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Project	Land We	st of Bewley Road, Angmering, West	Project No.	24-243	
Subject	Transpor	t & Highways Technical Note	Document No	TN01	
Prepared By	TW	Checked and Authorised By	TW	Date	OCTOBER 2024

# 1 INTRODUCTION

#### 1.1 SCOPE OF TECHNICAL NOTE

- 1.1.1 This Technical Note (TN) has been prepared by Velocity Transport Planning (VTP) on behalf of Angmering Parish Council (APC) for the purposes of evaluating a Transport Assessment (TA), submitted in support of an outline planning application (Reference: A/154/24/OUT) for a development proposal comprising of 190 residential units (Use Class C3) and a 600 sq.m community building (Use Class E(d, e) or F2(b)), together with the provision of open space, landscaping and associated infrastructure on land west of Bewley Road in Angmering, West Sussex.
- 1.1.2 A planning application (Reference: A/154/24/OUT) for the above-mentioned development proposal was submitted by Gleeson Land (herein referred to as 'the applicant') to the Local Planning Authority, Arun District Council (ADC) on the 15<sup>th of</sup> August 2024. This application was validated on 16<sup>th</sup> August 2024. A Transport Assessment and Framework Travel Plan (FTP), prepared by i-Transport was submitted in support of the planning application.
- 1.1.3 At the time of writing, the Local Highways Authority, West Sussex County Council (WSCC) had not submitted a formal consultation response to the planning application. Notwithstanding this, the applicant in conjunction with i-Transport conducted pre-application discussions with WSCC Highways in March 2024 to agree the scope of the TA, prior to the submission of the planning application.
- 1.1.4 This TN presents a review of the submitted TA, specifically with regards to the methodology of the baseline traffic and parking surveys, the latter of which was conducted along the entire section of Bewley Road, as well as the results of the junction capacity modelling assessments examining the performance of the proposed development on the local highway network during the weekday AM and PM peak hour periods. It also reviews the design of the site's proposed access arrangements including the Stage 1 Road Safety Audit (RSA) and Road Safety Audit Response. In addition, it reviews the submitted FTP, specifically with regards to the provision of 'hard' and 'soft' measures to assess whether the set targets are realistic and achievable.

### 1.2 STRUCTURE

- 1.2.1 The remainder of this TN is structured as follows:
  - Section 2 presents the results of the Technical Review.
  - Section 3 summarises the main conclusions.



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# 2 TECHNICAL REVIEW OF TRANSPORT ASSESSMENT

2.1.1 This section of the TN presents a review of the submitted TA in context with national, regional planning policy and best practice guidance.

#### 2.2 SITE ACCESSIBILITY CREDENTIALS

- 2.2.1 The accessibility of a site by a variety of sustainable travel modes is an integral part of both local, regional, and national planning policy, most notably:-
  - Paragraph no. 108 of the National Planning Policy Framework (NPPF, December 2023) states "opportunities to promote walking, cycling and public transport use are identified and pursued."
  - Paragraph no. 114 of the NPPF states that "appropriate opportunities to promote sustainable transport modes can be – or have been taken up, given the type of development and its location."
  - Paragraph no. 116 also states that priority should be given to pedestrian and cycle movements whilst facilitating "access to public transport routes with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use."

#### PEDESTRIAN, CYCLE, AND PUBLIC TRANSPORT NETWORK

2.2.2 The description of the site's location and its accessibility on-foot, by cycle, and by public transport to local amenities and destinations is considered to be accurate and adheres to best practice guidance.

#### PERSONAL INJURY ACCIDENT DATA

2.2.3 The review of personal injury accidents (PIAs) observed along the local highway network over the latest 5-year period is considered accurate.

#### **BASELINE TRAFFIC FLOW SURVEYS**

- 2.2.4 The raw data from the baseline traffic flow surveys are not attached to the submitted TA. It is not possible to verify the information presented in Tables 3.4, 3.5 and Images 3.6 and 3.7. The applicant and i-Transport are therefore requested to provide this information within a Transport Assessment Addendum (TAA).
- 2.2.5 The precise dates for when the manual classified turning count (MCTC) surveys were undertaken at the 6 local junctions listed in paragraph no. 3.8.5 is not known. This needs to be confirmed to ensure that the MCTC data is valid. Further, the raw data including queue lengths on each arm from the MCTC surveys are not attached to the submitted TA. Consequently, the applicant and i-Transport are requested to provide a copy of the raw data as part of a TAA.

#### **BASELINE PARKING SURVEY DATA**

- 2.2.6 Paragraph no's 3.8.7 and 3.8.8 of the submitted TA describe how a car parking 'beat' survey was undertaken at 15-minute intervals between 06:00 21:00 on Thursday 9<sup>th</sup> and Saturday 11<sup>th</sup> May 2024, along the full extent of Bewley Road.
- 2.2.7 From reviewing WSCC's pre-application advice (Reference: PRE-22-24), no reference is made to the parking 'beat' survey. It is therefore unclear whether the scope of the parking 'beat' survey with regards to timings and extent of study area has been formally agreed with WSCC's Highways Officer.



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#### 2.2.8 The following concerns are raised:-

- The results of the parking 'beat' survey including plans, which demonstrate how the on-street parking capacity has been calculated and the locations of parked vehicles are not attached to the submitted TA. In the absence of this information, it is not possible to verify whether the results presented in Table 3.6, which show the maximum number of parked vehicles and spare spaces are correct. Further, it is not possible to verify whether the parking 'beat' surveys have been undertaken by an independent data collection company. This raises a level of doubt on the objectivity of the results.
- The parking 'beat' surveys were undertaken within the same week as the 'May Day' Bank Holiday. It is reasonable to assume that a proportion of households living along Bewley Road would take annual leave during this period. National best practice guidance on undertaking parking 'beat'/'stress' surveys (i.e. 'the Lambeth Methodology') clearly states that "surveys should not be undertaken:
  - in weeks that include Public Holidays and school holidays, and it is advised that weeks preceding and following holidays should also be avoided;
  - on or close to a date when a local event is taking place locally since this may impact the results of the survey."
- The parking 'beat' surveys do not adhere to best practice guidance. It is reasonable to suggest that the results of the survey may underestimate the number of parked vehicles along Bewley Road, and therefore may not be fully representative of on-street parking conditions throughout a typical weekday and weekend.
- The parking 'beat' surveys were conducted during a 15-hour period on a single weekday (9<sup>th</sup> May) and weekend (11<sup>th</sup> May), and therefore provide a limited picture of on-street parking patterns along Bewley Road. National planning practice, most notably, the 'Lambeth Methodology' states that surveys "should be undertaken when the highest number of residents are at home, generally late at night during the week. A snapshot survey between the hours of 00:30 05:30 should be undertaken on two separate weekday nights (i.e. Monday, Tuesday, Wednesday or Thursday)." Consequently, the results of the survey are unlikely to capture the peak demand for on-street parking along Bewley Road, and reflect a 'worst' case scenario.
- 2.2.9 In light of the above-mentioned shortcomings, the applicant is requested to instruct an independent data collection company to undertake a parking 'stress' survey examining the demand for on-street parking spaces along Bewley Road in accordance with the widely used/accepted 'Lambeth Methodology'. The results of this survey should be presented to WSCC Highways.
- 2.2.10 Notwithstanding this, the results presented in Table 3.6 reveal that a parking 'stress' of 82% and 85% was observed on Thursday 9<sup>th</sup> and Saturday 11<sup>th</sup> May 2024, respectively with there being circa 7 and 6 spare spaces available. This indicates that Bewley Road is subject to a high parking 'stress'.
- 2.2.11 VTP conducted a site visit between 07:00 and 09:00 on Tuesday 19<sup>th</sup> September 2024 to examine the onstreet parking conditions along Bewley Road. A total of 30 vehicles were observed along the full length of Bewley Road. Vehicles were observed to be parked on both sides of the carriageway, near to the junctions with Fletcher Way and Older Way (see Figure 2-1). This effectively restricts significant sections of Bewley Road to one-way operation, creating conflict between motorised users travelling in an east and westbound direction.





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Figure 2-1: View of On-Street Parking along Bewley Road





- 2.2.12 Drawing No's 24-243-T-002-A to 24-243-T-010-A (attached at **Appendix A** of this note) show the location of parked vehicles observed along Bewley Road between 07:00 09:00 on Tuesday 19<sup>th</sup> September 2024.
- 2.2.13 The creation of a new access serving a residential-led development comprised of 190 units (Use Class C3) at the western end of Bewley Road, a section of highway that is already subject to a high parking 'stress' is likely to result in greater conflict between motorised and non-motorised users. Further, this may result in existing households parking vehicles on adjacent footways and highway verges to avoid them being damaged. This generates a highway safety concern.
- 2.2.14 Other than the provision of perpendicular parking spaces in the vicinity of the site's access, the applicant does not propose any mitigation to reduce the potential for conflict between motorised and non-motorised users along the sections of Bewley Road, which are subject to parking on both sides of the carriageway.

#### WALKING AND CYCLING AUDIT - HEALTHY STREETS

2.2.15 The methodology and outcome of the Walking and Cycling Audit presented in Section 3.9 of the submitted TA is considered to be reasonable and reflects best practice guidance. Enhancements in the form of tactile paving at the junctions of Bewley Road/Arundel Road, and Rectory Lane/Arundel Road together with the provision of a widened PRoW network and all-weather surface is proposed.

#### 2.3 PROPOSED ACCESS ARRANGEMENTS

#### **VEHICULAR ACCESS**

- 2.3.1 Whilst WSCC's written Pre-Application Advice (dated 25<sup>th</sup> March 2024) states that "no concerns would be raised with the existing width of the existing carriageway of Bewley Road which does have on-street parking present", it is unclear if WSCC Highways Officer had conducted a site visit to assess on-street parking patterns during the peak periods of demand (i.e. the night-time period between 00:30 and 05:30).
- 2.3.2 As described in Section 4.2 of the TA, the site's proposed access takes the form of an extension to the culde-sac with a road narrowing feature located either side of PRoW 2176. The carriageway is shown to narrow from 5.5 to 3.7-metres with 2.0-metre wide footways provided on both sides of the access. Motorised users would be afforded 43.0-metre inter-visibility, which is in accordance with the likely speed of vehicles travelling in an east and westbound direction.



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- 2.3.3 In addition, paragraph no. 4.2.4 states that the parking adjacent to the site's proposed access will be formalised with the driveway access to no's 42 and 44 Bewley Road re-provided. Drawing No. ITS19620 Rev G shows that the turning head currently used for parking, adjacent to no. 39 Bewley Road would be formalised to provide two perpendicular car parking spaces.
- 2.3.4 The removal of this turning head together with the creation of a new access would require households at no.'s 42 and 44 to undertake multiple/awkward manoeuvres when exiting from the private driveway in reverse gear, leading to potential conflict between motorised and non-motorised users. Further, as identified by the independent Auditor (Fenley) undertaking the Stage 1 Road Safety Audit (RSA), the formalised car parking spaces along the northern side of Bewley Road appear to be provided along the likely pedestrian desire line.
- 2.3.5 Whilst Section 4.3 of the submitted TA presents a summary of the independent Stage 1 RSA. A complete copy is attached at Appendix E. However, following a review, it is clear that the Design Organisation Response does not comply with the Design Manual for Roads and Bridges (DMRB) publication 'GG 119 Road Safety Audit' publication. Consequently, a GG119 compliant Road Safety Audit Response is required to be submitted by the applicant/i-Transport, as part of a TAA in support of the planning application.

#### 2.4 TRIP GENERATION AND DISTRIBUTION

- 2.4.1 The methodology for deriving the multi-modal trip generation of the proposed development and distribution/assignment on the local highway and transport networks is considered reasonable and adheres to best practice guidance (i.e. TRICS Good Practice Guide, 2024).
- 2.4.2 Notwithstanding this and in similar regard to comments expressed by National Highways (NH/24/07569) within their consultation response dated 17<sup>th</sup> September 2024, other than a traffic distribution diagram showing outbound trips (attached at Appendix H), no other information on the baseline, development, committed development, and future traffic flows is attached to the submitted TA.

#### 2.5 COMMITTED DEVELOPMENT

2.5.1 There is no mention/evidence within the TA on whether ADC have been consulted on or have confirmed other committed developments, which need to be factored into the highway impact assessments. There is no mention on whether the growth factors from the TEMPro model have been amended to reflect other committed development sites. This does raise a concern on the accuracy of the junction capacity modelling results presented in the TA. Confirmation in this regard is therefore sought from the applicant/i-Transport.

#### 2.6 HIGHWAY IMPACT ASSESSMENT

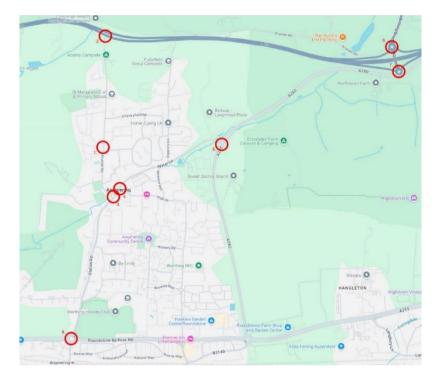
- 2.6.1 This section of the note reviews/provides comment on the junction capacity modelling exercise undertaken by i-Transport as part of the submitted TA.
- 2.6.2 The 8 junctions that were assessed are listed below and shown in **Figure 2-2**.
  - Bewley Road/Arundel Road Priority Junction
  - A27/Arundel Road Priority Junction
  - Arundel Road/Water Lane Priority Junction
  - High Street/Water Lane Priority Junction
  - Water Lane/A280 Priority Junction



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- A280/A27/Arundel Road Roundabout (North)
- A280/A27/Titnore Lane Roundabout (South)
- Blue Star Roundabout

Figure 2-2: Local Junctions



- 2.6.3 Industry standard software (Junctions 10) has been used to build individual capacity models for the 8 junctions.
- 2.6.4 A site visit was undertaken on 17<sup>th</sup> September 2024 to observe the junction during the morning peak and note any potential impacts on the existing capacity of the junctions.
- 2.6.5 As part of the review of the junction capacity assessments the following parameters have been checked/considered.
  - The geometry used within the junction models (Appendix J of the i-Transport report contains the measurements, however they are not legible, and we are unable to confirm if these have been taken accurately).
  - ① Ratio to Flow Capacities (RFCs) are within a reasonable/acceptable range for the baseline modelling.
  - Queues within a reasonable/acceptable range for the baseline modelling.
  - The profile used for traffic flows.
  - Review of turning proportions at junctions with more than one lane entry.





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## BEWLEY ROAD/ARUNDEL ROAD PRIORITY JUNCTION

2.6.6 Bewley Road/Arundel Road is a simple priority junction with a one lane exit. There is no ghost island right turn lane on Arundel Road. The layout of the junction is shown in **Figure 2-3**.

Figure 2-3: View of Bewley Road/Arundel Road Priority Junction



- 2.6.7 The geometry inputted into the junction model and used as the basis for the capacity assessment appear reasonable and are reflective of the physical and practical geometry of the junction.
- 2.6.8 The highest RFC of 9% is within the AM Peak hour on the minor arm of the junction (Bewley Road). This is reasonable given the low level of traffic coming out of the junction (37 vehicles).
- 2.6.9 The reported maximum average queue of 0.1 vehicles is also reasonable, given the low level of traffic coming out of the junction.
- 2.6.10 A one-hour traffic flow profile type has used for the analysis. This type of profile is considered robust, as a higher proportion of traffic arrives in the middle of the hour, representing a peak within the hour.



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### A27/ARUNDEL ROAD PRIORITY JUNCTION

2.6.11 The A27/Arundel Road is a left in/left out priority junction with a one lane exit. The layout of the junction is shown in Figure 2-4.

Figure 2-4: View of A27/Arundel Road Junction



- 2.6.12 The geometry inputted into the junction model and used as the basis for the capacity assessment appear reasonable and are reflective of the physical geometry of the junction. The entry width is measured at 4.82m wide, however upon visiting the site it was evident that the junction is only wide enough for one car at the give way line and measurement of between 3.0m-3.5m would be more representative of the on-site conditions. This is not expected to have a material impact on the capacity at the junction.
- The highest RFC of 41% is within the AM Peak hour on the minor arm of the junction (Arundel Road). This is 2.6.13 reflective of the on-site conditions on the morning of the site observation and is considered reasonable give that vehicles can only turn left in/left out.
- 2.6.14 The reported maximum average queue of 0.7 vehicles is reflective of the on-site conditions on the morning of the site observation. The queue rarely got above 1 vehicle during the observation period, with vehicles experiencing a slight delay when waiting at the give way line for a gap in the west bound traffic along the A27.
- 2.6.15 A one-hour traffic flow profile type has used for the analysis. This type of profile is considered robust, as a higher proportion of traffic arrives in the middle of the hour, representing a peak within the hour.





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### ARUNDEL ROAD/WATER LANE PRIORITY JUNCTION

2.6.16 Arundel Road/Water Lane is an all-movements priority junction, the exit lane and the entry lane are split by an island approximately 40m in length which segregate the entry and exit movements. In the centre of the island there is a signalised pedestrian crossing. The layout of the junction is shown in **Figure 2-5**.

Figure 2-5: View of Arundel Road/Water Lane Priority Junction



- 2.6.17 The entry arm is modelled as a two-lane approach with lanes at 3.04m wide. Whilst the junction does have enough width for two lanes for 30m back from the give way, the results should be treated with caution as a larger vehicle waiting to turn out of the junction would block both lanes. Given that the HGV movements at this junction are relatively low, it is accepted that a two-lane approach is the acceptable, however, the lanes should be measured at 2.7m wide (5.4m total width, measured across Arundel Road back of any flare).
- 2.6.18 The highest RFC of 54% is within the AM Peak hour on the minor arm of the junction (Arundel Road). This is reflective of the on-site conditions on the morning of the site observation.
- 2.6.19 The reported maximum average queue of 1.1 vehicles is generally reflective of the junction conditions during the observation, however, there were times when the queues greatly exceeded this. This is due to queues along both Water Lane and Arundel Road quickly building up when the pedestrian crossing is being used. During the observation of the junction, it was apparent that the crossing is heavily used by school children wishing to cross Water Lane. It should be noted that there was good driver interaction and drivers left gaps in traffic where possible. This helped in keeping traffic moving through the junction and queues dissipated relatively quickly. There are functions within Junctions 10 software that allow for the modelling of pedestrian crossings close to junctions, this should be considered and included within the model to reflect on-site conditions more accurately.



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2.6.20 A one-hour traffic flow profile type has used for the analysis. This type of profile is considered robust, as a higher proportion of traffic arrives in the middle of the hour, representing a peak within the hour.

2.6.21 Given that the modelling exercise is operating close to its practical capacity in the future scenarios, the suggested amendments of the junction models could suggest that mitigation measures are required at this junction.

### HIGH STREET/WATER LANE PRIORITY JUNCTION

2.6.22 High Street/Water Lane is an all-movements priority junction, the exit lane and the entry lane are split by an island approximately 10m in length which segregate the entry and exit movements. The layout of the junction is shown in **Figure 2-6**.





- 2.6.23 The geometry inputted into the junction model and used as the basis for the capacity assessment appear reasonable and are reflective of the physical geometry of the junction. The entry arm is modelled as a one-lane approach with a lane width of 4.15m.
- 2.6.24 The highest RFC of 24% is within the AM Peak hour on the major arm of the junction (right turn from Water Lane to High Street). This is reflective of the on-site conditions on the morning of the site observation.
- 2.6.25 The reported maximum average queue of 0.4 vehicles is reflective of the on-site conditions on the morning of the site observation. The queue rarely got above 1 vehicle during the observation period, with vehicles experiencing a slight delay when waiting to turn right into High Street.
- 2.6.26 A one-hour traffic flow profile type has used for the analysis. This type of profile is considered robust, as a higher proportion of traffic arrives in the middle of the hour, representing a peak within the hour.





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## WATER LANE/A280 PRIORITY JUNCTION

2.6.27 The Water Lane/A280 priority junction is left out only. There is a kerb central reserve pocket to allow for right turning movements into Water Lane. The layout of the junction is shown in **Figure 2-7**.

Figure 2-7: View of Water Lane/A280 Priority Junction



- 2.6.28 The geometry inputted into the junction model and used as the basis for the capacity assessment appear reasonable and are reflective of the physical geometry of the junction. The entry arm is modelled as a one-lane approach with a lane width of 4.0m. The right turn lane is modelled to have stacking capacity for up to 13 PCUs.
- 2.6.29 The highest RFC of 63% is within the PM Peak hour on the major arm of the junction (right turn from the A280 into Water Lane). Although the site was not examined during the PM Peak hour, this is reflective of the on-site conditions on the morning of the site observation.
- 2.6.30 The reported maximum average queue of 1.6 vehicles (PM Peak) is reflective of the on-site conditions on the morning of the site observation. This queue could easily be accommodated within the right turn storage for the junction.
- 2.6.31 A one-hour traffic flow profile type has used for the analysis. This type of profile is considered robust, as a higher proportion of traffic arrives in the middle of the hour, representing a peak within the hour.



