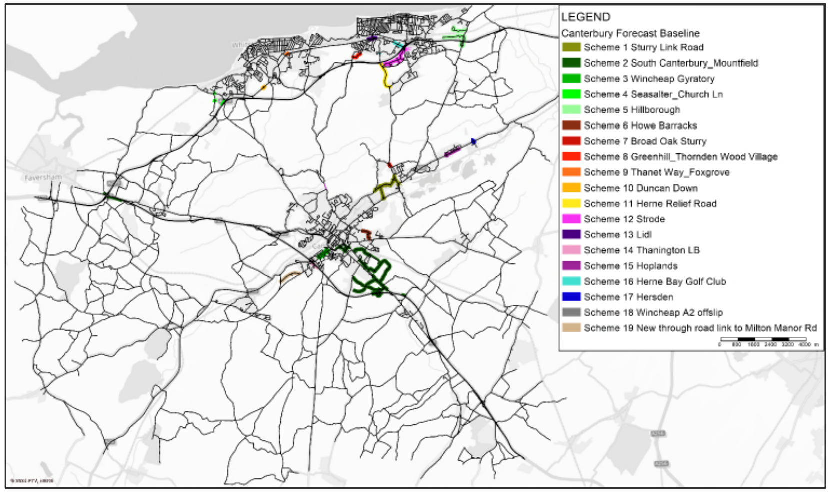

Figure 3-1: Canterbury Future Baseline Model – Schemes in Canterbury Local Area

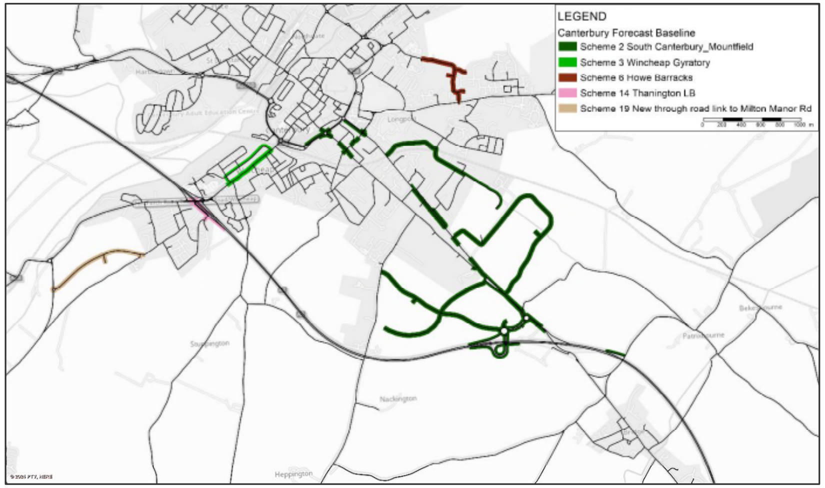

Figure 3-2: Canterbury Future Baseline Model – Canterbury City Schemes

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Merton Park, Canterbury

4 Merton Park and Site C7 Development Modelling

This section focuses on the Merton Park and Site C7 developments, describing their quantum, alongside their trip generation and trip distribution. The location of Merton Park and Site C7 developments are illustrated in Figure 4-1.

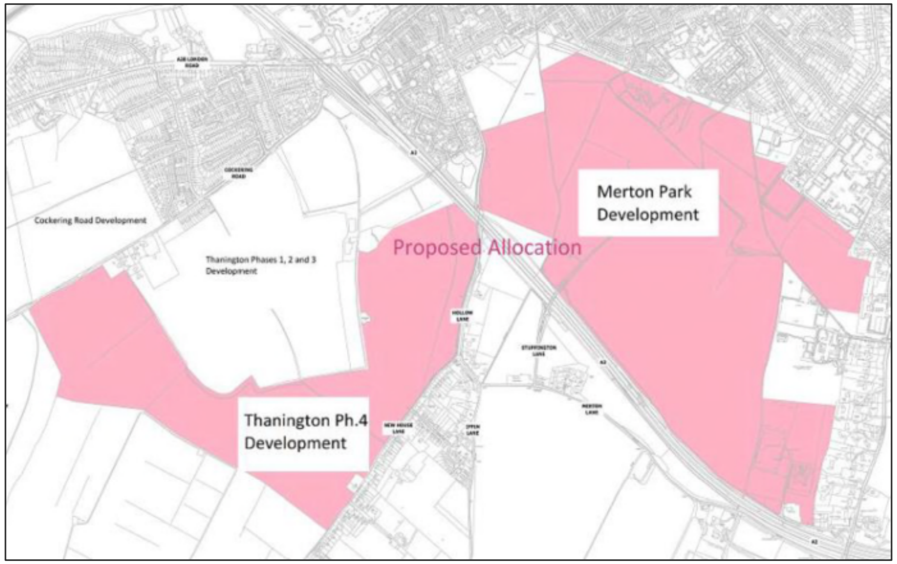

Figure 4-1: Merton Park and Site C7 (formerly referred to as Thanington Phase 4) Developments Location Map

4.1 Existing Scenarios

Jacobs recently prepared the following 2040 Forecast scenarios for the purpose of the revised Merton Park assessment (as detailed in Merton Park, Canterbury – Forecast Report, September 2024):

- 2040 Do Minimum (DM) scenario represents the latest Canterbury Future Baseline model;
- 2040 Do Something (DS) scenario represents the latest Canterbury Future Baseline model with Merton Park (split equally across the development access points) and network changes corresponding to the development access points; and
- 2040 refined Do Something (rDS) Scenario, which represents the DS scenario with Stuppington Lane closure between Merton Lane and Juniper Close and free assignment across the two access points.

The primary difference between the Do Minimum and Do Something scenario is the inclusion of demand and network changes associated with Merton Park development (**Figure 4-2**). The primary difference between the DS and rDS scenarios is the closure of Stuppington Lane and the free assignment of development trips across the two access points (**Figure 4-3** and **Figure 4-4**).

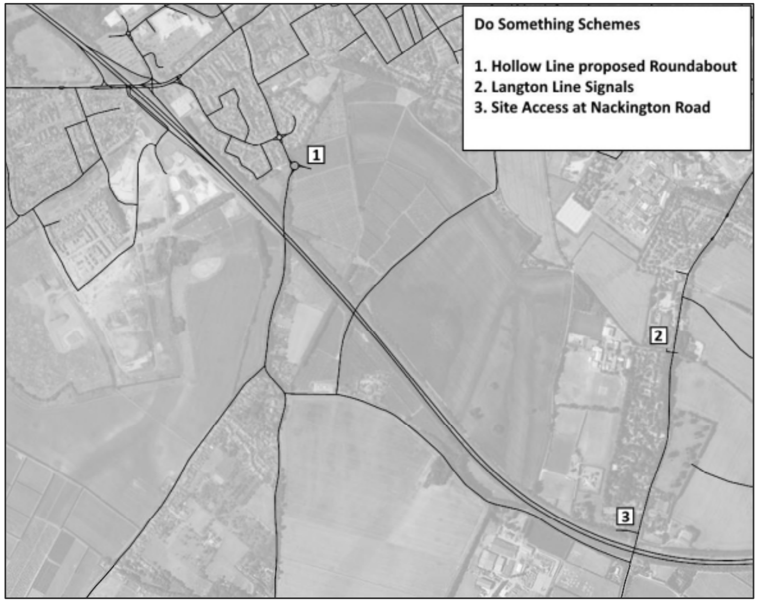

Figure 4-2: DS Merton Park Network Changes

The Merton Park development can be accessed by car from Hollow Lane (north-east direction) (1) and from Nackington Road (south-east direction) (3), while bus access is also provided in through a signalised junction at Nackington Road / Langton Lane (2). This is included in the DS model.

The closure of Stuppington Lane between Merton Lane and Juniper Close (**Figure 4-3**) and free assignment across the two access points (**Figure 4-4**) is included in the refined DS model. It should be noted that whilst the connectors appear to be different lengths, their lengths have been manually overwritten to ensure they are equally attractive.

Figure 4-3: Stuppington Lane Closure

Figure 4-4: Connectors for Merton Park Zone

4.2 New Scenario – Updated Do Something

As part of this work, a new scenario ('Updated Do Something') has been prepared to understand the combined impact of the Merton Park and Site C7 developments. The Updated DS network is built upon the refined Do Something (rDS) Scenario with the inclusion of the Site C7 development.

The Updated DS network includes the infrastructure associated with the Site C7 development in addition to the rDS network changes. The Site C7 development can be accessed by car from two access points along Miles Way (Figure 4-5). There is free assignment across the two access points.

Figure 4-5: DS Site C7 Network Changes

4.3 Development Quantum and Trip Generation

In order to calculate the number of trips generated by the Merton Park and Site C7 developments, the same trip rates accepted for use in calculating development trips in the earlier 2045 Canterbury forecast models were used. There were no other land uses or employment included within the trip generation for the Updated Do Something. The generated trips were reduced by 5% for sustainable travel, furthermore, Merton Park had a 5% internalisation reduction. A potential for cycle mode share reduction, PCT, was also applied. This is consistent with the methodology used for the development of the 2045 LP Option 5V3. The number of arrivals and departures for residential land use that were generated for AM and PM Peak periods are shown in Table 4-1.

Table 4-1: Arrivals and Departures from Merton Park and Site C7 Developments

	Development Type	Development Quantum	TOTAL			
			AM		PM	
			Departures	Arrival	Departures	Arrival
Merton Park	Residential Units (30% of which affordable)	2,075	**536**	**268**	**359**	**495**
	Retirement Homes	210				
Site C7	Residential Units (30% of which affordable)	735	**213**	**82**	**101**	**196**
	Retirement Homes	75				

Additionally, C&A Consulting assumed further reduction in the vehicular trip generation for Commute and Other trip purposes to reflect higher usage of sustainable means of transport and/or active travel. Jacobs was not involved in the calculation of the revised trip generation and as such will not provide any evidence to support the reduction.

4.4 Development Trip Distribution

The trip distribution of the development zones are obtained by selecting a donor zone, which has similar land use and sits in the vicinity of the development, from the base year model. This process was undertaken in order to accurately replicate the trip distribution of the development zone.

For the Merton Park development trip distribution, a donor zone 162916 (located near the proposed development location), was used to synthesize the pattern of trips to/from the development. This is consistent with the approach taken in the rDS scenario. The flow bundle figures and detailed description of the trip distribution for the Merton Park development are described in the Merton Park, Canterbury – Forecast Report, September 2024.

For the Site C7, development trip distribution, a donor zone 162916, which is located in close proximity to the proposed development location, was used to synthesize the pattern of trips to/from the development.

In the AM peak, of the modelled trips originating from the Site C7 development, 69% of flows leave to the east onto Miles Way. Of those trips, 34% continue onto Ledger Way and St Nicholas Road to reach the A2 northbound on-slip whilst the remaining 66% of trips continue on Basing Avenue to reach A28 where 40% join the A2 southbound and 60% continue eastbound into the city centre via A28 Wincheap. 31% of flows leaving Site C7 travel on Fairbrass Way to reach Cockering Road westbound and then A28 Ashford Road westbound where 50% of flows split onto Howfield Lane towards Chartham Hatch and the remaining 50% continue on A28 Ashford Road towards Ashford.

Of the trips arriving at Site C7 in the AM peak, 80% of flows arrive from the A2 or from the city centre via Basing Avenue. The remaining 20% of flows reach Site C7 from the west via A28 Ashford Road eastbound and Cockering Road.

In the PM peak, 80% of trips arrive at the development via Loverose Way, Basing Avenue and Miles Way from the city centre and from the A2 (both directions). Of the remaining 20% of trips arriving at the site, the majority of vehicles travel from A28 Ashford Road eastbound, to Cockering Road eastbound then Fairbrass Way to arrive at the site.

Of the trips leaving the site, 55% of trips leave to the east where 99% of those trips travel northbound on Basing Avenue to reach A28 Wincheap Road. Of those trips, 60% continue to the city centre via A28 Wincheap eastbound and the remaining 40% join A2 southbound towards Dover. 45% of trips leaving the development travel on Fairbrass Way where 15% travel westbound on Cockering Road towards Chartham whereas the remaining 85% of vehicles reach A28 Ashford Road westbound. Of the trips travelling westbound on A28 Ashford Road, the majority of vehicles turn onto Howfield Lane northbound towards Chartham Hatch where they join A2 westbound at Denstead Lane, and the remining 32% of trips continue westbound on A28 Ashford Road towards Ashford.

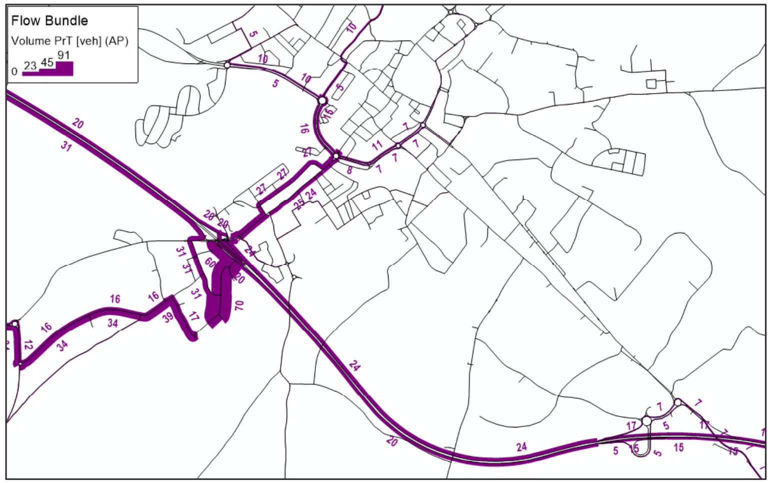

Figure 4-6: Flow Bundle, Site C7, DS AM

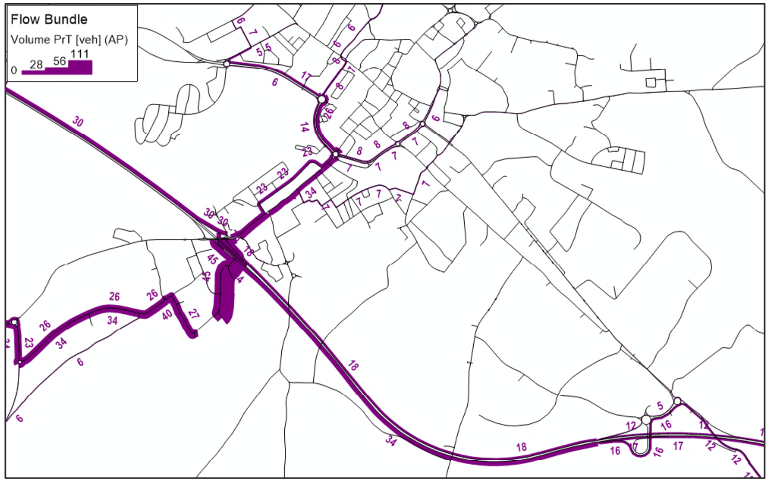

Figure 4-7: Flow Bundle, Site C7, DS PM

5 Assignment Results

A set of figures have been produced to show actual flows for the Updated DS scenario and actual flow differences between the Updated DS scenario and DM scenario. This is to help identify key areas of concern arising from the developments and the associated infrastructure.

Actual flow plots for the Updated DS model are presented in Figure 5-1 and Figure 5-2 and flow difference plots for Updated DS compared to DM are shown in Figure 5-3 to Figure 5-6

5.1 Actual Flow

In the AM, the greatest concentration of traffic flows in the close vicinity of the proposed developments are modelled along the A2 with up to 2,800 and 2,300 vehicles travelling eastbound and westbound respectively. The highest of these flows are noted north of the A2 / A2050 junction. In the city centre, there is a significant reliance on A2050 Rheims Way eastbound from London Road Roundabout to St Peter's Roundabout (1,781 vehicles) which continues onto A290 Rheims Way southbound approaching Wincheap Roundabout (1,933 vehicles), A28 Pin Hill eastbound approaching Riding Gate Roundabout (1,338 vehicles), and A28 Upper Bridge Street eastbound approaching St George's Roundabout (1,143 vehicles). This is due to the tidal nature of vehicles entering the city centre from major strategic roads, such as A2, and dispersing throughout the centre to reach their destination.

The PM peak shows a reliance on similar roads as the AM peak. The A2 notes flows of up to 2,200 and 2,300 in the eastbound and westbound directions, respectively, with the highest flows notes north of the A2 / A2050 junction. In Canterbury city centre, significant flows are noted travelling westbound along strategic roads including A28 Upper Bridge Street westbound approaching Riding Gate

Roundabout (1,235 vehicles), A28 Rhodaus Town westbound (1,405 vehicles), A290 Rheims Way northbound (1,686 vehicles), and A2050 Rheims Way westbound towards A2 (1,671 vehicles).

Site C7 notes 131 vehicles leaving and 87 vehicles arriving to the development in the AM peak across the two site access points. In the PM peak, 88 vehicles are seen to leave the site and 138 vehicles are noted arriving.

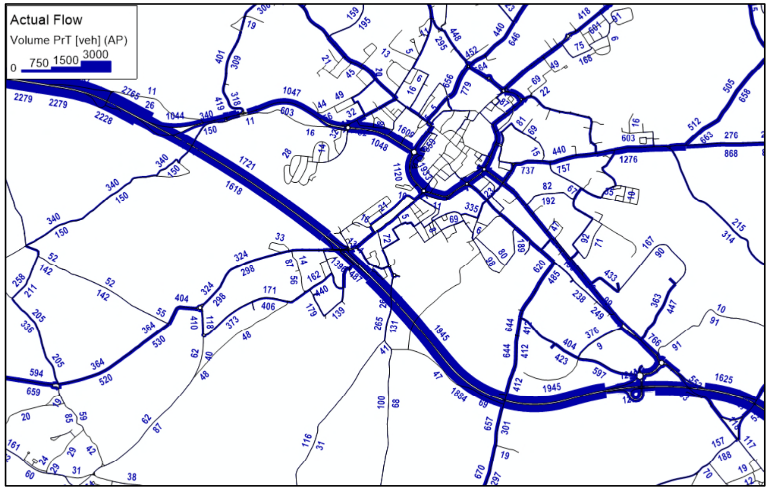

Figure 5-1: DS AM, Actual Flow

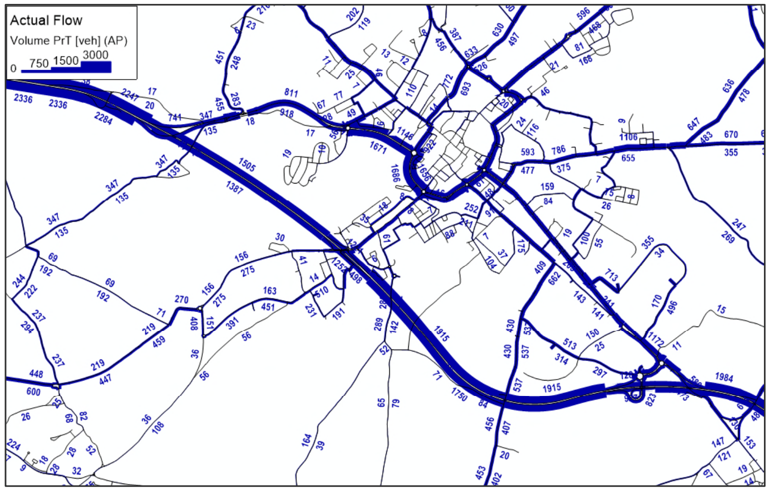

Figure 5-2: DS PM, Actual Flow

5.2 Actual Flow Difference

The flow differences between the Updated Do Something Scenario and the Do Minimum Scenario have also been analysed to understand the combined impact of the Merton Park and Site C7 developments and associated infrastructure changes.

In the AM peak (Figure 5-3 and Figure 5-4), the greatest difference of flow is noted leaving the Merton Park development onto Hollow Lane northbound (317 vehicles) and continuing onto Homersham westbound (236 vehicles) towards the A2. There is also an increase of 124 vehicles travelling northbound on Nackington Road, originating from Merton Park southern access point. Near Site C7, 73 more vehicles are noted travelling northbound on Basing Avenue towards A28 which is due to development demand

As a result of the Stuppington Lane closure, there are decreases of up to 176 vehicles noted on Merton Lane eastbound and 255 on Stuppington Lane northbound approaching South Canterbury Road. Vehicles are rerouting onto alternative parallel routes, such as Hollow Lane and Nackington Road.

The A2 notes increases of approximately 100 vehicles eastbound towards Dover. The westbound A2 flow also notes increases of approximately 90 vehicles except for the mainline flow between the new A2 junction and the A2 / A28 junction (-60 vehicles). This is because the A2 / A28 northbound off slip observes increased link delays in the Updated DS scenario, therefore, vehicles travelling from the southeast to the city centre are exiting earlier and rerouting onto local roads, such as A2050 Roman Road, to avoid the delays.

In the PM peak (Figure 5-5 and Figure 5-6), the greatest difference of flow is noted arriving at the Merton Park development from Hollow Lane southbound (113 vehicles) and Hollow Lane northbound (84 vehicles). There is also an increase of 187 vehicles travelling southbound on Nackington Road, arriving at the Merton Park development via the southern access point. At Site C7, there is an increase of 75 vehicles travelling southbound on Basing Avenue towards the eastern site access point, which is due to development demand.

The A2 notes increases of up to 100 vehicles eastbound towards Dover which is due to increased development flow from both Merton Park and Site C7 developments. The westbound A2 flow does not see any significant change in flow near Site C7, unlike the AM peak, however does note an increase of 113 westbound vehicles leaving the new A2 junction and travelling towards Merton Park southern access point.

As a result of the Stuppington Lane closure, there are decreases of up to 132 and 169 noted on Merton Lane westbound and Stuppington Lane southbound approaching Juniper Close. Vehicles are rerouting onto alternative parallel routes, such as Hollow Lane and Nackington Road.

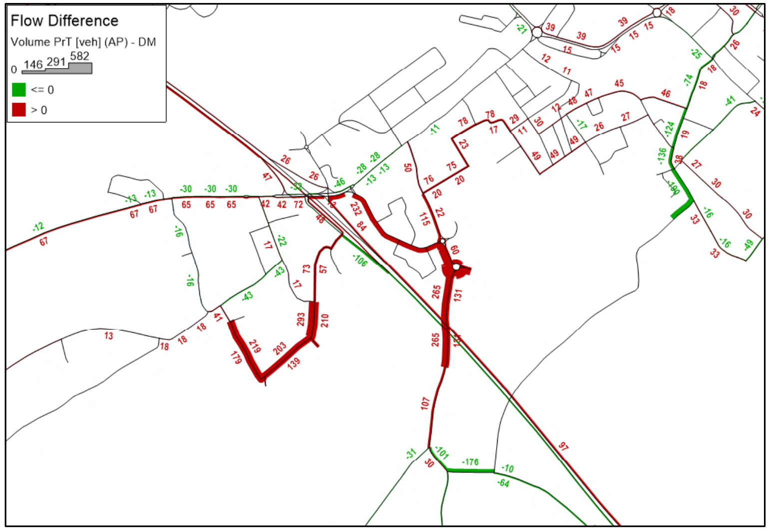

Figure 5-3: DS AM, Actual Flow Difference

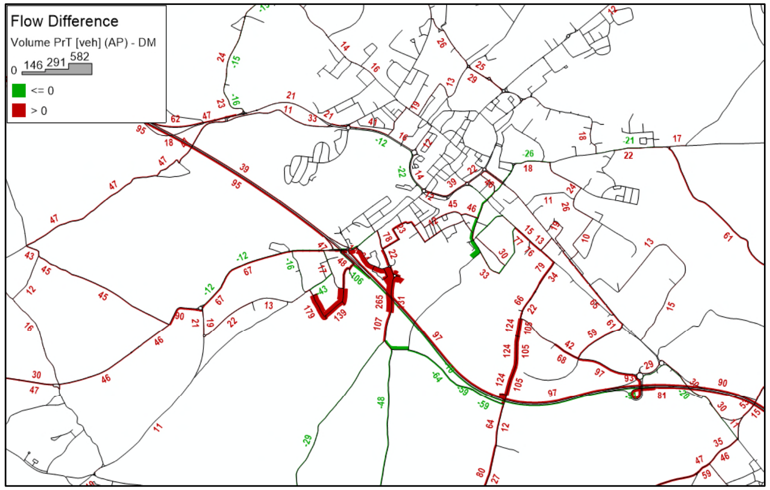

Figure 5-4: DS AM, Actual Flow Difference, Wider Extent

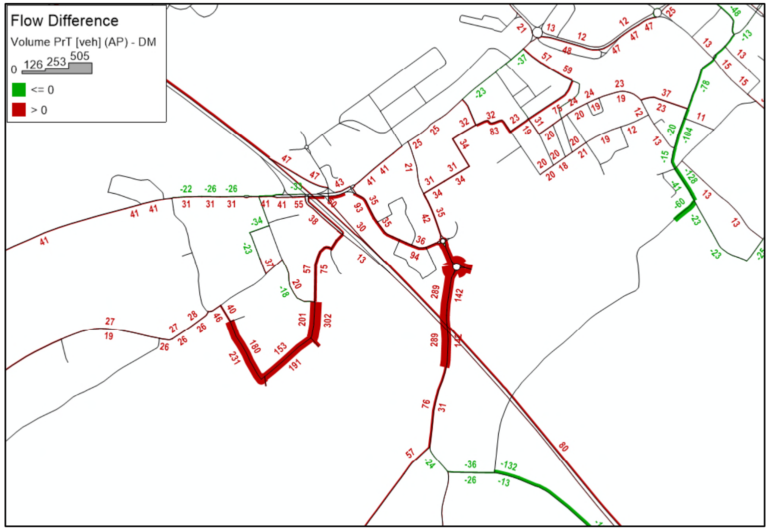

Figure 5-5: DS PM, Actual Flow Difference

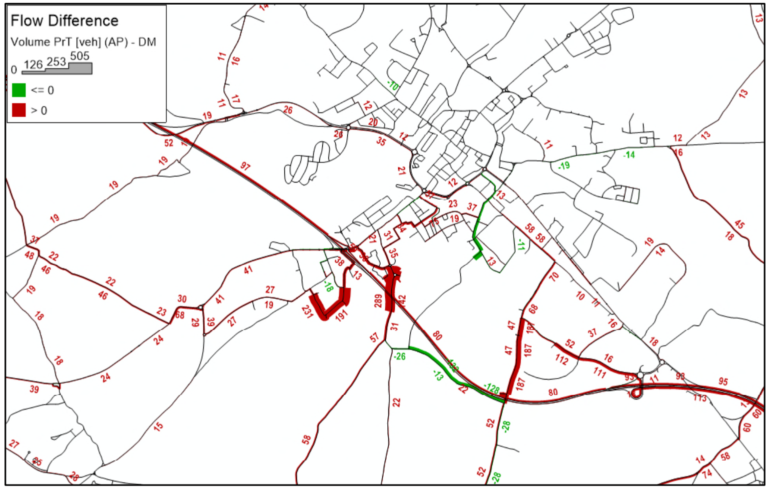

Figure 5-6: DS PM, Actual Flow Difference, Wider Extent

6 Summary of Findings

This Technical Note documents the modelling approach and assumptions used in the assessment of the proposed 2,075 residential units and 210 retirement homes at Merton Park and 735 residential units and 75 retirement homes at Site C7 (formerly referred to as Thanington Phase 4). It provides supporting material on the Canterbury VISUM Model build and provides an illustration of future network performance with which to provide confidence in the robustness of the model and its outputs.

For this study, the revised 2040 Local Plan model was used, incorporating the latest developer assumptions around development quantum, infrastructure and Merton Park P&R. The traffic demand was provided by C&A to reflect an assumption of sustainable/ active travel and therefore a reduction in the vehicular trip generation.

The flow bundle plots presented in this report demonstrate that the modelled distribution of trips arriving and departing from Site C7 in the AM and PM peak periods are reasonable, with no undue bias or illogical routing identified. The illustrated link flow plots demonstrate the robust assignment of trips in the model commensurate with the road hierarchy.

There are predicted increases on various routes to and from the proposed developments, including sections of the A2 and A28 in both directions, as well as local roads in Canterbury, such as Hollow Lane and Nackington Road. As a result, there are junctions which are predicted to experience link and turn delays which could be reviewed with further modelling. These include A28 Thanington Road / St Nicholas Road priority junction, A28 / A2 junction on- and off-slips and A2050 Roman Road northbound (AM peak only).

Appendix B CCC P&R Information

Hour	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
Date	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Occupancy	Total with Offset
01 August 2025	2	2	2	3	3	3	3	5	26	64	102	164	198	216	202	173	141	97	41	21	14	12	12	12	
02 August 2025	11	11	11	12	12	12	12	12	23	50	96	153	201	253	275	250	202	133	56	28	20	16	12	12	
03 August 2025	12	12	12	12	12	12	12	12	14	11	24	56	89	113	112	86	53	20	12	10	9	9	9	9	
04 August 2025	8	8	8	8	8	8	8	9	38	90	121	184	227	239	236	198	154	95	32	14	12	12	12	12	
05 August 2025	12	12	12	12	12	12	13	16	38	108	144	201	243	260	248	210	165	117	42	22	17	15	15	14	
06 August 2025	14	14	14	14	14	14	15	16	43	107	141	201	240	254	232	215	180	128	46	16	12	11	11	9	
07 August 2025	9	9	9	9	9	9	9	11	29	93	133	166	215	228	237	189	152	101	42	14	8	7	7	7	
08 August 2025	7	7	7	7	7	7	7	10	26	82	124	180	212	245	229	188	141	110	33	12	5	5	5	5	
09 August 2025	5	5	5	5	5	5	5	5	17	42	84	140	178	203	201	174	146	101	47	18	11	9	8	8	
10 August 2025	8	8	8	8	8	8	8	8	8	8	27	68	90	114	108	92	63	30	20	18	17	14	14	14	
11 August 2025	14	14	14	14	14	14	14	16	41	90	123	175	202	214	202	169	141	94	40	22	12	11	11	10	
12 August 2025	10	10	10	10	10	10	10	12	40	104	135	182	216	235	226	193	150	107	38	13	8	8	8	7	
13 August 2025	7	7	7	7	7	8	8	9	32	90	132	191	223	238	247	230	194	135	55	25	15	12	10	10	
14 August 2025	10	10	10	10	10	10	10	9	29	93	125	180	236	249	231	192	153	113	53	20	16	13	13	13	
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18 August 2025	8	8	8	8	8	9	9	9	34	99	137	192	247	261	241	203	164	110	40	14	6	4	3	3	
19 August 2025	3	3	3	3	3	3	3	7	28	84	116	173	216	232	219	184	151	93	32	15	11	7	7	6	
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21 August 2025	5	5	5	5	5	5	5	9	28	90	118	180	236	263	261	224	179	128	46	26	22	18	17	17	
22 August 2025	17	17	17	17	17	17	17	20	39	82	125	192	243	260	259	200	146	101	38	20	14	14	14	14	
23 August 2025	14	14	14	14	14	14	14	14	21	40	74	149	224	256	251	222	172	118	48	20	11	8	8	5	
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25 August 2025	9	9	9	9	9	9	9	10	10	22	46	104	141	167	157	131	92	43	21	12	8	7	7	7	
26 August 2025	7	7	7	7	7	7	7	10	37	99	141	215	245	255	245	222	162	119	41	18	16	13	13	13	
27 August 2025	13	13	13	13	13	14	14	18	36	100	132	198	248	274	273	233	189	118	43	25	15	12	11	11	
28 August 2025	11	11	11	11	11	11	11	12	29	96	133	199	261	284	268	236	189	127	47	18	17	13	13	13	
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08 September 2025	9	9	9	9	9	9	9	10	38	97	133	176	206	211	207	184	144	102	31	17	13	12	12	12	
09 September 2025	12	12	12	12	12	12	12	13	40	118	168	230	265	262	230	195	153	101	34	15	8	8	7	6	
10 September 2025	6	6	6	6	6	6	7	9	35	108	143	197	224	222	206	169	148	105	45	19	12	10	10	10	
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21 September 2025	9	9	9	9	9	9	9	9	9	11	24	50	92	105	108	85	48	27	20	19	18	18	17	16	
22 September 2025	16	16	16	16	16	16	16	19	46	155	207	276	306	314	285	241	175	105	41	15	10	8	8	8	
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29 September 2025	6	6	6	6	6	7	7	7	48	165	205	253	276	290	274	242	195	127	50	14	8	8	6	5	
30 September 2025	5	5	5	5	5	6	7	14	46	171	241	282	308	311	290	255	191	110	43	15	8	9	8	8	

Applied filters:date is on or after 01 August 2025 and is before 01 October 2025Location is Wincheap

Scrutiny Committee

Parking and Transport

5th March 2025

canterbury city council

Canterbury District Parking Strategy

The parking strategy is a key part of the Transport Strategy

Objectives:

- **To gradually reduce the amount of parking in the city centre and increase provision at Park & Ride sites (redistribute supply)**
- **To use tariffs to influence where people park**
- **To ensure there is sufficient overall capacity in Canterbury, Whitstable and Herne Bay to meet demand**
- **To ensure our towns and city remain competitive and attractive places to visit and invest**

canterbury city council

Parking strategy key actions:

- **To provide a Park & Ride site that meets demand from the A2 north-western direction**
- **To gradually reduce the number of spaces in the city centre**
- **To continue to increase the price differential between parking in the city centre and Park and Ride**
- **To provide dedicated bus lanes from Park & Ride sites into the city centre**
- **To provide zero emission Park & Ride buses within the next contract**

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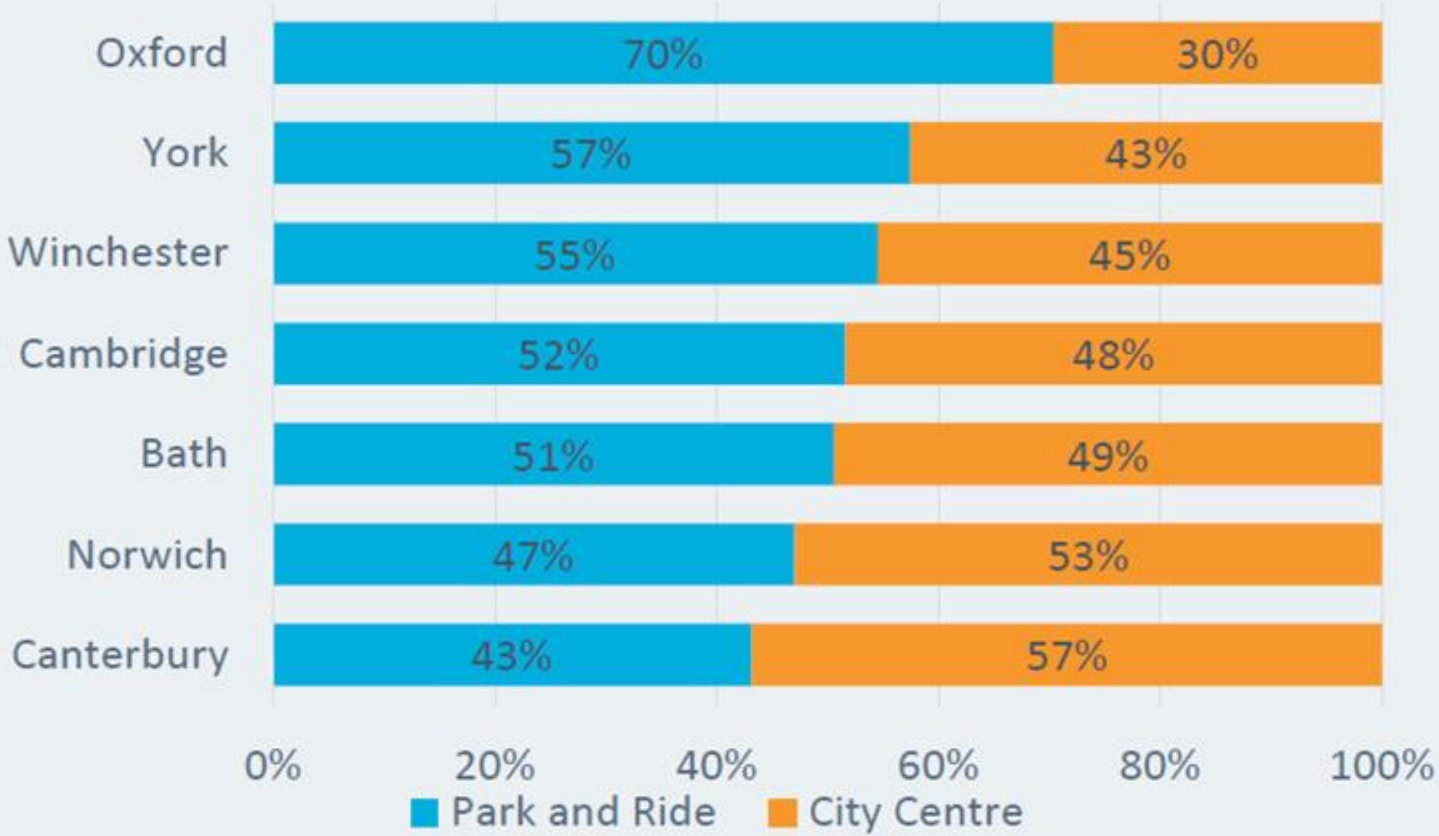
Existing provision: split of city centre / Park and Ride spaces



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Current parking supply in Canterbury

City centre	2,895 spaces	62%
Park & Ride	1,892 spaces	38%
Total	4,699 spaces	

Agreed changes

LUF (Castle Row/Longport/St Radigunds)	-59 spaces
Northgate (Medical surgery expansion)	-57 spaces
New Dover Road Park & Ride	+274 spaces
Wincheap Park & Ride	+310 spaces

Other allocations in Local Plan (no decision to progress)

Longport (Ivy Lane frontage)	-9 spaces
St Radigunds (Duck Lane frontage)	-28 spaces
Holmans Meadow (Dover Street frontage)	-28 spaces
St Johns and Hawks Lane	-87 spaces

Potential parking supply in Canterbury

City centre	2,627 spaces	51%
Park & Ride	2,476 spaces	49%
Total	5,119 spaces	

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Current peak occupancy and dwell Time:

- **% Average peak occupancy at Park and Ride sites**

New Dover Road	51% (weekday)	56% (Sat)	80% of pre-covid level
Wincheap	48% (weekday)	51% (Sat)	66% of pre-covid level
Sturry Road	19% (weekday)	21% (Sat)	52% of pre-covid level

- **Average dwell time**

Park and Ride sites	4 hrs 55 mins
Band 1 car parks	2 hrs 25 mins
Band 2 car parks	3 hrs 35 mins
Band 3 car parks	4 hrs 55 mins

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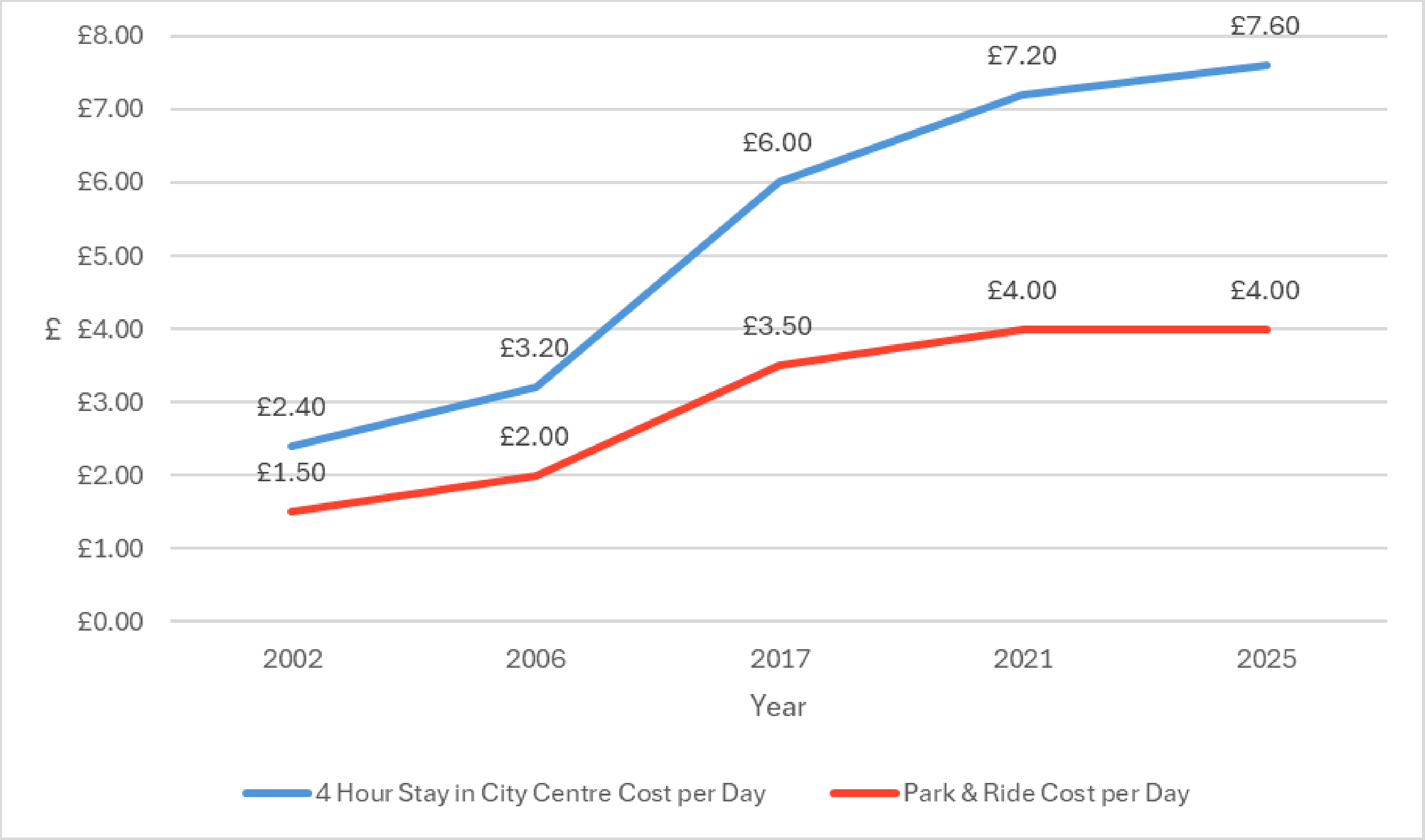
Park and Ride vs City Centre : Tariff Comparison



Other planned measures to increase Park & Ride usage

Continuous bus lanes from Park and Ride sites

Extended opening hours

Zero emission fleet - decision for the next contract in 2028

Canterbury District Transport Strategy 2014-2031

Objectives:

- To encourage greater use of sustainable modes of transport
- To manage the availability of car parking to balance the impact of car use with the need to provide access to services and opportunities
- To achieve reliable journey times across the transport network
- To reduce the number of journeys undertaken by private cars

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Walking and Cycling Measures

Implementation of the Local Cycling and Walking Implementation Plan (LCWIP)

Key Actions

- New and improved cycle routes
- Cycle sensors
- Cycle priority measures
- Improve cycle parking options
- Cycle hire scheme
- Public realm improvements

Bus Improvements

Key Actions

- Sturry Road Bus Lane, Wincheap Bus Lane (part of relief road/gyratory scheme)
- Bus stop infrastructure – shelters, real time information
- Improved ticketing/connectivity
- Pricing - fare caps
- Bus priority measures

Rail Improvements

Key Actions

- Canterbury West : platform lengthening
- Canterbury West : passenger access from north side (Roper Road)
- Canterbury West : signalling improvements
- Sturry : platform lengthening
- Whitstable : step free access between platforms

Appendix C A28 Corridor VISSIM Validation Report

Local Model Validation Report

A28 Wincheap Corridor

23-018-001 Rev -

March 2025

Charles & Associates

Document Control Sheet

Project Name:	A28 Wincheap Corridor
Project Number:	23-018
Report Title:	Local Model Validation Report
Report Number:	001

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
-	Draft	AT	CG	CG	JW	10/07/25

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Contents

1 Introduction

1.1.1 C&A Consulting Engineers have developed a microsimulation model of the A28 Wincheap corridor in Canterbury, Kent.

1.1.2 The A28 is the main route between Ashford and Canterbury and forms part of the Ring Road around the historic city centre. The section of the A28 through Wincheap includes a series of closely spaced signalised junctions including slip roads with the A2 dual carriageway, itself a major route between the M2 motorway and Dover. There is often interaction between these junctions and so microsimulation is the most appropriate modelling method for these conditions.

Figure 1.1: Study Area

1.1.3 The aim of the base model exercise, set out in this report, is to provide an accurate modelling framework and representation of existing conditions against which to test introduction of proposed developments and potentially associated infrastructure that will have an impact on the corridor.

1.1.4 This report has been prepared to set out in detail the methodology applied to construct and validate the base model so that it appropriately responds to the observed traffic conditions. The report also presents the validation process that has been undertaken, in order for the future year traffic scenarios and mitigation strategies to be assessed with high levels of confidence and to ensure that the model can be considered fit for the purpose to which it is intended to be applied.

1.1.5 Reference has been made to the national guidance on modelling in the first instance. However, this guidance Is aimed at wider area models and some criteria, such as that suggested for validation, may not be appropriate.

2 Model Approach and Scope

2.1 Scope

2.1.1 The A28 is a major route between Ashford and the regional centre of Canterbury. For this reason, it experiences high levels of congestion on weekdays, in both peak periods. The aim of this model is to provide a strong tool for assessing the A28 Wincheap corridor and the impact changes on the demand and/or the network could have on it. As such, all major junctions along the corridor have been considered within the geographic scope of the model.

2.1.2 There is broad tidality towards Canterbury city centre in the morning peak and away from Canterbury in the evening peak, correlating with its status as a regional trip attractor.

2.2 Study Network

2.2.1 The area of study covered the following junctions running broadly west to east:

- Junction 1 – Stranger's Lane/ A28 Ashford Road (priority junction);
- Junction 2 – St Nicholas Rd/ A28 Ashford Road[1] (priority junction);
- Junction 3 – A2 Nb on-slip/ A28 Ashford Road (signalised junction);
- Junction 4 – A2 Nb off-slip/ access to Saxon Fields / A28 Ashford Road (signalised junction);
- Junction 5 – A2 Sb on-slip/ A28 Wincheap/ Ten Perch Road (signalised junction);
- Junction 6 – Homersham/ A28 Wincheap (signalised junction);
- Junction 7 – Hollow Ln/ Cow Ln/ A28 Wincheap (priority junction);
- Junction 8 – Tudor Rd/ A28 Wincheap (priority junction);
- Junction 9 – Simmonds Rd/ A28 Wincheap (priority junction);
- Junction 10 – Wincheap Roundabout (A28 Wincheap /A290 Rheims Way/ A28 Pin Hill/Castle Street);
- Junction 11 – Ten Perch Road/ Morrisons (roundabout);
- Junction 12 – Ten Perch Road/ The Boundary (roundabout).

[1] This was a priority junction at the time of the surveys, although it has since been converted to signal operation

3 Data Collection

3.1 Time Periods

3.1.1 Although Canterbury city centre is a popular employment, education, retail and tourist attraction across all days of the week, the most congested periods for the Wincheap corridor are during weekday peak periods. As such, the survey data below was used to establish the peak periods, which are 07:30 to 08:30 for the AM peak period and from 16:00 to 17:00 for the PM peak period.

3.2 Traffic Survey Data

3.2.1 In order to produce an accurate model of a traffic network, the model must be informed by the collection of representative data of the current network, both to determine the traffic demand and to use as validation criteria.

3.2.2 The comprehensive data collection exercise was conducted by an independent survey contractor, Advanced Transport Research, and included the following:

1. On Thursday 23rd March 2023 for the periods 07:00-10:00 and 16:00-19:00:
   - Classified Junction Turning Counts and queue lengths for 12 Sites;
   - Pedestrian counts at 3 signalised crossings; and
   - ANPR Survey at 11 locations with site cameras recording the movement of traffic and journey times through the network cordon.
2. ATC data from Monday to Sunday of the week commencing on 20th March 2023 at 11 locations.

3.2.3 The Vehicle turning count data is shown in **Appendix A** and the pedestrian demand data is shown in **Appendix B**.

3.2.4 The Automatic Traffic Count (ATC) surveys were obtained to gather traffic volumes on five key links within the model area as shown in **Appendix C**.

3.2.5 Automatic Number Plate Recognition (ANPR) data was captured at the points shown below to enable calculation of traffic flows and journey times along the corridor. This data is shown in **Appendix D.**

Figure 3.1: ANPR locations at west end of model

Figure 3.2: ANPR locations at City end of model

3.2.6 The video outputs have been retained as a historical record and for later interrogation. Samples of these, as well as the full results of the surveys, can be made available on request.

4 Model Development and Calibration

4.1 VISSIM Model Specifications

4.1.1 The traffic model has been developed using the following specification:

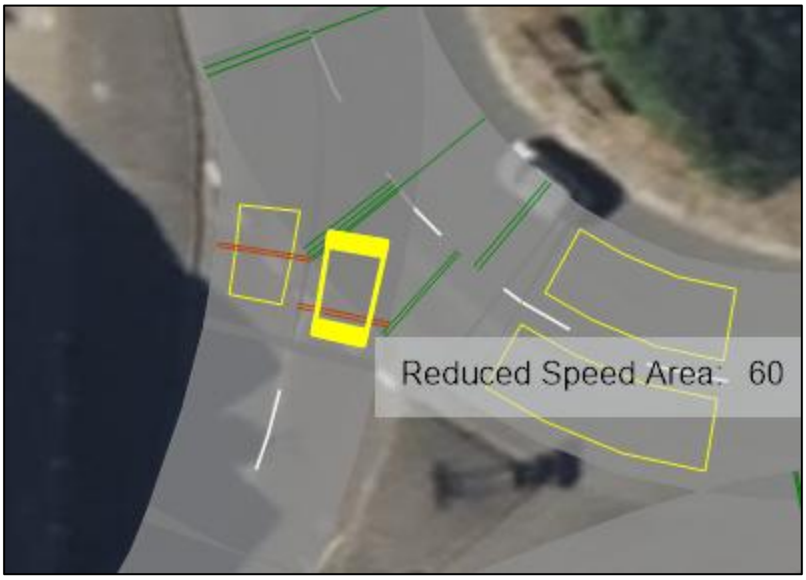
- VISSIM Version – 2023.00-02.
- Base Year – 2023.
- Time Periods: Weekday AM Peak period between 07:15 and 08:45 (includes 15-minute warm up and cool down periods) and PM Peak period between 15:45 and 17:15 (again inclusive of warm up and cool down periods);
- Evaluation Period: AM Peak period between 07:30 and 08:30, and PM Peak period between 16:00 and 17:00, based on the peak of all traffic on the network;
- Vehicle Types:
  - Lights (Cars, Taxis and LGVs);
  - Heavies (OGV1 and OGV2); and
  - Buses

4.2 Base Network Construction

4.2.1 The model has been coded using the aerial base mapping available in VISSIM. Each road has been coded using a continuous Link as far as possible. The Urban (motorised) vehicle behaviour was used as this is typical for urban conditions and it allows free lateral movement between lanes on dual carriageway sections such as A290 Rheims Way.

4.2.2 Reduced Speed Areas (RSAs) were used at junctions and road bends to simulate areas of deceleration on the network. This is a modelling process for which no exact data can be obtained in order to validate against on-street conditions. For this reason, reduced speed areas have been introduced with speed profiles one level lower than the ones applied to the respective corridors – for example for a main corridor profile of 50 mph a 40-mph profile for the reduced speed area was used. While not necessarily a fully accurate depiction of the reality, no irrational behaviour was observed during simulation runs.

Figure 4.1: Example of Reduced Speed Area at roundabout entry



4.2.3 The presence of pedestrian crossings, street furniture and short-stay on-street parking on parts of the A28 corridor was observed to create a general 'frictional' effect resulting in lower traffic speeds, so additional RSAs were applied to replicate these conditions.

Figure 4.2: Example of frictional street environment

4.3 Traffic Assignment

4.3.1 This is a static assignment model and so Vehicle Inputs were put at the edges of the network. A matrix of Static Routes was applied at each junction in the network to reflect observed turning proportions.

4.4 Pedestrians

4.4.1 The A28 is also a significant pedestrian corridor between the suburbs of Thanington and Wincheap and Canterbury city centre which lies at the east end of the model extent. Pedestrian demand was necessary for the signalised, demand dependant junctions as below:

4.4.2 For some of the junctions the data was collected directly as part of the survey. For the more lightly used pedestrian facilities, demand was ascertained through the video footage accompanying the survey data as shown below.

Table 4.1: Pedestrian Demand

Pedestrian Crossing Location	Movement/ Phase	Pedestrians per hour	
		AM	PM
Ped. Crossing - A28 Thanington Road (near Stranger's Lane)	A	5	4
	B	4	6
Ped. Crossing - A28 Wincheap (near Hollow Lane)	A	19	18
	B	8	34
Ped. Crossing - A28 Wincheap (near Hollow Lane)	A	123	67
	B	45	118
Signalised Junction - A28 Thanington Road A2 On	B	21	19
	F	21	19
	G	28	20
	H	26	20
Signalised Junction - A2 Canterbury Bypass - Thanington Road	F	35	28
	E	35	28
Signalised Junction - A28 Wincheap/ Ten Perch Road	A	17	9

Pedestrian Crossing Location	Movement/ Phase	Pedestrians per hour	
		AM	PM
	M	16	9
	B	16	9
	N	18	15
	C	2	6
	D	2	6
	O	47	37
	L	47	37
Signalised Junction - A28 Wincheap Homersham	F	13	21
	I	13	21
	J	36	35
	H	38	39
	G	38	39

4.5 Public Transport

4.5.1 **Table 4.4** summarises the bus services operating on the local network that have been identified and included in the models.

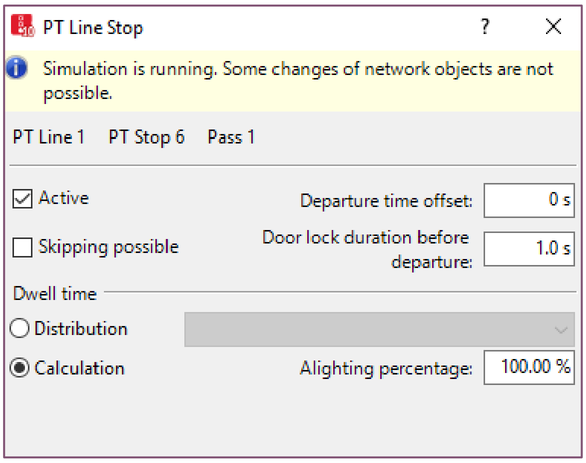
Table 4.2: Bus Lines and Timetables (Saturday peak) in the study area

Bus Line	Inbound		Outbound	
	AM	PM	AM	PM
Triangle	07:29	15:55	07:49	16:00
P2	07:20	15:52	07:20	15:48
Uni1 / UNI2 / 4		15:48	08:10	15:50
22	07:15	15:58	07:27	16:10
	07:45	16:31	07:57	16:40
	08:17		08:09	

Bus Line	Inbound		Outbound	
	AM	PM	AM	PM
			08:24	
3/ X3/ 3A	07:47	15:59	07:40	15:50
	08:07	16:21	08:20	16:10
		16:42		16:40

4.5.2 In the absence of any information on site measured dwell times for buses stopping along the route, bus stop dwell time parameters were set to defaults as shown below. These were found to broadly reflect observed conditions.

Figure 4.2: Bus Stop dwell time parameters

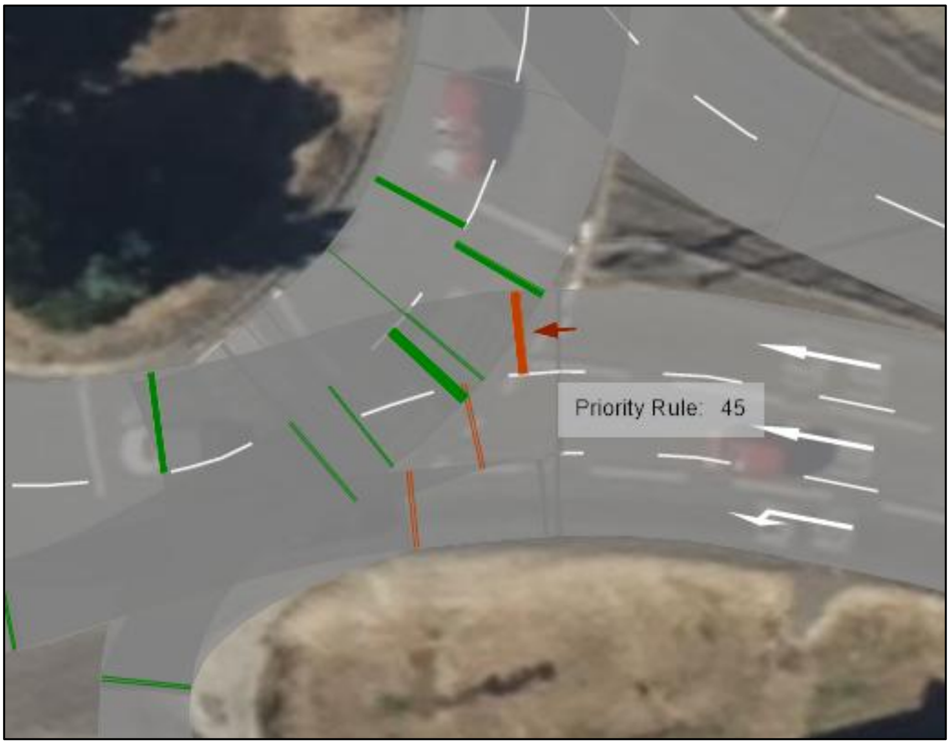


4.6 Roundabouts

4.6.1 As a starting point, the Priority Rules for the roundabout entries were coded using default settings for gap acceptance, which were then calibrated using the ARCADY equation as shown in **Appendix C**.

4.6.2 This process takes the benefits of the empirical data-based ARCADY capacity forecasts, derived from geometric design of the roundabout and codes it in to the VISSIM model. It should be noted this only relates to the specific interaction between circulating and entering traffic and does not carry over the overall modelling of ARCADY. This can be considered a proxy for modifying the model to reflects observed saturation flows, as might occur at a signalised junction but which cannot readily or reliably be observed at roundabouts.

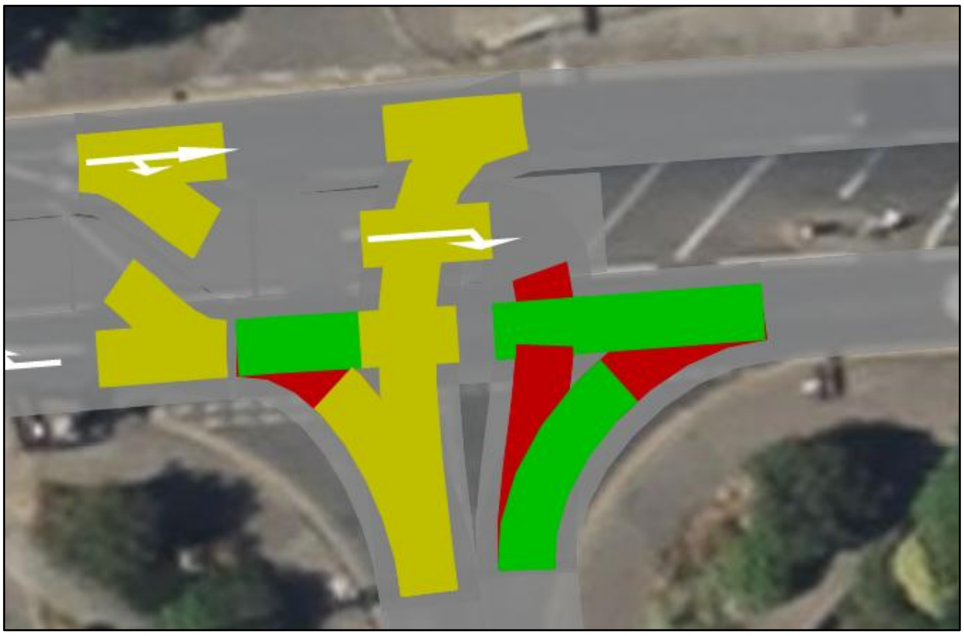
Figure 4.3: Example of Priority Rules at the Wincheap Roundabout



4.7 Priority Junctions

4.7.1 Priority junctions were coded using Conflict Areas as shown below and the default gap acceptance parameters were modified where appropriate to reflect observed behaviour. In some cases, additional Priority Rules were coded to avoid unrealistic blocking behaviour between the A28 mainline and the side roads.

Figure 4.4: Example of Conflict Areas at priority junction



4.8 Signalised Junctions

4.8.1 The signalised junctions of the A28 corridor include the following:

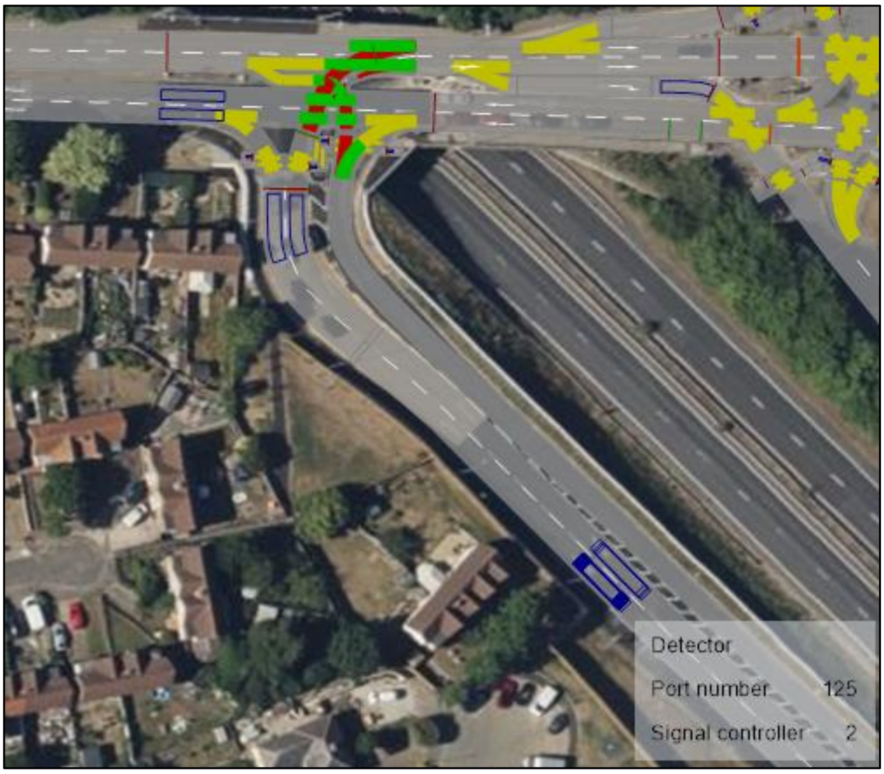
- Junction 3 – A28 Ashford Road / A2 Nb on-slip (signalised junction);
- Junction 4 – A28 Ashford Road/ A2 Nb off-slip (signalised junction);
- Junction 5 – A28 Wincheap / A2 Sb on-slip / Ten Perch Road (signalised junction);
- Junction 6 – A28 Wincheap / Homersham (signalised junction);
- Junction 9 – A28 Wincheap / Simmonds Road (signalised junction).

All junctions were coded using the staging, phasing and intergreen values from KCC data as shown in Appendix E.

4.8.2 Junctions 3, 4, 5 and 6 are demand-dependent junctions with close proximity to one another, while Junction 4 also has a hurry call operating. For this reason, the vehicle actuated programming module VAP was used, taking into account the KCC descriptions of the signal control logic,

4.8.3 As an example, the model includes Detectors on the A2 off-slip which are used to generate the hurry call to adjacent junctions if required. These are reflected in the VAP logic.

Figure 4.5: Detectors for demand-dependent signalling



4.8.4 It is worth noting that the A28 / St Nicholas Road junction, although now signalised, was functioning as a priority junction at the time the surveys were carried out, and therefore this is how it was configured in the base model.

4.8.5 The performance of the traffic signals in the model when this logic is applied was found to be representative of the on-ground conditions and was regarded as fit for purpose.

5 Model Validation

5.1 Static Assignment

5.1.1 Due to the minimal level of alternative routes available in the modelled network, traffic demand has been assigned statically to routes.

5.2 Model Validation

5.2.1 To confirm the suitability of the base model for use as an options testing tool, the model must be subject to a validation process. The validation process includes a comparison of the model and the actual network's operation, using certain performance criteria. The criteria used for validation should be based on data that was not used in the construction or calibration of the model.

5.2.2 Therefore, both AM and PM peak hour models were subject to validation once it was judged to be suitably calibrated. Although two separate exercises, in practice there is a need to iterate between the two; revisiting the calibration process and making further refinements, where initial validation was unsuccessful. However, the model should not be constructed on the basis of the validation data. The results presented in this section, and as presented in previous chapter, correspond to the same final validated base model.

5.2.3 As noted above, all validation data from the model was obtained through averaging of five random seeds.

5.3 Traffic Flow Comparison

5.3.1 The percentage difference between data sets can prove to be misleading given the relative value of the difference. The standard method therefore involves the calculation of the GEH statistic, which incorporates both the relative and the absolute errors.

5.3.2 For a given vehicle flow, the GEH statistic compares the modelled flow (M) with the observed flow (C) as follows.

$$\boldsymbol{GEH} = \sqrt{\frac{(\boldsymbol{M}-\boldsymbol{C})^2}{(\boldsymbol{M}+\boldsymbol{C})/2}}$$

.

5.3.3 In general a GEH value of < 5 represents an acceptable fit and conversely, a value >10 requires closer attention. According to TAG[2] the GEH value should not exceed 5 for 85% of assessed flows. Additionally, flows up to 700 vehicles/hour should be modelled within 100 vehicles/hour of the observed value, and flows between 700 and 2,700 vehicles/hour should be modelled within 15% of the observed value.

5.3.4 The flow comparison results are shown in **Appendix F**. The model flows on all network entry links network entry links achieve the above criteria. The majority of these are also within 5% of the observed value. A small number exceed the 5% limit but in these cases the absolute flow differences are in single figures, so this is not a concern.

5.4 Journey Time Comparison

5.4.1 In relation to journey times, TAG states[3]:

"4.3.20 For general purpose models, the routes for the validation of journey times should cover as wide a range of route types as possible and cover the fully modelled area in the model as evenly as possible. For models developed for the appraisal of specific interventions, routes should include those on which it is expected traffic will be affected by the scheme, as well as covering the route including the proposed scheme itself, if appropriate.
4.3.21 The validation routes should be neither excessively long (greater than 15 km) nor excessively short (less than 3 km). Routes should not take longer to travel than the modelled time periods (although, a few minutes longer is unlikely to be problematic).

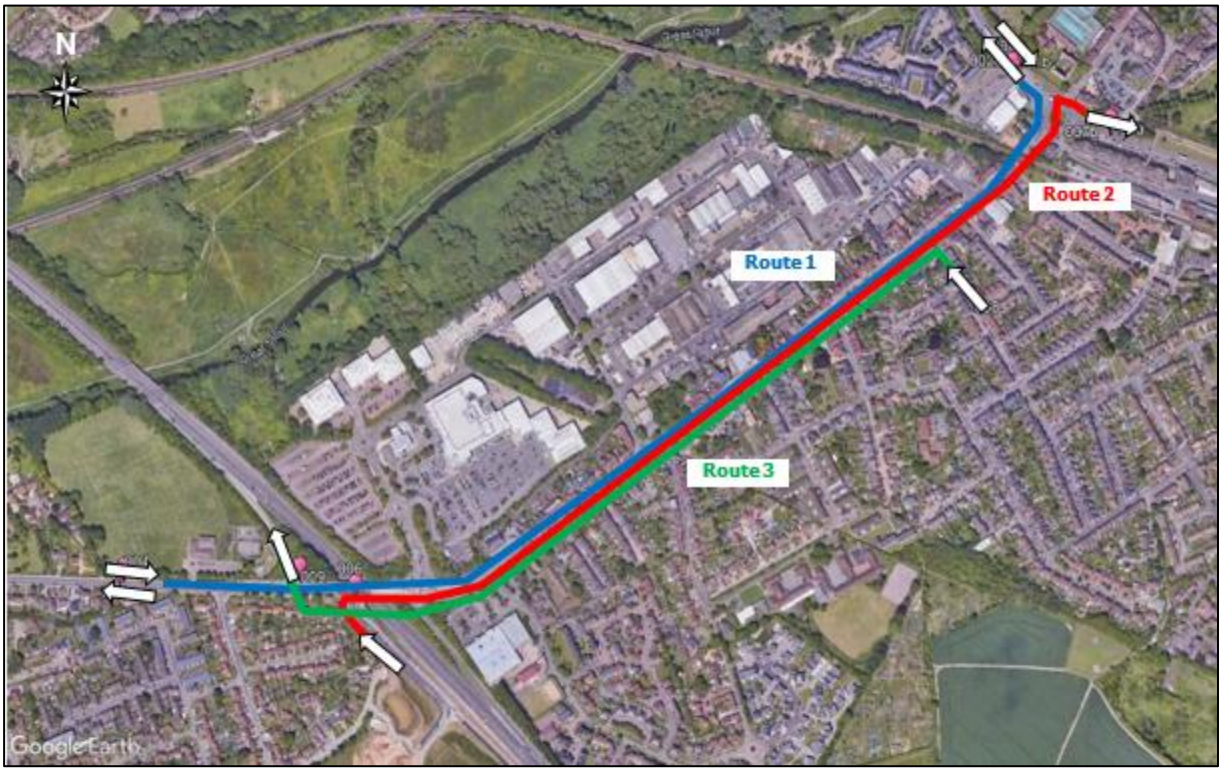
5.4.2 Data collected during the ANPR Surveys, carried out on Thursday 23rd March 2023, was used to validate the models for journey times. The use of ANPR data allows a much greater data sample than through manual methods which potentially has the benefit of being more consistent with the method of journey time sampling in the outputs from VISSIM, which are generally based on vehicles in the specified time period.

5.4.3 Four routes within the network covering the main movements in both directions were compared, as shown below:

1. Route 1 A28 westbound from A290 Rheims Way to Thanington
2. Route 1 A28 eastbound from Thanington to A290 Rheims Way
3. Route 2 – A28 eastbound from Thanington to A28 Pin Hill
4. Route 3 – A28 westbound from York Road to Thanington

[2] TAG Unit M3.1 Highway Assignment Modelling – Table 2
[3] TAG Unit M1.2 Data Sources and Surveys

Figure 5.1: Journey Time Sections



5.4.4 Journey times were validated based on TAG criteria, which recommends that the difference between observed and modelled journey times should be within 15% and 1 minute.

5.4.5 The journey time comparison is shown in **Appendix G**.

5.4.6 For the AM Peak, two routes achieved the 15% criterion (with the others showing differences of 17% and 18%) and three routes achieved the 1 minute criterion (with the other showing a difference of 72 seconds).

5.4.7 For the PM Peak, all four routes achieved the 15% criterion. Three routes achieved the 1 minute criterion (with the other showing a difference of 70 seconds).

5.4.8 It should be noted that in the AM Peak, the A2 on-slip junction was observed to use a different signal timing program between the first 15 minutes and the remainder of the peak hour. This cannot be replicated with the limitations of VISSIM and so this would account some of the journey time differences.

5.4.9 Overall the model is considered to broadly represent observed travel times through the network.

6 Summary and Conclusions

6.1.1 C&A have developed a microsimulation traffic model of the A28 Wincheap corridor including the junctions with the A2 dual carriageway, A290 Rheims Way and other intermediate junctions.

6.1.2 Observations including CCTV footage, traffic counts and journey times derived from ANPR data have been used to develop the model.

6.1.3 The model shows a good level of correlation between observed and modelled traffic flows and journey times.

6.1.4 The model is therefore considered to be a valid representation of observed traffic conditions in the weekday peak periods and is fit for the purpose of forecasting changes in traffic demand.

Appendices available on request due to file size.